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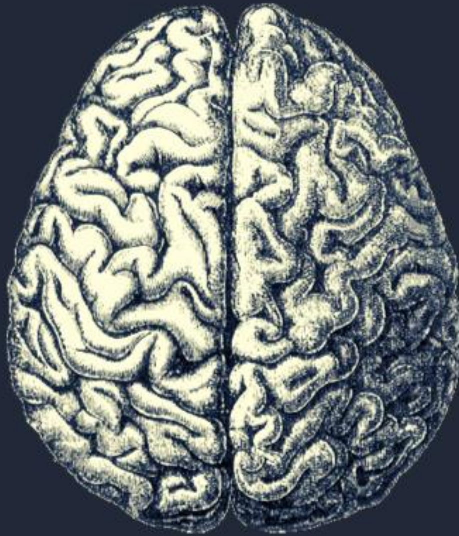
(16th - 19th October 2019)



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BOOK OF ABSTRACTS

THE 45TH CONGRESS RSN

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THE ROLE OF THE FENESTRATION OF LAMINA TERMINALIS IN PREVENTING HYDROCEPHALUS AFTER ANEURYSMAL SUBARACHNOID HAEMORRHAGE: IS IT STILL RELEVANT?

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Objectives

In case of neurosurgical treatment of ruptured cerebral aneurysms of the anterior circulation overall literature seems to advocate for fenestration of the lamina terminalis (1) with the purpose of reducing the rate of consequent hydrocephalus. However, many studies (1, 2) have questioned this practice, casting doubt on its' efficacy. We aimed to contribute with some data regarding this issue by analysing a single surgeon series of over 1000 operated aneurysms.

Materials and Methods

This single centre, single surgeon study is based on 944 patients with a total of 1113 aneurysms operated on between 1997- 2018. Patients with ruptured anterior circulation aneurysms in whom fenestration of the lamina terminalis was performed were looked at separately. We paid particular attention to 100 prospectively observed patients.

Results

The relative risk of developing postoperative hydrocephalus was 1,04 (95% [CI 0.3 - 3.63]) in the group where the lamina terminalis wasn't fenestrated as compared to the group where this procedure was performed. There was no significant difference regarding the

rate of hydrocephalus in patients in whom fenestration of the lamina terminalis was performed (p=1 – Fisher test).

CONCLUSIONS
Based on our series, fenestration of the lamina terminalis does not influence the risk of developing hydrocephalus. The present paper analyses one of the largest single surgeon series available in the scientific literature contributing with valuable data to this technical question.

KEYWORDS
cerebral aneurysm, subarachnoid haemorrhage, lamina terminalis

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CENTRAL NEUROCYTOMA. A RARE INTRAVENTRICULAR TUMOUR WITH ATYPICAL FEATURES

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OBJECTIVES

The preoperative differential diagnosis using clinical manifestations and imagistic appearance Atypical Features of the Central Neurocytoma Central neurocytoma, classified as a WHO grade II neuroepithelial tumour, is a rare brain neoplasm, which accounts for less than 1% of intracranial tumours, with increased incidence between 20 and 40 years of age and no gender predilection reported. The most frequent localization of central neurocytoma is intraventricular, often the lateral ventricles around the foramen of Monro. Clinical presentation is typically represented by the symptoms of increased intracranial pressure.

MATERIALS AND METHODS

A 35-year-old man, attended to the emergency department with confusion syndrome, symptoms of increased intracranial pressure and right-sided crural monoparesis, with sudden debut two weeks prior. CT head scan revealed a heterogeneous mass located in the left lateral ventricle, with median line embedding and minimal development to the right ventricle, which associated a cystic intraparenchymal component, developed in the superior pole, along with multiple cystic and calcified areas in the inferior pole. The patient was hospitalized for lesion investigation and treatment. A head MRI with contrast was performed, which showed hyposignal on T1 and T2 weighted sequence, hyperintense lesions

in FLAIR, and contrast enhancement just in solid component. The lesion also involved the septum pellucidum, which was displaced toward the opposite side, and exercised a mass effect on the ventricular system through left sided foramen of Monro compression. Cerebral angiography revealed a tumour blush supplied by neoformed vessels from choroidal vessels. He underwent surgery, using the microsurgical technique and neuronavigation for complete resection of the tumour.

RESULTS

After surgical intervention, symptomatology of increased intracranial pressure remitted, but the patient presented right-sided hemiplegia, which required neuromotor rehabilitation. Clinical evolution was relatively favourable, with right-sided hemiparesis.

CONCLUSIONS

The differential diagnosis of lateral ventricular tumours is frequently complex and difficult, as clinical manifestations and MRI appearance of intraventricular neoplasms are often nonspecific or uncommon. In this case, the age of the patient and the tumour location sustain the diagnosis of central neurocytoma, but clinical features and MRI appearance are atypical, and impose differential diagnosis with ependymoma, subependymoma, choroid plexus papilloma, intraventricular meningioma, and subependymal giant cell astrocytomas. Cerebral angiography excludes choroid plexus papilloma and subependymoma.

KEYWORDS

lateral ventricle tumours, central neurocytoma, differential diagnosis

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SURGICAL STRATEGIES AND CLINICAL RESULTS OF LARGE TO GIANT SPHENOID WING MENINGIOMAS

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Objectives

Sphenoid wing meningiomas (SWM) represent a very challenging pathology especially when the tumour reaches a very large size. The giant SWMs engulf the major brain arteries increasing the surgical risk especially for venous or arterial stroke. The goal of this study is to evaluate how the tumour s extension to the surrounding structures affect the clinical outcome and the radicality of the tumour resection.

Materials and Methods

This is a retrospective study of a series of giant SWMs operated in our department between 2009-2019. The inclusion criteria were: tumour diameter at least 50mm encasing at least a major cerebral artery. The quality of surgical resection was followed by using Simpson grade.

Results

60 patients with SWM have been operated between 2009-2019, among these cases 21 fulfilled the inclusion criteria for large or giant tumours. The cognitive decline was the most common clinical presentation (62%). All cases had encasement of at least one major cerebral artery. In 12 (57%) cases a total encasement was present and in 9 cases only partial engulfment of MCA was recorded. Optimal resection (Simpson grade 2 or 3) was obtained

in 15 cases (71%). In the rest of 6 patients, because of cavernous sinus invasion and/or arterial adehesions, a subtotal resection was achieved (more than 90% tumour resection). Two patients died, one secondary to postoperative venous infarction and the other by pulmonary thromboembolism 3 months after surgery. In the immediate postoperative period 4 patients developed an increase of neurological deficit (2 motor deficits and 2 visual decline). Finally, all patients improved or maintained preoperative clinical condition. Tumour recurrence was recorded in 4 cases between 32 and 147 months after surgery.

CONCLUSIONS

Despite of intracranial arterial encasement, giant SWMs can be safely and radically resected by using high level of microsurgical techniques.

KEYWORDS

sphenoid wing meningioma, arterial encasement

RUPTURED ANTERIOR COMMUNICATING ARTERY ANEURYSM IN A YOUNG MAN – FROM COMATOSE TO NO DEFICITS

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Objectives

A 34 years-old previously healthy man was brought to the E.R. with altered consciousness. On admission he was comatose, intubated at the scene where GCS was 8 points (M4O2V2) and stable vital signs. Earlier that day he had experienced severe headache and vomiting, followed shortly by left side muscle weakness. No signs of trauma, no high blood pressure.

Materials and Methods

CT scan revealed subarachnoid hemorrhage and right frontal hematoma with ventricular effraction (blood in all ventricles except IVth ventricle) with a midline shift of 8 mm and diffuse cerebral edema. When weaned off sedation to assess neurological status, patient's GSC score was 5 points (M3O1V1) with reactive pupils, nuchal rigidity, left facial palsy and hemiparesis. Having no interventional radiology service on place, the decision was made to perform a decompressive craniectomy on the right side and to place a ventriculostomy tube on the left. The large frontal hematoma was not surgically tackled. The next day an angiography was performed which identified the ruptured anterior communicating artery saccular aneurysm of 4 mm. It was coiled with no residual flow and normal MCA and ACA flow.

RESULTS

The left ventriculostomy tube was removed on day 14. Control CT scan showed clear ventricles and no hydrocephalus. On day 7 in the ICU the patient developed severe vasospasm in both carotid territories revealed by the angiography, for which endovascular nimodipine and milrinone injections were performed on two consecutive days. The administration of these agents helped avoid cerebral ischemia due to prolonged vasospasm. On day 30 the patient regained consciousness and was extubated. Following rehabilitation, he recovered all motor skills and is now living without deficits, nor long term complications.

CONCLUSIONS

This particularly case stands out because of the age of the patient and the great immediate consequences on the brain parenchyma. High BP is definitely not a trigger for the aneurysm rupture, but the patient had been a die-hard smoker since the age of 12. Our staged approach included ventriculostomy, decompressive craniectomy, aneurysm embolization, transcatheter vasodilators injections, starting from a GCS of 5 with hemiparesis to no deficits and fully competent.

KEYWORDS

ruptured aneurysm, angiography, aneurysm embolization, vasospasm, endovascular nimodipine, decompressive craniectomy, ventriculostomy

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MANAGEMENT OF PAEDIATRIC CEREBRAL CAVERNOUS MALFORMATIONS IN ELOQUENT BRAIN REGIONS

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OBJECTIVES

Cerebral cavernous malformation (CCM) are dynamic lesions manifesting essentially with haemorrhage or epilepsy in children. Management of cavernomas in eloquent zones is controversial and can represent a challenge for the neurosurgeon. Objective to review our clinical and surgical results in a paediatric population with CCM.

MATERIALS AND METHODS

A retrospective analysis of CCM in paediatric population between 2011 and 2019 analysing clinical evolution, management and surgical strategy. Eloquence was characterized using Spetzler and Martin's definition and evolution using modified Rankin Scale (mRS).

RESULTS

There were 14 patients managed in our department: 10 male and 4 female patients, mean age 10,8 years. 9 (64%) patients presented with haemorrhage, 4 (29%) patients presented with epilepsy and one had a pseudotumoral evolution. 12 patients presented CCM in an eloquent cerebral location: 4 in the brain stem, 2 deep in the cerebellum, and 6 in supratentoriel eloquent regions. 12 patients were operated realizing a complete surgical resection. One patient presented a transitory clinical aggravation, and one presented a

recurrence 1 year later which needed a second surgery. At the late follow up, all except one, were modified Rankin Scale 0 or 1.

CONCLUSIONS

Symptomatic CCM can benefit from surgical management with good clinical results even if situated in eloquent zones. A careful surgical planning and operative moment is essentially to avoid postoperative morbidity.

KEYWORDS

cerebral cavernous malformation, brain cavernoma, eloquent brain surgery

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STEREOTACTIC BRAIN BIOPSY FOR GLIOMAS: FRIEND OR FOE?

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OBJECTIVES

Stereotactic brain biopsy (SBB) is a minimally invasive procedure that is required in many cases of infiltrative cerebral gliomas due to the invasive growth pattern and deep location, that makes the surgical resection difficult. This paper presents our experience in SBB for gliomas.

MATERIALS AND METHODS

We retrospectively reviewed the data from a prospective database of patients who underwent a stereotactic brain biopsy procedure. We included all the patients with a confirmed histopathological diagnosis of glioma. Patients with previous surgical resection and cases that needed further immunohistochemistry studies were excluded.

RESULTS

One hundred and fifty-two patients met the inclusion criteria. There were 103 cases of glioblastoma (67,8%), twenty-four cases of diffuse astrocytoma (15.8%), 5 anaplastic oligodendrogliomas (3,3%), 5 oligodendrogliomas (3,3%), 6 anaplastic astrocytomas (3,9%), 6 oligoastrocytomas (3,9%), 2 pylocitc astrocitomas (1,3%) and 1 anaplastic oligoastrocytoma (0.7%). The early mortality rate was 0.7% (1 case) and two patients (1,3%) developed a hemorrhage that needed a surgical intervention. Thirteen cases that need

further immunohistochemistry studies were excluded from the analysis, therefore the SBB procedure offered a diagnostic in 92.1% of the cases (152/165 cases).

CONCLUSIONS

Stereotactic brain biopsy is a safe procedure that offers a reliable diagnostic in most of the cases. Given the development of molecular studies, SBB remains very useful method for obtaining a detailed and precise molecular diagnosis from the tissue sample, which is absolutely required for a better prognosis and individualized oncological treatment.

KEYWORDS

stereotactic brain biopsy, glioma

SURGICAL TREATMENT IN EPILEPSY SECONDARY TO CEREBRAL CAVERNOMAS

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Objectives

Cavernomas are rare, well circumscribed and benign, angiographically occult, low-flow vascular malformations, composed of irregular sinusoidal vascular channels, lacking smooth muscle and elastic fibers. Brain cavernomas account for 10-25% of all brain vascular abnormalities and 75% of them are located in the supratentorial space. They usually present with an acute onset represented by seizures and headache. Most of these lesions are deeply-seated inside brain parenchyma and have a slow growth-rate before diagnosis, marked by multiple subclinical bleeding episodes. Given their small diameter and deep location, the intraoperative localization and surgical resection represents a challenge in most cases of cavernomas.

Materials and Methods

We retrospectively reviewed the case files of patients with supratentorial cavernomas who underwent surgery between January 2001 and December 2018 in the IVth Neurosurgery Department in "Bagdasar-Arseni" Clinical Emergency Hospital.

Results

The inclusion criteria (surgical resection, supratentorial cavernomas) were met by 127 patients, of which 82 (64.6%) were

male. The mean age (±SD) was 41.2 (±13.5) years. On admission, 80 (63%) patients presented seizures, 75 (59%) headache, 23 (18.1%) motor deficits, 24 (19.7%) sensory deficits. Forty-six patients (36.2%) presented with haemorrhage from the cavernoma on admission. For deep-seated lesions, the surgical resection was guided by intraoperative neuronavigation combined with 3D ultrasound. Patients with lesions situated in eloquent areas underwent preoperative brain mapping using navigated transcranial magnetic stimulation. Complete surgical resection was performed in all cases. Forty-seven patients (58.8% - 47/80) were seizure-free at follow-up and 33 patients (41.2% - 33/80) presented low frequency pattern of seizures, fully controlled with antiepileptic medication.

CONCLUSIONS

Microsurgery is the only curative treatment for intracranial cavernomas. The objective of surgery is gross total resection including the resection of the hemosiderin ring, in order to achieve an efficient seizure control, while avoiding secondary neurological deficits.

KEYWORDS

cavernoma, epilepsy, microsurgery, neuronavigation

IMPACT OF VOLUME ON THE RESULT OF SPINAL NEUROMODULATION. COMPARISON BETWEEN A MULTICENTRIC SERIES OF WITH A PERSONAL SERIES OF 252 PATIENTS

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BACKGROUND

Spinal cord stimulation (SCS) is an established therapy for refractory neuropathic pain. To ascertain the balance between treatment benefits and risks, the French National Authority for Health requested a post-market registry for real-world evaluation of the long-term effectiveness and safety of the therapy. We performed an analysis on a multicentre series of patients included in this registry and a parallel series patients from a single high volume centre (personal series of the main author).

METHODS

402 patients undergoing implantation with a Medtronic SCS device as either a primo-implant (n=264) or replacement implant (n=138) were enrolled across 28 representative sites in France. An additional 243 patients form the personal series of the first author was used for comparison. Outcome measures at 2 years included pain intensity, satisfaction with treatment, improvement of pain relief and daily life activity, willingness to undergo the treatment again and use of pain treatments. A patient was considered a responder if, compared to baseline, predominant pain reduction was ≥50%.

RESULTS

At the 2-year follow-up visit, predominant pain intensity for primo implant patients had decreased from baseline (p<0.001), with

responder rates of 55%, 36% and 67% for the lower limbs, back and upper limbs, respectively. Most patients acknowledged an improvement in pain relief (89%) and daily life activity (82%), were satisfied with treatment (91%) and willing to undergo the treatment again (93%). A significant decrease ($p<0.01$) in the proportion of patients receiving pain treatment was observed for all drug and non-drug treatments. Reported adverse events were in line with literature. Pain intensity at 2 years was significantly lower for for patients in the replacement group, supporting the long-term stability and effectiveness of SCS. Responder rate at 2 years was significantly higher (78%) in the high-volume centre ($p<0.001$).

CONCLUSIONS

Real world evaluation of the use of spinal cord stimulation under the recommendations of the French Health Authority shows that two years after the first implantation of an SCS device close to 60% of the patients retain a significant pain reduction and 74% show improvement in pain scores [of at least 30%] with significant decreases in drug and non-drug pain treatments. Centre experience and volume has a significant impact on the end result.

KEYWORDS

spinal cord stimulation, neuropathic pain

TOPOGRAPHY OF PAIN IN TRIGEMINAL NEURALGIA

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Introduction

Trigeminal neuralgia is defined by its clinical characteristics of paroxysmal unilateral facial pain in a well-defined territory. Distribution of the pain may be in one or several of the cutaneous and/or mucous territories of the three divisions with V2 pain being the most frequent territory followed by V3 and by V1. Factors determining the distribution of pain have not been yet systematically investigated. It is now a well-recognised that vascular compression factor is a predominant aetiology of classical trigeminal neuralgia. In this study we aimed to find whether there is a relation between the location of the vascular compression and the peripheral distribution of the pain.

Methods

Patients with classical trigeminal neuralgia in whom microvascular decompression was performed were included. Data recorded pertained to the nature of the conflict, its degree and most importantly location around the root: supero-median, supero-lateral or inferior. Equally clinical data for the distribution of pain was recorded.

Results

Most of the patients had the compression coming from above 318 (89.3%), namely 220 (61.7%) had compression from a supero-medial direction and 98 (27.5%) from a supero-lateral direction; inferior compression was present in 38 patients (10.7%).

Distribution of the pain was significantly different according to the location of the conflict (p=0.0005, Fisher Exact test). Odds ratio were computed for each location of compression and painful territory involved. According to the overall distribution of pain,

patients with SM compression had an odds ratio of 2.7 (1.66-4.41) of manifesting with V1 pain. Conversely V3 pain was less likely to occur with supero-medain compression than the other types of pain (OR 0.53, 0.34-0.83). Inferior compression on the other hand was more likely to manifest with V3 pain with an odds ratio of 2.56 (1.21-5.45). Overall V2 pain had an odds ratio close to 1 regardless of the type of compression.

CONCLUSIONS

These findings suggest an association between the location of the neurovascular conflict with its resulting insult and the distribution of pain supporting a somatotopic view of the organization of the trigeminal root and a role of the conflict in the clinical manifestation of trigeminal neuralgia.

NEUROVASCULAR ANATOMY OF THE EXTENDED ENDOSCOPIC APPROACH FOR ANTERIOR AND MIDDLE SKULL BASE

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OBJECTIVES

The endoscopic endonasal approach (EEA) offers great advantages in terms of improved visualization and gross-total resection with reduced brain retraction and complications compared to transcranial approaches, in selected cases. EEA is generally indicated for midline tumours (sellar, suprasellar and third ventricle). EEA also has some limitations and disadvantages: lack of binocular vision with current technology, endoscope occupies space in surgical corridor, requires adequate learning curve in endoscopic sinus surgery, assistant or holder for scope is required for bimanual surgery to be performed, lack of instrumentation to work through operative channel.

MATERIALS AND METHODS

We present our experience and relevant anatomy observed with the EEA in resection of several olfactory groove, tuberculum sellae and planum sphenoidale meningiomas. The dynamic optical qualities of the endoscope should allow for more careful intraoperative observation through the very constrained cavities of the skull base, for more detailed appreciation of critical surgical anatomy, and for more thorough surgical interventions with fewer complications due to better visualization. Pure endoscopic

approaches provide excellent access to the ethmoid roof, cribriform plate, and most of the sphenoid sinus. Angled endoscopes are able to expose recesses where fragments were missed witch 0-degree endoscopes.

RESULTS

Therefore, these observations do provide evidence that endoscopic view of the intrasellar, parasellar, and suprasellar spaces is more comprehensive than that provided by the operative microscope.

CONCLUSIONS

Endoscopic skull base approach improved visualization of surrounding optic bulbs, brainstem, and carotid prominences. In contrast, the telescopic vision of the nasal endoscopes has an unlimited depth of focus with the angled telescopes providing added visualization of previously hidden recesses.

KEYWORDS

skull base endoscopic transnasal extended

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SPINAL NEURINOMAS – TREATMENT STRATEGIES AND POSTOPERATIVE OUTCOME IN A SERIES OF 54 PATIENTS

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OBJECTIVES

Spinal neurinomas are benign tumours arising from sheath cells of intradural dorsal nerve roots. In some instances (almost 20%), spinal neurinomas experience an extradural growth over the dura mater, along the nerve roots, forming a so-called dumbbell-shaped mass. Concerning treatment, surgery is mainly indicated for symptomatic tumours or for tumours that exhibit growth on serial imaging follow-up and become clinically manifested. The aim of this study is to analyse a series of spinal neurinomas, microsurgically resected into our department of spinal neurosurgery. We focused on clinical and paraclinical findings, treatment strategies and postoperative outcomes.

MATERIALS AND METHODS

We retrospectively reviewed 54 cases of spinal neurinomas, between January 2009 and December 2018. There were 21 females and 33 males with a mean age at diagnosis of 44.7 years. Preoperative clinical examination revealed mainly segmental pain and sensory deficits. Regarding localization, there were 18.5% cervical neurinomas, 33.3% dorsal neurinomas, and 48.2% lumbo-sacral neurinomas. Concerning the growth pattern, there were 68.5% intradural neurinomas, 5.5% extradural neurinomas, 12.9% intra/extradural neurinoma, 9.2% dumbbell-shaped neurinomas and 3.9% cases with neurofibromatosis type 2. local recurrence

occurred even after total exeresis (excision) and radiotherapy in the cases of malignant neurinoma.

Results

Gross tumour resection was achieved in 97.2% of patients. Along postoperative follow-up (with a mean period of 67 months), the recurrence rate was encountered in 2 patients who underwent reoperation afterward. Radiotherapy was instituted in all malignant neurinomas. The overall postoperative outcome was favourable in 87.0% of patients. The mortality rate was 0% of cases.

Conclusions

For symptomatic tumours, early surgery should be performed before neurological deficits deteriorate. Spinal neurinomas can achieve favourable outcomes after meticulous dissection using microsurgical techniques. With few exceptions, tumour resection is associated with a favourable outcome.

Keywords

spinal neurinomas, cervical, dorsal, lumbo-sacral, outcome, recurrence

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OUR EXPERIENCE WITH THE USE OF OICH SCORE IN INTRACEREBRAL HAEMORRHAGE

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OBJECTIVES

Spontaneous intracerebral haemorrhage is an important cause of mortality and morbidity worldwide with an incidence of 24.6/ 100 000 people/ year. Approximately 40% of patients die and only 12-39% recover independently. We aim to check whether oICH proves its efficacy, or is overcome and a new approach is needed.

MATERIALS AND METHODS

This retrospective study reflects our 7 years experience in managing cases with spontaneous intracerebral haemorrhage (between January 2001 and December 2007). Reasoning for hospitalization, admission symptoms, Glasgow coma score on admission to our department, associated comorbidities, type of surgery performed, hospitalization period, administered drug treatment, post-operative patient progression and discharge status were the main parameters we have analysed.

RESULTS

Cases considered eligible for the study were 97,70% (n=85) of all cases. Most patients were male (67%, n=57) and the age interval with the highest predisposition for spontaneous ICH was 45-59 years. Most patients arrived in the emergency department and were later hospitalized in the neurosurgery department. Glasgow Coma Score on admission was 9-12 points (38,82%, n=33) and oICH

score was 2 (45,48%, n=39). In 52,94% (n=45) of cases the hematoma volume was over 30 ml and 30,58% (n=26) of patients died.

CONCLUSIONS

We confirm the applicability of the oICH score in our department. On the other hand, HTA remains the main risk factor for spontaneous intracerebral haemorrhage.

KEYWORDS

oICH score, HTA prognostic factor, spontaneous ICH

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CRANIOPHARYINGIOMAS IN CHILDREN. A NEUROSURGICAL DILEMMA: PARTIAL OR TOTAL REMOVAL? AN EXPERIENCE OF 152 CASES

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BACKGROUND

Craniopharyngiomas (CPH) are benign tumours with a rare presence in children, representing 5-6% of all intracranial tumours.

MATERIALS AND METHODS

The authors study a total of 152 cases (children 0-17 years old) treated over a 25-year period (1 January 1994 - 1 January 2019) in two neurosurgical centres from Bucharest, Romania: "Bagdasar-Arseni" Emergency University Hospital and Sanador Clinical Hospital. CPH cases operated in other centres were excluded. Visual and endocrine symptoms were the main elements of onset. The most affected age group was 7-10 years old 66 cases (43.4%). No special gender distribution: 79 cases boys (52.2%), in 73 cases girls (47.7%).

At admission, 114 (75%) of cases had complete intracranial hypertension. 118 cases (78%) endocrine dysfunction, 104 cases (69%) visual impairment, 19 cases (13%) ataxia, 24 cases (16%) intellectual performance decrease.

All cases were investigated according to a standard protocol: neurology, ophthalmology, CT-scan and MRI with all facilities.

RESULTS

Multiple neurosurgical approaches were tried: bilateral subfrontal, unilateral subfrontal, pterional interemispheric, transcallosal and combined approaches. The approaches were adapted considering the size and location of the tumor. The authors advocate for pterional approach 39 cases (25.6%).

Total removal of the tumour was achieved in only 83 cases (54.4%) with immediate postoperative CT / MRI control; in 13 cases (9%) we performed a near-total resection (residual tumour <5mm), in 51 cases (33.3%) and partial resection (residual tumour> 5mm) while 5 cases (3.2%) were biopsies. Pathological findings: preponderant adamantinoma 138 cases (90.7%), papillary type 14 cases (9.2%).

Gamma Knife Surgery (GKS) was performed in 10 cases (6.5%), all CPH recurrences.

Total number of recurrences 17 cases (19.7%) (of all cases with total removal); regrowth after residual tumour 25 cases (36.6%).

The postoperative complications: insipid diabetes 135 cases (89.3%); hypopituitarism phenomena 101 cases (66.4%); hypothalamic damage 27 cases (17.7%); visual deterioration 28 cases (18.4%); other complications: transient oculomotor nerve palsy 14 cases (9.2%), seizures 13 cases (8.5%), and secondary obstructive hydrocephalus 26 cases (17.1%).

Cases were followed-up between 12 months and 18 years through a complete clinical, neurological, endocrinological, ophthalmological and psychological protocol with a repeated MRI scan.

At 6 months GOS revealed: Good Recovery 70 cases (46.2%), Moderate Disability 62 cases (40.7%), Severe Disability 13 (8.5%), Vegetative State 2 cases (1.3%), Deceased 5 cases (3.2%).

CONCLUSIONS

Surgical treatment remains the main option, but the important number of complications in total removal proves the necessity of a multidisciplinary approach. Total or partial removal depends on the tumoral volume and hypothalamic infiltration.

Outcome predicting factors (personal experience) are: age (under 5years), size of the tumor (intracranial compartments involved), degree of hydrocephalus, signs of hypothalamic dysfunction.

MRI is gold standard in investigative imagistics, follow-up and recurrences assessment.

KEYWORDS

craniopharyngioma (CPH), MRI, children, adamantinoma, CPH scale, recurrences, regrowth, gamma knife surgery (GKS), Glasgow Outcome Scale (GOS)

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OVERVIEW OF PAEDIATRIC INTRACRANIAL ARACHNOID CYSTS. A MULTICENTRE STUDY (417 CASES EXPERIENCE)

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Background

Arachnoid cysts (ACs) are congenital, benign, non-neoplastic, extra axial lesions.

Materials and Methods

The authors study 417 paediatric cases, admitted at the "Bagdasar-Arseni", January 2004-January 2019 (15 years).

The location of all ACs involved: Sylvian fissure 224 cases (54%); CP angle 50 cases (12%); suprasellar 42 cases (10%); pineal 38 cases (9%); retrocerebelar 38 cases (9%); interhemisferic 25 cases (6%).

Clinical finding: focal bulging of the skull 259 cases (62%); irritability 213 cases (51%); epilepsy 133 cases (32%); focal

neurological symptoms 75 cases (18%); cranial nerves palsy 46 cases (11%); ICP syndrome 54 cases (13%).
The major investigation - MRI, with all facilities, as it allows for a perfect diagnosis without having an invasive character.
The treatment: simple observation 53 (12,6%), unishunt cysto-peritoneal 214 (51,4%), low pressure valve cysto-peritoneal shunt 26 (6,3%), endoscopic procedures 40 (9,7%), 84 (20,1%) an open microsurgical approach with cyst fenestration.

RESULTS

The 53 cases of ACs which have remained in observation showed no modification in time. 214 cases which benefited from a unishunt cysto-peritonal showed an obvious shrinkage of the cyst in 189 cases at 3 years post-op (88.2%). Out of the 26 cases (6,3%) which benefited from a low pressure valve a number of 21 (80%) showed a favourable evolution at 3 years post op.
From 40 cases who received endoscopic approach. 27 (67%) cases had cyst shrinkage at 3 years postop; two cases developed complications due to bleeding from venous plexes.
Microsurgery alone (84 cases). Shrinkage was noticed only in 54 cases despite wide fenestration and opening of the arachnoid spaces.

CONCLUSIONS

ACs are congenital cerebral malformations with more than 80% of all cases being
incidental findings. Treatment is recommended only in symptomatic ACs. MRI is gold standard in evaluation and follow-up.

KEYWORDS

arachnoid cyst, MRI, cyst shunting, endoscopic approach, microsurgical fenestration

THE COANDA EFFECT AND INTRACRANIAL ANEURYSMS - A WORKING HYPOTHESIS

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INTRODUCTION

Throughout the cerebral vascular pathology, fluid leakage was deepened by attempting to determine elementary prognostic rupture of aneurysm and also to perfect occlusion with minimal postoperative complications. In this situation, the Coanda Effect has been studied both from the point of view of fluid mechanics and various simulations by neuroradiology.

MATERIALS

The Coanda Effect (1930, 20 years after first reactive flight) is a phenomenon known to mechanical engineers since the 19th century and had practical applications since the mid-20th century. The Coanda Effect might explain the reason behind intracranial aneurysms occlusion postoperative sequelae (i.e. ischemia).

If a jet effect is created in the blood-flow before a bifurcation due to aneurysm clipping, most of the blood-flow might be directed to only one of the branches. Once this situation occurs, blood might also be entrained from the already affected branch due to pressure differences, further depriving that region of blood.

This phenomenon is the Coanda Effect and it can explain why some patients have complications even though the intervention went perfectly, and no thrombosis was present.

The Coanda Effect does not affect the aneurysm and has no predicting factor for its rupture but can explain postoperative ischemia phenomena downstream from the intervention.

We debate the implications of the Coanda Effect, based on theoretical with the support of angio-MRI data. Although we have not acquired yet any clinical data, the Coanda Effect can explain in theory the frequency of ischemic complications in aneurysm occlusions.

The authors study the effect of Coanda on each aneurysm as intracranial localization and phenomenon separated in small, medium, large and giant aneurysms; the endovascular device greatly influences blood flow turbulence.

Conclusion

All studies in literature on Coanda Effect and fluid mechanics generally aim to obtain a perfect occlusion of intracranial aneurysm through endo or exovascular procedures with minimal inschemic complications and maintain the appropriate postoperative vascular flow.

Keywords

Coanda Effect, neurosurgery, fluid mechanics, intracranial aneurysms

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BRAINIT: INNOVATIVE TECHNOLOGIES IN NEUROSURGERY STUDIES

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Objectives

Employ the strategic use of ICT technologies in teaching/training activities by using a telemedicine approach to create an innovative best practice environment in the form of an 3D live-transmission where students and resident doctors can experience non-invasive surgery procedures. Create interactive teaching and training aids for students using 3D technology - 3D reconstruction of the skull on various pathologies: tumours, traumas ISP of 14 days 'traineeships' in a working hospital, where the course participants will get to real life working experience accompanying the whole diagnostic process. Create a reader-friendly online platform which can facilitate the access of graduates, residents and even physicians without material possibilities to new technologies and new discoveries in neurosurgery. Make a closer connection between European neurosurgery centres. Transnational collaboration at this time is not a strong one, at least in the case of Romania, the neurosurgery centres are limited to a national collaboration. This project requires transnational highly specialized know-how and expertise which is hard to be found in a single country.

Materials and Methods

Use of the knowledge of bioengineering and 3D printing for the most real simulation of the neurosurgical interventions.

Developing a telemedicine platform with access to the latest discoveries in neurosurgery. A handbook that will be available both in print and online on the project e-platform, which will comprise all the important information delivered during the three years project. The book will be freely-available to anyone interested.

RESULTS

In 3 summer schools students will be able to practice surgery in workshops on 3D printed patients. They will learn neurosurgery, because in many medical faculties is not a mandatory discipline. O3-1 - Intensive Summer Programme "Trauma in Neurosurgery"- Year 1 (08.07-2019 - 21.07.2019) O3-2 - Intensive Summer Programme "Neurovascular Surgery"- Year 2 (06.07.2020 - 19.07.2020) O3-3 - Intensive Summer Programme "Neuro-oncology"- Year 3 (05.07.2021 - 18.07.2021)

CONCLUSIONS

Based on the evaluation, questionnaires and feedback from the participants, the degree of satisfaction is very high. The workshops were above the expectations of the participants.

KEYWORDS

neurosurgery, 3D printing, bioengineering, summer school, future

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BrainIT: Innovative Technologies in Neurosurgery Studies https://grants.ulbsib iu.ro/brainit 2018-1-RO01-k203-049317.

THROMBOSIS GENERATION ABNORMALITIES IN SPONTANEOUS INTRACEREBRAL HAEMORRHAGE

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OBJECTIVES

Evaluation of the dosage utilities of thrombin generation markers for recommending useful doses of anticoagulant, platelet and thrombolytic agents, to avoid the risk of haemorrhage or thrombosis. Identification of the risk factors specific to the group of patients with stroke and age under 35 years. Identification of biological abnormalities in patients with haemorrhagic stroke treated surgically, with unfavourable evolution.

MATERIALS AND METHODS

The study included patients with haemorrhagic stroke admitted to the Sibiu County Emergency Clinical Hospital. Subjects will be divided into 2 subgroups. • Patients suffering from a haemorrhagic stroke who do not have a deficiency of coagulation factors • Patients suffering from a haemorrhagic stroke, who have a deficiency of coagulation factors, respectively in which thrombin generation is reduced: Data collected prospectively, starting with the time of inclusion in the study: age, gender, height, weight, BMI, TA, DZ, APP (associated disorders), paraclinical data (CT and / or cranial MRI, extracranial carotid Doppler ultrasound and arteriography), biochemistry : glucose, total cholesterol, HDL cholesterol, LDL cholesterol, triglyceride, creatinine; biological:

HLG, platelet indices, PCR, VSH, INR, APTT, TS +, thrombin generation. The data collected retrospectively will be added to patients with biological or imaging investments made in the year preceding the episode of stroke haemorrhage.

RESULTS

Cerebral edema produced by intraparenchymal haematoma is significantly inhibited by thrombin inhibitors. In addition, an intracerebral 5U thrombin infusion may cause a degree of edema similar to that produced by a 50μL clot. Thrombin at high concentrations produces neuronal and astrocytic apoptosis. An indicator of neuronal viability is the concentration of lactate dehydrogenase. Small doses of thrombin (1-2U / mL) do not induce neuronal apoptosis and have protective effects, but doses above 5U / mL are correlated with the proportional release of lactate dehydrogenase. Identification of risk factors with major role in stroke pathogenesis in young people.

CONCLUSIONS

Thrombin is a serum protease, a component with an essential role in the coagulation cascade. It is produced immediately in the brain after a cerebral haemorrhage to stop the bleeding. In experimental studies, cerebral edema produced by intraparenchymal hematoma was significantly inhibited by thrombin inhibitors. These results suggest that thrombin is a target in stroke therapy and that studies are needed to determine whether inhibition of thrombin may reduce haemorrhagic transformation in ischemic stroke.

KEYWORDS

thrombin, ICH, stroke, brain haemorrhage

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PHARMACOLOGICAL INTERVENTIONS AND NURSING OF CRITICAL PATIENTS FOR INCREASE TOLERANCE TO MECHANICAL VENTILATION

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OBJECTIVES

The aim of the study was to present the pharmacological interventions and nursing in patients who are hospitalized in-intensive care unit ward II and to evaluate their role in increasing tolerance to mechanical ventilation. We wanted to highlight the importance of nursing intervention and pharmacological interventions in increasing the tolerance to mechanical ventilation. In other words, this study aims to follow the evolution of critical neurosurgical patients, who are being applied therapeutic drugs, but also nursing measures, to improve their tolerance to mechanical ventilation, over a period of more than seven days from hospitalization. Mechanical ventilation is the most important non-specific treatment for the critically ill patients.

MATERIALS AND METHODS

During January 2019- August 2019, we included in the study 100 patients, who were admitted in the Neurosurgery Hospital of Cluj-Napoca, for intensive care. We took and processed data about pharmacological interventions and nursing interventions from patients daily treatment sheets. The study involves the enrollment of patients with the following neurosurgical conditions: tumours,

haemorrhagic strokes, aneurysms, arterial-venous malformations, intraparenchymatous or subdural hematomas, being in critical condition and having the altered neurological condition, being mechanically ventilated for more than seven days. For each case we have analysed: diagnosis, age, gender, provenance environment, pharmacological means applied, nursing interventions applied, duration of hospitalization, increased tolerance to mechanical ventilation, duration of mechanical ventilation, etc.

Results

There were no differences between the number of women and men diagnosed with neurosurgical disorders, in this study. We applied a self-designed and personalized and standardized pharmacological and nursing intervention plan in all patients. By therapeutic means, such as sedation, pain therapy, etc., an increase in tolerance of intubated and mechanically ventilated patients was observed.

Conclusions

There is a high-quality nursing intervention and pharmacological interventions in patients admitted in hospital for intensive care. The quality of nursing and pharmacological intervention improved significantly after eight months, thanks to a self-designed and personalized nursing intervention applied during the patient`s hospitalization. The results showed that patients to whom the intervention plan was applied, presented improved quality of life.

Keywords

pharmacological interventions, nursing interventions, increased tolerance to mechanical ventilation, intensive care unit

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PROTON MRS MEASUREMENTS IN CERVICAL SPINAL CORD PREDICT FUNCTIONAL RECOVERY AFTER DECOMPRESSIVE SURGERY IN CERVICAL SPONDYLOTIC MYELOPATHY

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OBJECTIVES

Prediction of functional recovery after treatment remains an important topic in cervical spondylotic myelopathy (CSM) management. Despite vast research on this subject, it is unclear which predictor, or group of predictors, has greatest predictive value. We first investigated whether preoperative metabolites, specific to neurons and glial cells, in radiologically normal-appearing spinal cord cephalad to the insult, predict functional recovery after decompressive surgery. We also studied whether metabolites predict recovery better than preoperative clinical impairment. We finally investigated whether combined preoperative measurements (metabolites and clinical) predict recovery better than metabolites alone.

MATERIALS AND METHODS

Prior to surgery, N-acetylaspartate and myo-inositol were measured using 1H-MRS at C2 level and clinical status was evaluated using modified Japanese Orthopedic Association test in nine CSM patients. Clinical status was also assessed at six months after surgery and functional recovery was defined as recovery rate

over this time period. Relationships between metabolites and recovery rate were determined.

RESULTS

N-acetylaspartate was significantly correlated with recovery and predicted more accurately recovery than did preoperative clinical impairment. The correlation between myo-inositol and recovery was greatly strengthened by combining myo-inositol with preoperative clinical impairment.

CONCLUSIONS

Our preliminary data suggest that changes in neuronal-glial metabolism in spared spinal cord might be a determinant of recovery and might also provide insights into the inter-subject variability in recovery beyond that provided by clinical features. Therefore, 1H-MRS could be a sensitive method to monitor neurobiological compounds in spared spinal cord, mirroring recovery or deterioration events, which might predict surgical output in CSM.

KEYWORDS

cervical myelopathy, 1H-MRS, spinal cord, decompressive surgery, neurological outcome, prediction

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IATROGENIC INSTABILITY AND DEFORMITY IN LUMBAR SPINE SURGERIES

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OBJECTIVES

Patients with postoperative spinal instability and deformity are being identified with increasing frequency as the number of instrumented and non-instrumented spinal operations increases. Despite of the related preoperative risk factors associated with postoperative deformities and instability (age, medical conditions, prior Rth), one of the most common factors seems to be the surgical strategy. The curves of the lumbar spine, the most approached region of the spine, dictates the spinal global alignment. Spino-pelvic congruence is required for an economical upright position.

MATERIALS AND METHODS

We analysed 53 cases of spine revision surgeries and we present the most frequent risk factors for deformity/instability related to the prior surgery.

RESULTS

Iatrogenic segmental kyphosis or loss of lordosis with a PI-LL mismatch more than 10 degrees results in higher shear stress and a higher risk for revision surgery due to adjacent segment disease. The degenerative spine has 20-30% latent deformities. Aggressive

decompression with the loss of some structural elements could lead to local instability and later deformity.

CONCLUSIONS

Measurements are the key to determine where on the spectrum from normal alignment to deformity a particular patient's spine is and surgical techniques should be chosen to account for the deformity aspect of a degenerative spine and with respect for the stability anatomical structures.

KEYWORDS

iatrogenic instability, lumbar spine surgeries, segmental kyphosis, lordosis, adjacent segment disease

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A RARE CASE OF PROSTATIC ADENOCARCINOMA SFENO-ORBITO-ETHMOIDAL METASTASES

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OBJECTIVES

To describe a rare case of orbital prostatic metastasis.

MATERIALS AND METHODS

Case report.

RESULTS

A 66-year-old male presented with a 3 months history of right-sided headaches and right-sided proptosis. His past medical history included right sided blindness secondary to acute angle closure glaucoma 4 years prior and a diagnosis of prostate cancer stage IV A, Gleason grade 8 (4+4) 1 year prior. His prostate cancer had been treated with both radiotherapy and androgen deprivation therapy. Upon presentation to our service, magnetic resonance imaging (MRI) of the brain showed an extra-axial enhancing mass; the osteolytic lesion infiltrated diffusely the right sphenoid wing, right temporal and frontal bone extending to the right orbital canal, both optic nerves, the right superior orbital fissure, right lateral wall of the cavernous sinus, and the ethmoid bone. The patient underwent surgery for partial extradural resection via fronto orbitozygomatic approach. The tumour-infiltrated temporal bone, frontal bone and sphenoid wing were removed, the orbital apex and lateral portion of anterior clinoid process were exposed and the superior orbital fissure was unroofed. Post-operatively the

patient had remission of exophthalmos and the right sided headache progressively disappeared. The histopathological analysis revealed metastases of prostate adenocarcinoma. The patient was referred to oncology for further therapy.

CONCLUSIONS

Prostatic cancer metastases are an uncommon cause of skull base tumours. Patients with extensive visceral disease from prostate cancer may benefit from systemic chemotherapy, radiotherapy and androgen suppression therapy. A minority of patients are selected for surgical resection. Ideal for surgery are those with good functional status, whose systemic disease is well controlled and have a long life-expectancy.

KEYWORDS

skull base metastasis, prostatic metastasis, sfeno-orbito-ethmoidal

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LARGE INTRAORBITAL EXTRACONAL CHOLESTEATOMA. CASE REPORT AND REVIEW OF LITERATURE

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OBJECTIVES

To review the surgical indication for orbital dermoid cyst and differentiation from cholesterol granuloma

MATERIALS AND METHODS

Case report.

RESULTS

A 34-years-old female patient presented with 6 months history of progressive proptosis of the left eye and headache. CT scans show a heterogenous, well-defined orbital mass of about 32/17 mm in the infero-lateral aspect of the left orbit, compressive on the orbital nerv and the left lateral rectus muscle with atrophy and without invassion. An extraconal lesion with high signal intensity on T2-weighted images, a low signal intensity on T1-weighted images and no enhancement on postcontrast T1-weighted images were shown. The physical examination revealed a superior displacement of the left eye, with limitation of visual field in all directions, visual acuity was normal, eye examination did not detect any papillary oedema. The patient underwent surgery for resection with a cranio-orbitozygomatic approach and total excision of the mass. The patient made an uneventful recovery with the remission of the proptosis and the headaches. The postoperative CT examination showed no recurrence of the mass.

CONCLUSIONS

Orbital dermoids should be excised with an approach which gives good access to all parts of the lesion, delayed or incomplete removal may result in severe inflammation and permanent functional impairment. The lack of complete excision of tumour and its capsule increases the recurrence rate.

KEYWORDS

extraconal, intraorbital cholesteatoma, dermoid cyst

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SYRINGOMYELIA AND SYRINGOBULBIA AFTER TRAUMATIC SPINAL CORD INJURY – CASE

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OBJECTIVES

Syringobulbia is a very rare condition defined as a fluid-filled cavity in the medulla oblongata. Although there have been reported several conditions that cause syringobulbia, such as spinal cord trauma, it can also be isolated.

MATERIALS AND METHODS

We present a patient that seven years before admission in our department suffered a traumatic spinal cold injury that resulted in sublesional complete deficit in the lower limbs (ASIA A).

RESULTS

In the current admission the MRI exam revealed syringobulbia that communicated with the fourth ventricle and syringomyelia at C2-D10 level. We performed a suboccipital craniectomy and partial resection of the posterior C1 arch for posterior fossa decompression and membrane arachnolysis of the bulbar cyst.

CONCLUSIONS

Patients with spinal cord injury can develop posttraumatic syringomyelia followed by syringobulbia. The signs and symptoms can vary, but most often are bulbar signs that reflect the rostral evolution of the syringomyelia. Even minor neurological deterioration can reveal evolution of this pathology.

KEYWORDS
Syringobulbia, syringomyelia, spinal cord injury, post-traumatic

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COMPARISON BETWEEN DECOMPRESSION AND DECOMPRESSION PLUS STABILIZATION FOR DEGENERATIVE SPONDYLOLISTHESIS

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OBJECTIVES

Spondylolisthesis is a degenerative disease, characterized by forward slippage of a lumbar vertebra on the vertebral body below. Treatment of degenerative spondylolisthesis is still controversial. Vertebral instability is sometimes associated with degenerative spndylolisthesis which is why the surgical treatment with vertebral fixation still needs careful consideration.

MATERIALS AND METHODS

We performed a retrospective study including patients with operated degenerative spondylolisthesis from Fourth Departments of Neurosurgery), Emergency Clinical Hospital Bagdasar-Arseni Bucharest, from January 2014 to December 2018. The aim of this study is to assess postoperative results of two main surgical techniques, posterior decompression of neural elements alone and decompression followed by spinal stabilization +/- fusion.

RESULTS

A total number of 560 patients were operated for spondylolisthesis over a 5-year time period. Male/female ratio was 1.2. All patients underwent functional examination using radiography of the spine,

lumbar region (flexion/extension) and were categorized in two main groups: patients with vertebral column instability and patients with vertebral column stability. 24% patients had decompression only and 76% of patients had decompression plus stabilization, of which 15% with fusion. Both surgical techniques were associated with favourable outcome, pain relief and neurological improvement. Early mobilization was possible in 80% of cases, most of these patients belonging to the decompression and spinal stabilization group.

CONCLUSIONS

Surgery is the treatment of choice in patients with symptomatic spondylolisthesis. Outcome is dependent on surgical technique. Decompression plus stabilization permits early mobilization of patients and is associated with shorter hospitalization.

KEYWORDS

decompression, spondylolisthesis, stabilization

MULTIPLE METASTASES OF A HIGH-GRADE CARCINOMA IN THE SKULL. CASE MANAGEMENT

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OBJECTIVES

Almost 20 % of all carcinomas of unknown primary site are classified as high grade tumours. With a wide variety of neoplasms being able to metastasize to the skull, the present histopathologic diagnostic techniques are not enough to clearly indicate the primary tumour. Skull metastases are diagnosed in 15-20% of all cancer patients.

MATERIALS AND METHODS

We report a case of very large multiple metastases in the skull of a 60 years old male patient with no medical history of neoplasms.

RESULTS

A 60-years old male is admitted to the hospital presenting two cranial tumours, the first of which located parieto-occipital on the right side and the second one frontal on the left side. The neurological examination was normal. We performed investigations that indicated two large osteolytic lesions. The right parieto-occipital one measured 71/73/18 mm and the left frontal one 95/30/17 mm. The frontal tumour was excised during the first surgical intervention, leaving a large bony defect. The dura mater was extremely infiltrated; thus, the lesion was dissected as much as possible while leaving the dura in place. The

histopathological examination indicated a poorly differentiated carcinoma metastasis (high grade carcinoma). The right parieto-occipital lesion was resected during a second surgical intervention, three weeks after the first one. After removing the tumoral mass, the dura mater appeared infiltrated, similar with the previous intervention. The histopathological examination result was the same with the first one, positive for poorly differentiated carcinoma metastasis. The patient was evaluated with a thoracic CT scan looking for a primary lesion. This investigation revealed a right hilar broncho-pulmonary lesion, most likely the primary tumour that metastasized to the skull. There were no postoperative complications and the patient was referred to an Oncology Hospital and also to the Thoracic Surgery Department.

CONCLUSIONS

Skull metastases are usually asymptomatic and may sometimes be the first or the only evidence of the malignancy. Positive diagnosis of skull metastases requires extensive examination in order to find the primary tumours. Brain metastases require multimodal treatment.

KEYWORDS

carcinoma, metastases, skull lesions

OLFACTORY GROOVE MENINGIOMAS: SURGICAL TREATMENT AND CLINICAL OUTCOME. A SINGLE CENTRE EXPERIENCE

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OBJECTIVES

Olfactory groove meningiomas (OGMs) account for about 10% of intracranial meningiomas. These tumours arise from the anterior skull base, in the midline, between crista galli and planum sphenoidale. Their insidious presentation along with their nonspecific and usually subtle symptomatology, lead to the late detection of these tumours, even in the current era of the advanced Magnetic Resonance Imaging (MRI).

MATERIALS AND METHODS

Data were collected from a series of 55 patients who underwent surgical treatment for OGM in the 3rd Neurosurgical Department of "Bagdasar-Arseni" Emergency Hospital, between 2009 and 2019. The aim of the study was to review patients who underwent surgery for OGM in order to evaluate surgical management efficiency, clinical and imagistic factors predicting the postoperative outcome.

RESULTS

Our study included 55 patients with a mean (±SD) age of 56 (±10.7) years, 33 (60%) being females. The most common symptom was headache in 44 (81%) patients, followed by anosmia

in 21 (38%) cases, visual disturbances in 20 (36.3%) cases, cognitive disorder in 19 (34.5%) cases, vertigo in 9 (16.3%) cases, intracranial hypertension in 4 (7.2%) cases, motor deficits in 4 (7.2%) cases, loss of consciousness in 4 (7.2%) cases, epileptic seizures in 2 (3.6%) cases, and incontinence in 1 (1.8%) case. The mean (±SD) tumour size was 5.1 (±1.5) cm. The surgical approaches used were unilateral frontal in 29 (52.7%) cases and frontotemporal in 26(47.2%) cases. Gross total resection was achieved in 50(90.9%), and subtotal resection in 5(9.1%) cases. The postoperative complications were: wound healing impairment in 2 (3.6%) cases, cerebrospinal fluid leak in 2 (3.6%) cases, pseudomeningocele in 1 (1.8%) case, seizures in 2 (3.6%) cases, stroke in 1 (1.8%) case and motor deficits in 1(1.8%) case. Tumour recurrence occurred in 3 (5.4%) patients and mortality rate was 7.2%.

CONCLUSIONS

OGMs are slightly more frequent in females and in older patients, groups associated with a higher prevalence of associated diseases. These tumours tend to grow slowly and are clinically silent for a long period of time, acquiring large diameters until the time of diagnosis.

KEYWORDS

olfactory groove meningiomas, surgical approaches

TRANSITIONAL MENINGIOMA WITH MASSIVE DESTRUCTION OF THE BONE AND PERIOSTEUM. CHALLENGES IN REBUILDING THE LOCAL ANATOMY

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Objectives

Meningiomas, are usually slow growing tumours arising from the meninges, the membranous layers surrounding the central nervous system. These types of tumours typically grow inward, toward the brain. Furthermore, most of the times, these tumours respect the adjacent structures, invasive meningiomas being a seldom occurrence.

Materials and Methods

Here we present a rare case of transitional meningioma invading the adjacent bone structure, periosteum and skin, the difficulties of the surgical procedure and particularities of the reconstruction of the anatomical layers in order to prevent further complications such as CSF leaks or infection.

Results

A 71 years old male patient was admitted to our clinic presenting left hemiparesis, increased intracranial pressure syndrome and a right frontal deformation of the skull. The MRI investigation showed a massive fronto-temporal tumour developing both intra and extracranially, highly enhanced by gadolinium, completely destroying the bone at its level. The tumour was carefully resected

from the periosteum, leaving only the subcutaneous layer and skin in place. Afterwards, the infiltrated bone was isolated and using ronguers, resection of the bone was achieved up to the level of normal tissue. The tumour was slowly disected from the normal dura mater and the brain. The tumour was adherent to the sylvian vessels. Reconstruction of the dural layer was conducted using synthetic Collagen, which was sutured as a double layer using the healthy dura edges as anchoring points. Due to the fact that the tumour was associated with cerebral edema, the decision of leaving decompressive craniectomy was made. The patient had a favourable postoperative evolution, with neurological improvement and no complications. The control CT scan showed total resection of the tumour.

CONCLUSIONS

The total resection of the tumoral process is preferred, but in order to maintain the functional anatomy of the region is mandatory to have a plan for reconstruction.

KEYWORDS

bone destruction, infiltrated, meningioma, reconstruction technique

VERTEBRAL CEMENT AUGMENTATION AS AN ALTERNATIVE OF TRANSPEDICULAR SCREW FIXATION FAILURE

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OBJECTIVES

Transpedicular screw fixation represents widely applied surgical technique for treatment of numerous spine pathologies. However, it is associated with different potential complications as one of the most challenging of them, requiring surgical correction, are the screw loosening, migration and fracture with a literature rate of 3-7.1%. The purpose of the study was to describe the surgical treatment of patients with screw loosening, migration and fracture by removal of the hardware and injection of bone cement as well as the achieved clinical outcome.

MATERIALS AND METHODS

The study was accomplished in the Clinic of Neurosurgery, University Hospital “St. Marina”, Varna, Bulgaria for a period of 1 year. The clinical material included 6 cases of failed transpedicular screw fixation in the thoracolumbar and lumbar regions in patients with traumatic and osteoporotic vertebral fractures. The average period from insertion of the screws till their extraction was 4 years. Mean patient age was 68 years. Under C-arm control the screws of the failed transpedicular fixations were extracted followed by cement augmentation of the engaged and fractured vertebral bodies using the existing transpedicular screw canals as corridors for medial insertion of the vertebroplasty needles. VAS and ODI

were applied for clinical outcome evaluation as well as CT scans and X-rays for imaging assessment.

RESULTS

In all 6 cases we extracted the screws and the bone cement injected in the vertebral bodies resulted in adequate stability, mitigation of pain complaints and patients mobilization on the first postoperative day. Excellent clinical outcomes evaluated by VAS and ODI were demonstrated. Regarding the restoration of the vertebral height and the correction of the kyphotic deformation the kyphoplasty reasonably outweigh the vertebroplasty. No significant cement leakage in the spinal canal, large vessels or intervertebral disk were observed. No procedure related morbidity or mortality were documented in the series.

CONCLUSIONS

The proposed authors' technique could be reliable and affordable alternative of surgical treatment of patients with loosening, migration and fracture of transpedicular screws and renewal of complaints.

KEYWORDS

transpedicular screw fixation failure, vertebral bone cement augmentation, vertebroplasty, kyphoplasty

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CYBERKNIFE RADIOSURGERY PLUS HIPPOCAMPAL SPARING WHOLE BRAIN RADIOTHERAPY FOR PATIENTS WITH LIMITED BRAIN METS

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OBJECTIVES

Cyberknife radiosurgery (CK) and/or whole brain radiotherapy (WBRT) were frequently used to palliate patients with brain metastases. Hippocampi are not routinely spared when using irradiation. The availability and combination of advanced radiotherapy technology might improve local control, survival and reducing long term radiation toxicity. Objective was to develop a internal protocol for volumetric modulated arc therapy (VMAT) treatment in WBRT and hippocampal (HP) sparing in 1-5 brain metastases direct followed by CK.

MATERIALS AND METHODS

WBRT + CK boost was recommend by our interdisciplinary tumorboard in a male patient (56y, KPI 100%) with SCLC (cT2cN0cM1, 2 mets). Headache and nausea let to the MRI-confirmed diagnosis. Chemotherapy should be given after completing radiotherapy.

RESULTS

Elekta VMAT planning and treatment was performed with the goal of planning target volume coverage of V100 ≥95% to the brain and maximal hippocampal avoidance (mean dose: 11 Gy,

max dose: 15 Gy) with 15x 2,5 Gy to 37,5 Gy. After fractionated WBRT, Cyberknife was delivered with 3 x 7 Gy (70% ID) to 21 Gy. Hair loss was the only treatment induced side effect. 4 weeks following CK+WBRT, at start of chemotherapy, a volume reduction of 70% was measured by MRI. Patient remains without cranial or extracranial recurrence at 9 months follow up, with good quality of live and without neurological or cognitive problems.

CONCLUSIONS

WBRT plus CK boost with hippocampi avoidance with VMAT was feasible and well tollerated. Cyberknife improves local control, while WBRT might reduce speed of further progression. Hippocampi play an important role in memory and sparing of these structures in whole brain radiation can improve neurocognitive outcomes and quality if live. Cyberknife radiosurgery as boost can be an option for WBRT patients with limited number of brain mets. However, there is lack prospective randomised data.

KEYWORDS

brain metastasis, radiotherapy, VMAT, WBRT, radiosurgerý, Cyberknife

REFERENCES

PUB med (brain metastasis, radiotherapy, VMAT, WBRT, radiosurgerý, Cyberknife).

CYBERKNIFE RE-IRRADIATION IN RECURRENT GLIOBLASTOMA: THE HAMBURG EXPERIENCE AND LITERATURE REVIEW

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Objectives

Despite advances in imaging, operation technology, molecular pathology, radiotherapy, systemic and electric therapy and individual patient care leading in an increased survival, glioblastoma (GBM-R) will recur. Depending on the individual patient status and growth pattern, interdisciplinary tumorboard can recommend salvage therapy or their combinations such as re-operation, chemotherapy, tumour-treating field, conventional radiotherapy or radiosurgery such as Cyberknife (CK).

Materials and Methods

In our interdisciplinary tumorboard GBM-R with CK was recommended last 5 years in 4 patients with in-operable, small volume and contrast enhanced T1 MRI clearly detectable recurrences following standard therapy.

Results

Mean age 54 years at primary treatment (range 54 – 60 Gy). MRI-confirmed relapse after 2, 4, 5 & 12 month (6 months mean) followed by CK (3 x 8 Gy, 5 x 7 Gy, 1 x 18 Gy, 1 x 18 Gy) with further survival of 6, 7, 7, 10 months (7,5 months mean). No side effects were observed after CK.

CONCLUSIONS

Despite increasing published reports, in our local population, Cyberknife radiosurgery remains a rarely used, but reasonable, safe and effective and out-patient treatment option for re-irradiation of recurrent GBM. Short regime or even single fraction approach reduces medical treatment effort to maintain the quality of life. Cyberknife can be an option for selected patients. However, there is lack prospective randomised data.

KEYWORDS

re-irradiation, glioblastoma, radiosurgery

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GANGLIOGLIOMAS AND ANAPLASTIC GANGLIOGLIOMAS – A RETROSPECTIVE SERIES

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OBJECTIVES

Gangliogliomas and anaplastic gangliogliomas are glioneuronal tumours of the central nervous system, that usually occur in children and young adults. They are mainly found in the temporal lobe and patients present with seizures. Surgery is the only one capable to provide the cure.

MATERIALS AND METHODS

We retrospectively reviewed consecutive patients with brain ganglioglomas and anaplastic gangliogliomas who underwent surgery in the Third Department of Neurosurgery, Emergency Clinical Hospital Bagdasar-Arseni Bucharest from January 2009 to December 2018. The aim of this study is to review clinical features and surgical treatment and to assess the outcome.

RESULTS

We found 39 patients with gangliogliomas and anaplastic gangliogliomas operated on over a period of time of 10 years. The mean age was 42.82 ±17.28 years. Thirty-one patients (79.48%) were admitted with seizures. Fifteen tumours were found in the temporal lobe. Other locations were: frontal lobe - 3 cases, parietal lobe - 3 cases, occipital lobe - 1 case and posterior fossa - 8 cases.

A number of 34 patients had primary tumours and 5 had been previously operated on in other neurosurgery departments and have been admitted with recurrences. We performed classic surgery in 35 cases and 4 had a stereotactic biopsy. We used supratentorial approaches in 27 patients and infratentorial approaches in 8 patients. Gross total resection was achieved in 31 cases, near total resection in 1 case and subtotal resection in 3 cases. Histopathological examination showed grade I gangliogliomas in 28 cases and anaplastic ganglioglioma in 11 cases. Early postoperative complications occurred in 10 patients: seizures (30%), brain swelling (40%), motor deficit (30%) and CSF leak (10%). On long-term follow-up, the outcome was favourable and seizures control improved. Seizure control was better in patients with less frequent and less severe seizures and in patients with gross total resection. After surgery, we had no other recurrences or tumour regrowth during the follow up period.

CONCLUSIONS

Gangliogliomas and anaplastic gangliogliomas are rare brain tumours, found in young people. Seizures are the most common type of presentation. Temporal lobe is the most frequent location. Gross total resection provides good seizure control and good quality of life.

KEYWORDS

ganglioglioma, anaplastic ganglioglioma, seizure control

IMMOBILIZATION DEVICES IN SPINAL TRAUMA

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The success in the case of the traumatized patient depends on the prompt and methodical intervention of an experienced medical personnel and the correct use of the immobilization devices.
General principles to be respected: do not worsen the patient's condition; it is done after stabilizing the patient; mobilize the victim only when necessary and when possible; mobilize the victim as a whole; explain to the victim every maneuver you will perform.

Cervical collar
Orthopedic device for holding / fixing the cervical spine and head
Emergency indications. Cervical traumas are at increased risk of spinal cord injury. Unconscious / intoxicated (alcohol, drug) with suspected trauma. Conscious patient, with trauma with risk of cervical injury. Electrocuted; Polytrauma / severe lesions above the collarbone plus unexplained hypotension. Trauma / sensitivity to the throat, painful limitation of neck movements. Acute neurological deficits; Application technique (requires 2 persons mandatory).

How do we correctly choose the device as a nurse?
Measure with your fingers the distance between the angle of the mandible - above the shoulder (number of fingers = length of the neck). The same number of fingers is applied to the cervical collar, from the lower edge of the rigid plastic support, and adjusted to the appropriate position of the patient. The cervical collar is maintained until certain exclusion of the lesions of the cervical spine - by radiography / CT

Practice errors: Incorrect measurement. Defective neck anatomy. The patient's position. Insufficient number of people to position the collar.

Kendrick Extrication Device (KED)
Device used in prehospital for the extraction from the vehicle / narrow spaces of the stable patient
How do we correctly choose the device as a nurse?
It is used in conjunction with the cervical collar to perform immobilization of the spine (cervical, dorsal and lumbar) in anatomical position - prevents aggravation of injuries during the extraction of the patient in the car.

Application technique
Immobilize the head and cervical spine with cervical collar. The immobilization device slides between the back of the patient and the back of the chair and is then applied around the head and chest. The order of fixing the bands: the mnemonic formula: My Baby Looks Hot Tonight = Middle, Bottom, Legs, Head, Top.

Rigid stretcher: Used for the extraction / transport of patients with suspected lesions of the dorsal-lumbar spine / pelvis.
How do we correctly choose the device as a nurse?
We measure the height of the patient. It is applied by the lateral return of the patient, maintaining the head of the spine (cervico-dorso-lumbar) in the axis. Side turning maneuver "in shaft". Requires at least 4 persons: Person 1 - keeps the patient's head (and coordinates the maneuver). Person 2 - supports the patient's chest, pelvis and lower limbs. Person 3- performs the necessary tasks (evaluation of posterior thorax and spine, positioning of the device).

Practice errors: Incorrect measurement. Defective neck anatomy. The patient's position. Practice errors. Insufficient number of

people. Agitated patient. Rigid. Poor patient measurement. Incorrect fixing.
Vacuum mattress. Device used for temporary immobilization in case: pelvic injuries / lower limbs (femur - unions / bilateral); spinal cord injury.
Advantages: is comfortable for the patient; can be used in various trauma (pelvis, femur, spine); it can be used instead of a rigid trolley for short-distance packet transport; it consists of a watertight polymer mattress, filled with small polystyrene balls; it is provided with a unidirectional valve, fastening strips and handles; is washable; radiolucent
Disadvantages: is less rigid - does not ensure complete immobility of the spine; is inefficient if not completely emptied (the mattress and valve must be perfectly sealed).
Preparation of the vacuum mattress: the vacuum mattress is placed on the tray, with the valve located at the feet and upwards; polystyrene balls are evenly distributed (throughout the mattress surface); a sheet (for protection) is applied over the mattress; the patient is placed on the mattress (with the help of the rigid / shovel which is then removed); the edges of the mattress are molded around the patient then the air is extracted from the mattress with the vacuum pump → the mattress becomes rigid; before transport, the patient is provided with the fastening bands.

NURSING THE HAEMORRHAGIC STROKE PATIENT IN THE EMERGENCY DEPARTMENT

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During the last decades, stroke has been the focus of intense research and the ischaemic one benefited from the implementation of thrombolysis or thrombectomy as treatment options. On the other hand, haemorrhagic stroke continues to lack definitive treatment options, and its toll on the individual and society is still large, despite its rather small frequency (10-20% of all stroke cases).

As the onset of this condition is most of the times an abrupt one, the large majority of the haemorrhagic stroke patients are being treated by the emergency services in the (pre)hospital and hospital settings. Apart from the primary evaluation and immediate resuscitation, such patients require specific treatment and nursing prior to their transfer to the neurosurgical department.

Within the primary evaluation, efforts are being made towards maintaining the vital signs and making a definitive diagnosis. From this perspective, an ED nurse will be part of monitoring the patient, administering oxygen or assisting airway intubation, establishing an iv line and drawing blood samples, monitoring temperature or urinary output. Once diagnosis is finalised, specific treatment will be started, alongside with continuous monitoring.

On a retrospective researched performed on a period of 18 months, 375 of the 77,134 ED patients had an imagistic diagnosis of intracerebral haemorrhage. Ninety-three cases were due to trauma. The total duration of ED admission for the 239 spontaneous intracerebral haemorrhage cases was 47,494 minutes,

with a maximum duration of nearly 11,5 hours. On such patients remaining within the ED for longer periods of time, ED nurses will be responsible of specific procedures such as maintaining a suitable body and head position, ensuring personnel hygiene and preventing sore points, along with recording vital signs and administering medication.

KEYWORDS
emergency department, haemorrhagic stroke, intracerebral haemorrhage, nursing

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THE MANAGEMENT OF THE MALIGNANT MCA INFARCTION. A RETROSPECTIVE STUDY

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Objectives

Stroke remains a very important health issue despite the fact that various surgical and non-surgical techniques are developing. Trombolytic therapy is spreading rapidly in more and more hospitals but despite this fact some patients are not eligible for this therapy for various reasons. These patients need a lifesaving therapy. Decompressive craniectomy is a neurosurgical technique used for the treatment of the malignant brain edema.

Materials and Methods

The present study is a retrospective one between 01.01.2015-30.04.2019, containing 20 patients between 35-90 years old. All patients were admitted in Neurosurgery Clinic Department from Sibiu County Hospital with pseudotumoral ischemic stroe of the MCA who needed decompressive craniectomy.

Results

Generally, patients older than 60 years are not the ideal candidate because they possess a lower neuronal plasticity and also have more vascular risks factors and other comorbidities. In our study patients older than 60 years were included.11 patients died, 7 were 60 years older and 5 were under 60 years of age. The rest of the patients have a neurological deficit.

CONCLUSIONS

Malignant sylvian stroke is the only class I indication for decompressive craniectomy in people less than 60 years old, but there are controversies. Early decompressive craniectomy can limit the spread of the infarcted area. Although, DC is not exempt of complications and are more frequent in patients older than 60 y.o the ultimate answer is up to the individual patient and his relatives. While discussing decompressive craniectomy, patients and families should be approached with extreme honesty, objectivity while every effort is made not to influence their decision. DC is not a therapy it is a lifesaving procedure.

KEYWORDS

stroke, mca, decompressive craniectomy, malignant edema

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TAILORED TREATMENT OF SPINAL METASTASES

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Objectives

Spinal metastases are the most commonly encountered tumours of the spine, accounting for 65% of all spine tumours. Vertebral metastases must be included in the differential diagnosis of any patient with bone lesions over 40 years old. Spinal metastases may cause pain, mechanical instability and neurological deficits. There are several types of solid tumours that frequently metastasize to bone as it follows: breast (65-75%), lung (30-40%), prostate (65-75%), renal (25%), thyroid (60%), and gastrointestinal tract cancers (11%). Multiple myeloma, breast cancer, and prostate cancer are responsible for up to 70% of bone metastases cases. The most appropriate treatment is of crucial importance for untreated spinal metastases in terms of life expectancy and increased quality of life.

Materials and Methods

We retrospectively analysed records of all surgically treated patients with vertebral metastases who were admitted in the Neurosurgery Department IV in "Bagdasar-Arseni" Clinical Emergency Hospital between January 2009 and December 2018. Surgical procedures include decompression only, vertebroplasty and wide tumour excision with fixation.

RESULTS

150 patients were included, with a mean age of 64 years and a preponderance of male patients 70%. The lesions were mostly metastases from pulmonary cancer 22%, followed by multiple myeloma 17%, breast 13%, prostate cancer 12%, lymphoma 8%, colon 9%, cervical cancer 8%, liver cancer 6% and 5% without an identified source. The lesions were situated in the cervical region in 16%, thoracic region in 48%, 34% in the lumbar region and 2% in sacral region. Ninety-three patients (62.5%) were graded Frankel E on admission, 23.7% were graded Frankel D and 13.8% were graded Frankel C. 30% of patients had decompression surgery only and in 70% decompression and fixation and/or vertebroplasty was performed.

CONCLUSIONS

Two-thirds of patients with cancer will develop bone metastases. Increased quality of life depends on appropriate surgical treatment and must be adapted to each patient. The goals of treating spinal metastases are relieving pain, stabilizing spinal structure, maintaining or recovering neurologic function and improving quality of life. Supplementary modern oncology provides numerous treatment options that include radiotherapy, surgery, chemotherapy, immunotherapy, and hormone therapy.

KEYWORDS

metastases, posterior decompression, spine

EMERGENCY SURGERY IN RUPTURED AVM'S: SURVIVAL AGAINST ALL ODDS. REPORT OF TWO CASES

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OBJECTIVES

Arteriovenous malformations (AVMs) are direct communications between the arterial and venous systems without interposed capillary bed representing the most spectacular and surgically demanding cerebral vascular lesions. With an estimated incidence of ~ 1.3 per 100,000 person-years, AVMs usually affect young adults aged 20-40 years. About half of AVMs (38% to 71%) present with more or less devastating intracerebral haemorrhage, so the survival is influenced by the patient's status on admission. Most ruptured AVMs present in poor neurological state and their outcome is reserved, depending on the curative strategy and the success of treatment. Most superficial AVMs only involve one lobe and one cortical surface. Offering surgery for complex AVMs, which involve an entire lobe, multiple surfaces and both superficial and deep drainage, is a very difficult decision, as the risks always outgrow the benefits.

MATERIALS AND METHODS

We report two cases of young patients with ruptured AVMs both presenting with altered consciousness with large hematomas secondary to AVM rupture, the first complex grade IV Spetzler Martin AVM known to the clinic and refused surgery and embolisation in many neurosurgical centres across Europe and the

second diagnosed on Angio CT after rupture. The decision to resect the AVMs in emergency setting, not only to evacuate the hematoma was made after consulting the patients families. We discuss the technical nuances and difficulties related to the surgical removal in each case.

RESULTS

In both cases the AVMs were completely resected followed by hematoma evacuation. Both patients regained consciousness shortly and showed a rapid improvement in their neurological status. The postoperative DSA and Angio MRI images showed complete removal of the AVMs. Both patients are completely socially reintegrated and returned to their previous jobs.

CONCLUSIONS

Even if hazardous in as acute setting, emergency AVM resection with hematoma evacuation instead of emergency hematoma evacuation followed by AVM resection in a second surgery is preferable giving the patients the best chance to complete recovery.

KEYWORDS

ruptured arteriovenous malformation, Spetzler-Martin grade IV, medial temporal lobe AVM, intracerebral haemorrhage, microsurgery

CARE OF PATIENTS WITH SPINAL CORD INJURIES

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OBJECTIVES

Brain trauma and their sequelae are the major public health problem in the industrialized world. By their nature, these diseases can cause varying degrees of disability, with total or partial loss of work capacity. According to statistics, head injury is the leading cause of death of young people. Vertebral-medullary trauma (VMT) is a trauma to the spine that also affects the spinal cord. Spinal cord injury is the result of an aggression on the spinal cord with total or partial impairment of its functions (motor, vegetative and reflex). The symptoms in this disease are various- the pain, contracture and stiffness of the muscle groups in the fractured segment area, local swelling, bruising, bony cracks detectable on palpation; if the lesion is located in the cervical area, breathing and heart rhythm disorders, limb paresthesias and sphincter disorders may occur.

MATERIALS AND METHODS

Most often, men between the ages of 15-35 are those with spinal cord injuries. The most commonly damaged segments are C5-C6 and T12-L1. The transport of the patient to the hospital is performed in maximum safety and without aggravating the existing injuries. It is highly recommended that the patient be transported as soon as possible, regardless of the severity of the injury, but not

under any conditions. Neurological evaluation consists of pain assessment, partial or complete sensory motor disorders, and sphincter disorders. As a prehospital treatment, we are primarily interested in the permeabilization of the airways, the resumption of vital functions (breathing, pulse, blood pressure). The hospital treatment consists of maintaining the immobilization for the continuation of the investigations, the preparation of the patient for the surgical intervention and the carrying out of the necessary investigations. Post-surgery, pain management, hydratation, pacient peace, prophylaxis of bedsores, etc., should be ensured. Moreover, vital functions must be strictly followed and a therapeutic plan appropriate to the needs must be ensured.

RESULTS

The evolution of a patient with spinal-trauma depends largely on the pharmacological and nursing interventions provided throughout the hospitalization. These patients have manifestations of addiction in all 14 besic needs. We applied a self-designed and personalized and standardized nursing intervention plan in all patients.

CONCLUSIONS

There is a high-quality nursing intervention in patients admitted in hospital for intensive care. The evolution of a spinal trauma depends on the first care, on the way in which the patient was cared for.

KEYWORDS

vertebral-medullary trauma, spinal-cord injuries, nursing intervention, intensive care unit

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BALANCING BETWEEN EXTENT OF RESECTION AND FUNCTIONAL OUTCOME FOR AN IMPROVED SURVIVAL AND QUALITY OF LIFE IN GLIOMA PATIENTS

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OBJECTIVES

Gliomas are the most common primary intracranial tumours. The incidence of brain gliomas is 5.9/100,000 and account for 27% of all brain tumours. More than half are high grade tumours, with poor prognosis and short survival. Surgery is the treatment of choice in gliomas, and high-grade gliomas also require adjuvant therapy.

MATERIALS AND METHODS

We performed a retrospective study including patients with gliomas operated, in two neurosurgical departments (Third and Fourth Departments of Neurosurgery), from Emergency Clinical Hospital Bagdasar-Arseni Bucharest, from January 2009 to December 2018. The aim of this study is to assess functional outcome, quality of life and survival, according to extent of resection.

RESULTS

A total number of 1580 patients with brain gliomas underwent surgery over a period of time of 10 years. Mean age was 52.9 years and 56.3% of patients were males. 542(34.30%) patients had low-

grade or anaplastic astrocytomas, 310(19.62%) patients had oligoastrocytomas or oligodendrogliomas and 728(46.08%) patients had glioblastomas. Gross total resection was achieved in 1107 (70.06%), near total resection in 213 patients (13.48%), subtotal resection in 62 cases (3.92%) and biopsy was performed in 198 cases (12.53%). Postoperative Karnofsky score improved in 86.65% of patients, remained unchanged in 8.35% and decreased in 5% of cases. 420 patients were operated for recurrences.

CONCLUSIONS

Extent of resection depends on size and anatomic location of the tumour. Survival is highly influenced by glioma grade, extent of resection, preoperative Karnofsky score, location and tumour size. Functional outcome and quality of life is influenced by tumour location, extent of resection, preoperative Karnofsky score and postoperative complications.

KEYWORDS

astrocytoma, extent of resection, glioma, glioblastoma

PROGNOSTIC FACTORS ASSOCIATED WITH SURVIVAL FOR BRAIN METASTASES

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OBJECTIVES

Brain metastases occur in advanced cancer patients and account for more than half of intracranial tumours in adults. Brain metastases require multimodal treatment. Prognosis is generally poor with low survival rate.

MATERIALS AND METHODS

We performed a retrospective study including patients with brain metastases operated, in two neurosurgical departments (Third and Fourth Departments of Neurosurgery), from Emergency Clinical Hospital Bagdasar-Arseni Bucharest, from January 2009 to December 2018. The aim of this study is to identify prognostic factors associated with survival rate.

RESULTS

A total number of 674 patients underwent surgery for brain metastases, over a period of time 10 years. Mean age at the time of diagnosis was 57 years and median age was 59 years. 63.4% were males and 36.6% females. The most common symptoms were intracranial hypertension in 39.1% cases, right hemiparesis 30.7% cases, aphasia 8.74%, left hemiparesis 7.7%, ataxia 5.8%, vertigo 2.56% and tonico-clonical seizures in 2.2% of patients. 46.8% of

patients had no medical history of cancer. The most frequent location of primary tumour was pulmonary in 54.7% cases, followed by breast cancer in 22.6% and renal cancer in 5.7%. 22.8% of cases had multiple lesions. 26.2% of tumours were found in the right frontal lobe, 14.7% in the left frontal lobe, 11.47% parietal on left, 8.19% parietal on right, 4.9% in vermis. Total resection was obtained in 91.6% cases, subtotal resection in 1.5% and near total resection in 3%. Histopathological exam showed differentiated carcinoma in 52.38%, 23.8% adenocarcinoma, 19% low differentiated carcinoma, anaplastic carcinoma in 1.3% cases and melanoma metastases in 3.4. The outcome was favourable in 97% of patients and 3% were deceased.9.77% of patients also underwent gamma knife radiosurgery. During the long-term follow-up 5.2% of patients presented tumour recurrences and from these patients 85.7% of the recurrent tumours were resected and 14.3% benefit from gamma knife radiosurgery, with good outcome.

CONCLUSIONS

Survival in patients with brain metastases is poor. Survival rate is positively correlated with primary cancer site, primary cancer control, higher Karnofsky score at admission, location, number of cerebral metastases, rate of resection, leptomeningeal invasion and adjuvant oncologic treatment.

KEYWORDS

brain metastases, survival

SURGICAL MANAGEMENT OF CERVICO-THORACIC MENINGIOMAS

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Objectives

Spinal meningiomas are extramedullary subdural benign tumours with a slow growing rate that arise from the dura mater. Spinal meningiomas account for 39% from all spine tumours. Typically, the first symptoms include radicular compression and, if left untreated, can lead to spinal cord compression. Their most frequent location is the thoracic segment, followed by the cervical one.

Materials and Methods

We retrospectively analysed the records of consecutive patients with cervico-thoracic meningiomas which underwent surgery in The Fourth Department of Neurosurgery, Emergency Clinical Hospital Bagdasar-Arseni, Bucharest, between January 2009 and December 2018. The aim of this study is to assess clinical features, surgical management and outcome of patients operated for cervico-thoracic meningiomas.

Results

Fifty-six patients underwent surgery for cervico-thoracic meningiomas. Patients included in the study had a median age of 64 years (varying from 28 to 84 years old) and the majority of patients were females (47 – 83.9%). The most frequent location

was the thoracic spine (39 – 69.6%). Gross total resection was achieved in all cases. One patient (1.8%) developed a postoperative hematoma that required reoperation and one patient a CSF fistula (1.8%).

CONCLUSIONS

Surgical management is mandatory for spinal cord meningiomas, being the only treatment capable to improve the functional outcome and cure the patient. Careful microdissection is needed in order to achieve good results and the outcome is influenced by their position in the axial plane and extent of resection. Following surgery, early mobilization and neuromuscular rehabilitation therapy are recommended for a quick recovery and a good functional outcome.

KEYWORDS

cervical, meningioma, thoracic

COMPARISON BETWEEN MI-TLIF AND OPEN TLIF FOR THE TREATMENT OF SPNDYLOLISTHESIS

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OBJECTIVES

Minimally invasive transforaminal lumbar interbody fusion (MI-TLIF) is a relatively new surgical procedure that appears to minimize iatrogenic soft tissue and muscle injury. Compared with the traditional open TLIF, the MI procedure has been associated with less blood loss, less postoperative pain and a shorter hospital stay. This¬ study¬ was¬ dedicated¬ to¬ evaluate the differences between MI-TLIF versus open TLIF.

MATERIALS AND METHODS

We conducted a prospective cohort study analyzing the differences of open surgery versus minimal invasive surgery, from November 2011 until May 2016. We compared the surgical time, surgical blood loss and outcome over a 4 years and 6 months period and fusion rates at 2 months, 6 months, 1 year and 2 years after surgery.

RESULTS

A total of 53 patients were included in the study. The two g.p9roups had similar baseline characteristics. The follow-up time was 24 months. The analysis revealed a longer operating time for the minimal invasive approach with a lower blood loss.

Complications rates were small in both groups, without revealing significant differences between the 2 groups. No difference in nonunion or reoperation rates was observed. Mean Oswestry Disability Index scores were slightly better in the patients undergoing MI-TLIF versus open TLIF at a median follow-up time of 24 months.

CONCLUSIONS

Patients experienced clinically and statistically significant improvement in both pain and motor function after undergoing either open or MI-TLIF. Patients achieved similar clinical benefit whether they underwent an open or MI-TLIF approach. However, patients in the MI-TLIF group experienced significantly decreased operative blood loss than their counterparts in the open group. Furthermore, an analysis of adverse events data suggests equivalent rates of surgical complications with lower rates of medical complications in patients undergoing MI-TLIF compared to open surgery.

KEYWORDS

TLIF, spondylolisthesis, minimal invasive transforaminal lumbar interbody fusion = MI-TLIF

ACTUAL STATUS OF NEUROSURGERY IN ROMANIA

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Introduction

The development of Neurosurgery in Romania was done extremely quick, thanks to the insertion of modern elements, American and French schools in this field. Romanian Neurosurgery has gone through a series of evolutionary stages: the pioneering, classical, modern and contemporary stage.

Material

Modern neurosurgery can be considered as dating from the late nineteenth – early twentieth century. With steady development over subsequent decades, like the use of asepsia and antisepsia introduced by Lister (1827-1912) and Semmelweiss (1818-1865), the growing knowledge of the anatomy of the Central Nervous System and its physiology, or the use of anaesthetics among many others. Among the pioneers of worldwide neurosurgery, we mention Sir William MacEwen (1848-1924) from Glasgow, the first one to employ anaesthesia in the field of neurosurgery, and Sir Victor Alexander Horsley (1857-1916) from London – the inventor of the Horsley stereotactic frame. The two surgeons developed the neurosurgical treatment of endocranial suppurations and the latter performed many interventions for the removal of various intracranial expansive processes.

The beginning of the 20th century saw many important neurological and neurosurgical figures coming to popularity.

Among them were men like Fedor Krause (1857-1937), Antony Chipault (1866-1920), Mathieu Jaboulay (1860-1913), Harvey Cushing (1869-1939), Bernard Sachs (1858-1944), Thierry de Martel (1875-1940) and many others that shaped what was to be called later “a modern neurosurgery”.

The beginning of neurosurgery in Romania is in accord with the international development and strategies, among the world. Neurosurgery has grown using two main paths, the educational side for both graduate and undergraduate, along with the clinical activity.

The neurosurgical activity in Iassy has been started with the great contributions from the French mentor, Professor Clovis Vincent (1879-1947) and the American school, implemented by Professor H. Cushing (1869-1939) and his team.

As an independent specialty in Iassy, neurosurgery was organised with the great contribution of Professor Alexandru Moruzzi (1900-1957) and in Bucharest by Professor Dumitru Bagdasar (1893-1946). The first clinic of neurosurgery was done in Iassy, year of 1933 (chief Professor A. Moruzzi), and after that, in Bucharest, year of 1935 (chief Professor D. Bagdasar). Until then, the entire neurosurgical activity was included in general surgery, under the courtesy of great names such Professor Toma Ionescu (1860-1926), Professor Amza Jianu (1881-1962) and Professor Iacob Iacobovici (1879-1959).

The continuous development of neurosurgery in Romania was stimulated by research and clinical neuroscience school, established by Professor Gheorghe Marinescu (1863-1938), Constantin Noica (1909-1987), Ion Radovici (1869-1908), Daniel Danielopolu (1884-1955), Ion T. Niculescu (1895-1957) and other representative contributors.

Once the two main university centers have been established,the continuous academic growth was aligned with the European and American trends. Names such as Dumitru Bagdasar (1893-1946) and Constantin Arseni (1912-1994), both members of the

Romanian Academy, are internationally recognized. Currently, the name of Acad. Prof. Dr. Leon Danaila is world-wide recognised.

Over the time, other centres have been established, with the contribution of Professor Stefan Iacob (1920-1975) in Cluj-Napoca in 1949; Academician Professor Miskolczy Dezső (1894-1978) and Professor T. Andrasofski in Targu Mures, also in 1949, and later in Timisoara by Professor V. Miclaus (1919-1977) in 1970.

After the unfortunate events of 1989, there is a continuous development of the neurosurgical network along the country, in a solid accord with the European and American ideology, based on the technical progress and the uniformity of neurosurgical practice.

In a compact society of neurosurgery, with more than 300 active physicians, there is a uniform recognition of the greatest names from the past, Professor Constantin Arseni and Professor Nicolae Oblu (1951-1977).

In the last decade, Romanian Neurosurgery has made major advances, both in term of equipment, technology and facility, as well as neurosurgical training at the highest level. All the University Centres from Bucharest, Cluj-Napoca, Timisoara, Iasi, Targu-Mures were considered at European level, a fact recognized by the Ex-Vice President of WFNS Congress on the occasion

Currently, in Romania it operates over 25 neurosurgical centres. In Bucharest, there are 12 departments of neurosurgery (6 sections from state hospitals, 2 paediatric sections, 4 sections from private hospitals). If we talk about the number of neurosurgeons from Romania, we have 180 neurosurgical residents (44%), 134 primary neurosurgeons (33%) and 94 specialist neurosurgeons (23%).

CONCLUSIONS

Nowadays, both University Centres and County Emergency Hospitals have well trained neurosurgical teams and equipment, able to cover all the subspecialty domains, such as brain tumours, vascular neurosurgery, paediatrics, neuro-oncology, spine surgery (traumatology, degenerative and oncology), functional and

peripheral nerves. The Gamma Knife Surgery tool was implemented in Neurosurgical Excellence Centre, in Bucharest in 2005. All the western facilities and important neurosurgical technologies are still in usual activities and continuous progress.

KEYWORDS
neurosurgery, history, Romanian neurosurgery, H. Cushing, C. Vincent, D. Bagdasar, C. Arseni, N. Oblu

COMPLEX SKULL FRACTURES MANAGEMENT AFTER TRAUMATIC BRAIN INJURY

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OBJECTIVES

Craniocerebral injuries are a global health problem and a challenge for the society. A significant problem in craniocerebral injuries are the skull fractures and their management. Rigid fixation of bone fragments in the process of repairing skull fractures may be difficult. The optimal method of reconstruction and fixation of the bone fragments remains a matter of discussion.

MATERIALS AND METHODS

We performed a retrospective study on a number of 972 patients with traumatic brain injury admitted in the Neurosurgery IV department of Bagdasar-Arseni Clinical Emergency Hospital, over a period of 5 years, between January 2014 and December 2018.Out of the total number of patients, 289 were also diagnosed with skull fractures. Out of all the surgeries performed, we present 3 representative patients.

RESULTS

A 50 years old male patient was brought in at the Emergency room with a craniocerebral trauma, GCS 12 points, tonico-clonical seizures. The CT exam showed a right parieto-occipital extradural hematoma, right parieto-occipital skull fracture and bilateral frontal brain concussions. The patient was operated, the extradural hematoma was evacuated and the fracture as realigned. A 29 years

old male patient was brought at the Emergency room after having suffered a craniocerebral trauma by assault, GCS 13 p, accusing headaches, a right temporal skin wound and mild aphasia. The CT scan revealed a right extradural cerebral hematoma and a right temporal linear fracture. The extradural hematoma was evacuated. The bone flap was set back in place using 3 titanium clamps. The postoperative evolution was very good. A 24 years old patient presented for cranio-cerebral trauma by assault, being hit with an ax in the head. The patient had no neurological deficits, GCS 15 points and an occipital skin wound. The CT evaluation indicated a left occipital compound depressed fracture. The floating bone pieces were resected and the occipital fracture was reduced. There were no postoperative complications.

CONCLUSIONS

Complex skull fractures after brain injury can be a surgical challenge. However, the use of modern titanium clamps can help in reconstructing the normal anatomy of the affected area.

KEYWORDS

skull fracture, titanium bone clamps, traumatic brain injury

GIANT FRONTO-TEMPORO-PARIETAL CHOLESTEATOMA: A RARE TUMOUR WITH ATIPIC LOCATION. CASE REPORT

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OBJECTIVES

Cholesteatomas are benign well-circumscribed tumours formed by the progressive desquamation of a keratinizing stratified squamous epithelium inside a capsule. Their histopathologic aspect is the one of an epidermoid cyst, suggestively named "pearly tumour". It is a very rare tumour with many controversies surrounding it. Although it usually develops within the skull diploe, sometimes it can erode the inner cortical bone and cause mass effect, seizures or venous sinus obstruction. A patient with this kind of lesion is also at risk of developing serious complications such as brain abscesses or aseptic meningitis. Most of these tumours are found in the middle ear and/or mastoid process, while some of them may extend to the skull base from the mastoid. Cholesteatomas with other locations are very rare.

MATERIALS AND METHODS

We present the very rare case of a giant cholesteatoma located in the left temporal, frontal and parietal bone.

RESULTS

A 66-years old male was admitted to our clinic for a soft consistency tumour, located in the left parietal bone. The patient's

medical history only mentioned hypertension and diabetes. The neurological examination was normal. We performed a gadolinium-enhanced MRI which indicated a massive fronto-temporo-parietal extranevraxial tumor arising from the calvaria. The lesion was gadolinophilic, with cystic and tissue components, compressive on the left hemisphere, causing a 17 mm median line shift. The patient was operated and complete resection of the tumor was achieved by a fronto-temporo-parietal craniotomy. Once the craniotomy was performed, a mixed consistency epidural tumor measuring 13/13 cm was revealed, located in the concavity of the bone flap. The dura mater was not infiltrated. The histopathological examination indicated a cholesteatoma. There were no postoperative complications. Extensive imagistic examinations revealed no other cholesteatomas.

CONCLUSIONS

Cholesteatomas are rare, benign brain tumours. Even though cholesteatomas more frequently occur in the middle ear and skull base, sometimes locations can be surprising. Complete resection is the treatment of choice and it assures cure of the disease.

KEYWORDS
atypical locations, cholesteatomas, extradural

SURGICAL MANAGEMENT OF INTRAMEDULLARY SPINAL EPENDYMOMA

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OBJECTIVES

Intramedullary spinal cord tumours are rare lesions that account for 2% to 4% of all CNS tumours, with ependymoma being the most common entity in the adult population. With few exceptions, these tumours are histologically benign, although difficulties in cure make them malignant in behaviour.

MATERIALS AND METHODS

We report the case of a 53-year-old female patient with cervical pain that radiates into the superior and inferior limbs, with symptomatology debuting almost a year and a half prior to admission. Neurological examination showed anteflexion posture when walking, slight hemiplegic gait on the right inferior limb. The deep tendon reflexes were generally accentuated, more on the left side, normal bilateral plantar reflex, right cervicobrachialgia, hypoesthesia in the T1 dermatome and sphincter continence. The first spinal MRI displayed a tumour (6.21cm/2.11cm/1.4cm) that was located intramedullarly, extending from C2 to C5, imagistically compatible with ependymoma. A cervical posterior approach was performed through C2, C3, C4 laminectomies and a gross total resection of the tumour. A C2-C4 posterior myelotomy was also done. Postoperative, the patients motor deficit had accentuated,

developing hypertonia and clonus in the superior limbs, symptoms which have regressed the following period of time.

CONCLUSIONS
Although the ependymoma is recognized as a benign tumour, its intramedullary development makes it malignant through localization. In case of ependymomas, gross total resection is recommended, due to its clear margin of demarcation from the surrounding spinal cord.

KEYWORDS
ependymoma, mielotomy, spinal cord, laminectomy

CORRELATIONS BETWEEN SURGICAL APPROACHES IN METASTATIC SPINE DISEASE AND THE ELEMENTS OF TOKUHASHI SCORING SYSTEM

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OBJECTIVES

The aim of this study is to evaluate the management and the outcome of different surgical approaches in metastatic spine disease depending on the elements of the Tokuhashi Scoring System.

MATERIALS AND METHODS

In selecting patients for surgical intervention, we followed the elements of Tokuhashi scoring system that consider primary tumour histology, number of vertebral metastases, presence of extraspinal or visceral metastases, overall functional status and neurologic function.

RESULTS

We selected a number of 61 patients admitted in our Department from July 2017 to November 2018, 51% beying man (31) and 49% woman (30). The most frequent primary tumor histology was pulmonary carcinoma, followed by blood malignancies and finally breast and prostate cancer. The current surgical management of the vertebral metastases involves the use of the following methods, alone or combined: Total or subtotal resection with or without

posterior lumbar interbody fusion with transpedicular screws and rods, vertebral body replacement after corpectomy and biopsy. We analysed therefore the correlations between the Tokuhashi scoring elements and the currently applied surgical treatment.

CONCLUSIONS

Despite major radiation and medical advancements in cancer care, surgery still plays a major role in the treatment paradigm for patients with spinal metastases. The surgical approach is influenced by the elements of the Tokuhashi Scoring System and the score itself, but regardless of the treatment, diagnosis before the development of significant neurologic and functional deficits improves outcomes.

KEYWORDS

vertebral metastases, scoring system, spine, cancer, surgical approaches

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NURSING CARE AND MANAGEMENT OF PATIENTS WITH HYDROCEPHALUS

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OBJECTIVES

The aim of the study was to review the etiology and pathophysiology of hydrocephalus, clinical signs according to age group, the medical and surgical management of hydrocephalus, and potential postoperative complications. We identified specific nursing care issues for patients with hydrocephalus and highlight the importance of the nurse's role in the rehabilitation of patients undergoing surgical treatment for hydrocephalus.

MATERIALS AND METHODS

We reviewed medical records for patients with hydrocephalus admitted in the Neurosurgery Department of Emergency County Hospital Cluj-Napoca between Jan 2019-Aug 2019. We took and processed data about nursing interventions from patients daily treatment records. For each case, we have analysed the following: diagnoses, age, gender, clinical signs, type of surgical treatment, postoperative complications and its treatment, and length of hospitalization.

RESULTS

Three different types of complications were identified: pain, bleeding, wound infection. After surgical treatment, patients showed clinical improvement. All the patients were discharged to home and the mean of the hospital stay was 72 h.

CONCLUSIONS
Nursing care should meet patient expectations and establish a communicational approach, keeping them informed and organize perioperative and postoperative care management.

KEYWORDS
hydrocephalus nursing care

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3D PATIENT SPECIFIC IMPLANTS FOR CRANIOPLASTY. A MULTICENTRE STUDY

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This article presents a multi-centre study cohort study on 50 patients with cranial defects of multiple etiologies (trauma, decompression, tumour surgery, etc.) operated in 10 hospitals. In all patients the neurosurgeon repaired the cranial defect using 3D printed and CNC milling and drilling grafts or Patient Specific Implants, from two world known manufacturers, custom made in accordance with the data obtained from the patient's 3D CT reconstruction.

INTRODUCTION

Cranioplasty is defined as the surgical intervention performed to repair cranial defects following trauma, surgical decompression, tumour surgery, congenital anomalies or growing skull fractures. The implications of cranioplasty are psychological, aesthetic and functional. The history of cranioplasty dates back to 7000 BC. with archeologic evidence supporting the use of both inorganic and organic materials. Although many methods have been described

there is little consensus regarding the optimal solution for such cases.

Materials and Methods

We conducted a multicentre cohort study on patients with cranial defects of multiple etiologies (trauma, decompression, tumour surgery, etc.) operated in 10 hospitals having enrolled in study a total of 50 patient from which 16 were female 34 were male, 22 from urban, 28 from rural area of Romania, age between 5-68 years old. Regarding etiologies 31 were trauma, 16 were decompression and 3 were tumour. In all patients during the surgery were repaired the cranial defects using Patient Specific Implants made by 3D printing and Cad Cam manufacturing (Cnc milling and drilling) methods using specific data obtained from the patient's 3D CT reconstruction using a very clear scanning protocol. The follow up range is between 1- 9 years. Material used for implants were: Peek, Titanium Alloy and Bioverit (ceramic). Distribution of implant material from our study was: 45 cases with Peek, 4 cases with Titanium Alloy, 1 case with Bioverit.

Results

There was a total of 50 patients treated with Patient Specific Implant that proved significant aesthetic, functional and psychological improvements after cranioplasty. Minor complications appeared in several cases, which were related to implant manufacture (unsatisfying implant in preoperative. – later corrected), cranioplasty fixation systems, scalp complications – related to initial trauma, and two cases of wound infection – one related to the type of suture used and one wound contamination without suture defect. There were no fatalities and no long-term complications.

Conclusions

Custom 3D implants for cranial reconstruction are a safe and viable solution which has been available for some time even in

surgical centres also with no prior experience using 3D patient specific implants.
Superior aesthetics and good functional outcomes can be achieved with 3d patient specific implant where other methods fail.

KEYWORDS
3d printing, cranioplasty, Peek, Titanium, Bioverit, trauma, tumour, decompression, neurosurgery, reconstruction

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THE INDICATION FOR SURGICAL TREATMENT OF SPONDYLOLISTHESIS. OUR EXPERIENCE

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OBJECTIVES

Spondylolisthesis is an abnormal alignment of bones in the spine and usually affects the lumbar spine. It occurs when an upper vertebra slips in front of the one below and can result in pain, significant disabilities and neurological deficit. Spondylolisthesis is graded by the amount of slippage and it has a scale from I to IV. This study presents an overview of the clinical evaluation, radiological evaluation, classification and management principles.

MATERIALS AND METHODS

The presented study is a retrospective between the years 2018-2019. All patients were admitted in Neurosurgery Clinic from Sibiu County Hospital with spondylolisthesis. Clinical examination and X-rays, CT scans and MRI scans are used in the diagnosis of spondylolisthesis.

RESULTS

The injuries were classified in a scale from I to IV, according to the classification system and the radiological results. Treatment for spondylolisthesis depends on several factors, including the age and overall health of the person, the extent of the slip, and the severity of the symptoms. Treatment most often is conservative, involving rest, medication and exercise. Most severe spondylolisthesis might require surgery.

CONCLUSIONS

Given the very small number of cases recorded, no solid conclusions could be drawn from the results obtained. However, the data support the following assertions: the spondylolisthesis resection remains a solution to consider when the possibilities of fixation are out of the question, the great inconvenient of this procedure being the residual instability, the internal fixation with screws is the method of choice because the fixation with plate according to the recommendations is often impracticable.

KEYWORDS

spondylolisthesis, clinical studies, MRI, lumbar spine, neurosurgery, clinical evaluation, radiological evaluation, management principles

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MULTIMODAL TREATMENT OF SPINAL ARTERIOVENOUS FISTULA

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OBJECTIVES

Spinal arteriovenous fistula are rare entities, with severe consequences if untreated. During the past few decades, there have been significant advances in the understanding of these lesions, mainly because of selective spinal angiography. We present the case of a patient with lumbar arteriovenous fistula manifested by repetitive and remissive episodes of incomplete motor deficit with sphincter disorders.

MATERIALS AND METHODS

A 34-year-old woman with no particular history, with a history of low back pain since 2016 for whom an MRI was performed showing an L1-L2 arteriovenous fistula without medullary edema, since then was followed by imaging. During the last months she presented several remissive episodes of paraparesis with sphincter disorders with an average duration of 3 days, so it was decided to endovascular treatment. Post procedure she set up a complete motor deficiency MRC 1/5 and sphincter disorders. The Angio-CT and MRI examination revealed the repermeabilization of the fistula, edema of the inferior dorsal cord and Conus terminals. Faced with a neurological deficit in remission at 5 days, it was decided to operate in a second time after the stabilization of the clinical picture. A surgical procedure consisting of clipping arterial

and venous pedicle, and then coagulation of these with ablation of pseudoaneurysm, was performed 2 weeks after starting from a preoperative clinical examination marked by motor deficiency 2/5 and urinary leakage.

RESULTS

Favourable slow evolution with total remission of sphincter disorders and motor deficit at 3/5. The postoperative Angio - CT does not show evidence of vascular less spinal lesions. In the follow-up, the patient was referred for re-education.

CONCLUSIONS

The spinal arteriovenous fistulas are rare and often unknown, they can cause the appearance of a chronic myelopathy by venous hyperpressure, so before a doubt on the MRI it is always necessary to supplement by an angiography to confirm or to invalidate the diagnosis. Sometimes a multidisciplinary approach can be taken for optimal treatment.

KEYWORDS

arteriovenous fistula, MRI, angiography

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TRIGEMINAL NEURALGIA. UPGRADE OF CLASSICAL PERCUTANEOUS TECHNIQUE

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OBJECTIVES

The goal of this work is to present preliminary results and techniques of neuronavigation-guided percutaneous Neurolysis in the treatment of trigeminal neuralgia.

MATERIALS AND METHODS

Percutaneous Neurolysis guided by neuronavigation was used in four patients with trigeminal neuralgia admitted to our hospital between 01.05.2019 and 30.08.2019. All patients developed pharmacoresistence to drugs used in the treatment of trigeminal neuralgia or have had adverse effects due to drug toxicity. The age of the patients was between 62 and 82 years.

RESULTS

All the patients had an immediate pain relief after the percutaneous Neurolysis guided by neuronavigation. In one case, the pain has recurred shortly after the operation. Neuronavigation is a useful tool that gives the neurosurgeon the comfort of direct visualization of theinstrumentsposition în any time of the operation. It helpsin preoperativeplanning of the optimal trajectory for needle insertion and an increased precision of foramen ovale targeting, reducing the risk of complication associated with this procedure.

Conclusions

Percutaneous Neurolysis guided by neuronavigation in the treatment of essential neuralgia is a safe and promisingProcedure especially for older patients. It gives good pain control and reduces the risk of postoperative complications caused by searching of the foramen ovale.

Keywords

neuralgia, percutaneous, navigation

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PROGNOSTIC FACTOR OF SURVIVAL AND OUTCOME OF 1P/19Q MUTATION IN OLIGODENDROGLIOMAS

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OBJECTIVES

According to the World Health Organizations oligodendrogliomas are primary brain tumours representing between 2 and 4% of primary brain tumours, that occur in people between the ages of 35-44 years, most of which are men.

MATERIALS AND METHODS

In this article we retrospectively review the case files of 66 patients with oligodendroglioma operated in our department between January 2011 and December 2018.

RESULTS

We excluded from the study the patients that were diagnosed with glioblastoma or oligoastrocytoma after the histopathological examination. Surgical gross resection was attempted in all cases, but only partial resection was achieved in some of the patients for various reasons. The medium age of the patients was 39,92 years (from 26 to 59). The sex ratio male: female was 1,6: 1 . The most common symptoms were headache and seizures. Other symptoms were intracranial hypertension syndrome, sudden paresis or vertigo. In 61% of cases the tumour involved the frontal lobe and in 53% the tumour was localized in the right hemisphere. Mass

effect on the opposite hemisphere was present in 59% of cases and in 15% of cases the intracranial pressure was so high that the patients were having symptoms of brain herniation syndrome. Some of the patients benefited from irradiation procedures or chemotherapy after the surgery or in case of regrowth. In 16 % of cases, the low-grade glioma suffered malignant transformation into glioblastoma in 3,5 years (between 1 and 6 years after the first surgery) with local recurrence.

CONCLUSIONS

Oligodendrogliomas are very complex tumours with an unpredictable growth pattern. The tumour can have growth patterns and can develop over the years at different speeds, sometimes the tumour suffering a malignant transformation into glioblastoma. The symptoms are various, depending of different factors like the location of the tumour or the speed of growth. The adjuvant therapies like chemotherapy or radiotherapy are a mandatory step in this kind of tumour. Also, the genetic substrate of these tumours and the importance of the mutation 1p/19q regarding the prognosis should not be neglected.

KEYWORDS

oligodendroglioma, mutation 1p/19q, outcome

QUALITY OF LIFE AFTER UNILATERAL LAMINOTOMY WITH BILATERAL SPINAL CANAL DECOMPRESSION FOR SPINAL STENOSIS

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OBJECTIVES

Lumbar spinal stenosis is a common degenerative disease, most frequently encountered in the elderly. Lumbar stenosis is a progressive and dynamic process and is characterized by narrowing of the spinal canal due to multifactorial degenerative factors. Spinal stenosis leads to neurological deficits, severely impairing quality of life and requires surgical treatment.

MATERIALS AND METHODS

We performed a retrospective study including 560 consecutive patients with neurogenic claudication and back pain operated for central lumbar stenosis, in the Fourth Department of Neurosurgery, Emergency Clinical Hospital Bagdasar-Arseni Bucharest, over a 5-year time period, from June 2014 to June 2019. 59,4% were female and 40,6% were male. Mean age was 66 years old. All patients were clinically and radiologically tested for instability with flexion-extension x-rays. All patients underwent unilateral laminectomy with bilateral spinal canal decompression.

RESULTS

Of the 560 patients included in our study all were considered "stable". All patients were operated using the unilateral transmedian subspinous approach with bilateral spinal canal decompression. 44.6% of patients were treated for multiple level stenosis. 55.4% were treated for single level stenosis. Postoperative check-ups did not reveal instability syndrome in any patient. Symptom remission was noted in 95.3% of cases. 4.7% of patients had reminiscent back pain that subsided with bed rest.

CONCLUSIONS

Lumbar stenosis requires surgical treatment. Quality of life is influenced by number of levels involved, pre-operative duration of symptoms, associated spinal pathology and surgical technique. The great majority of patients operated using unilateral laminectomy with bilateral spinal canal decompression experienced favorable results and symptom remission. Destabilization syndrome din not occur in any cases using this surgical technique.

KEYWORDS

central lumbar stenosis, quality of life, posterior decompression, unilateral laminotomy with bilateral spinal canal decompression

BRAIN ABSCESS WITH PURULENT MENINGOENCEPHALITIS SECONDARY TO DENTAL ALVEOLITIS. CASE MANAGEMENT

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OBJECTIVES

A cerebral abscess is a life-threatening condition consisting in a focal infection within the brain tissue. It can occur due to direct cranial trauma, haematogenous or local dissemination. The latter mechanism involves spreading pathogens from an infection site located in the paranasal sinuses, ear, mastoid air cells or form the oral cavity. Signs and symptoms that usually occur are intracranial hypertension, fever and focal neurologic deficits, depending on the site of the abscess. Routinely, a contrast enhanced computed tomography examination will reveal a ring-enhancing lesion, highly suggestive for this diagnosis.

MATERIALS AND METHODS

We present the case of an immunocompetent patient who developed a brain abscesses due to a poorly managed dental alveolitis.

RESULTS

A 45-year old male, with a history of 4 tonico-clonic seizures and headache in the last month was admitted to our department. The neurological examination was normal. The patient had no significant pathologies, except for a dental alveolitis which he refused to treat. A gadolinium-enhanced MRI examination revealed two contiguous ring-enhanced brain lesions in the right

frontal lobe and right mastoiditis. Anti-epileptic therapy was started before admission and continued before and after the surgery. The drainage and resection of the abscesses was performed through a fronto-temporo-parietal craniotomy. After the dura mater was opened in a semi-circular manner, a large area of purulent meningoencephalitis was observed, covering the fronto-parietal cortex. The surgery was uneventful and the postoperative CT scan showed complete resection of both lesions. After the surgery, wide spectrum antibiotics were administered since no germ had been isolated from the content of the abscess. The patient had good outcome, without neurologic deficits or seizures. After being discharged, he was referred to an Infectious Diseases Hospital for extended antibiotic therapy, with the clear indication to properly treat the dental alveolitis as soon as possible.

CONCLUSIONS

Dental infections can cause brain abscesses. Surgery is mandatory for symptomatic and large brain abscesses. These types of lesions require multimodal treatment, surgery and long-term antibiotic therapy after which outcome is usually very good.

KEYWORDS

brain abscesses, infection, meningoencephalitis, surgery

FRONTO-BASAL CEREBRAL LACERATION POST SPHENOIDAL MUCOCELE ENDOSCOPIC PROCEDURE ATTEMPT. CASE PRESENTATION

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Objectives

Mucoceles of the paranasal sinuses are defined as retention and accumulation of fluid within the sinuses. Accumulation may lead to a steady, silent grow of the mucocele. The rarest site for the development of a paranasal mucocele is the sphenoid sinus. The most common method of treatment for these lesions is endoscopic trans-nasal drainage of both sphenoid sinuses. Usually, the mucocele is punctured, the content is evacuated and the walls of the lesions are excised, usually by the use of a surgical curette.

Materials and Methods

We present the case of a 76 years old female patient who underwent trans-nasal approach for a sphenoid sinus mucocele, during the surgery of whom a surgical curette was accidentally passed through cranial base, resulting in a massive frontal cerebral laceration, CSF leak and acute neurological impairment.

Results

The patient was admitted in our clinic in deep comatose state, GCS 6 p, nasal anterior and posterior packing with active bleeding present. The CT scan showed a massive left fronto-temporal laceration, ventricular blood flooding, along with acute left

hemispheric subdural hematoma. Surgery was performed, using a left pterional approach. The subdual hematoma was evacuated, the lacerated brain tissue was resected and extensive hemostasis was conducted. Afterwards, the anterior skull base was inspected and a bone defect was identified at the level of the left cribriform ethmoidal plate. This was filled with hemostatic material, muscle and fascia, which was sutured to the dura. No other complications occurred. The neurological evolution of the patient was very good, on the second day after surgery GCS was 14p, no motor deficits were identifiable. The control CT scan showed no residual hematoma. The patient was discharged 14 days after surgery with no neurological deficits, GCS15p, no CSF leak and no other complications.

CONCLUSIONS

Fronto-basal lesions with cerebral laceration should be considered a complication of ENT surgery. Early management of the complication can save the patient's life, so the interdisciplinary communication is essential.

KEYWORDS

brain laceration, complication, endoscopic, ENT, mucocele

A 3-YEAR RETROSPECTIVE STUDY ON THE ENDOSCOPIC THIRD VENTRICULOSTOMY EFFICACY IN HYDROCEPHALUS CHILDREN

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OBJECTIVES

Hydrocephalus is an active distension of the ventricular system of the brain resulting from inadequate circulation of CSF. It is the main pathology encountered in paediatric neurosurgery, affecting 1– 2 of every 1000 live births, making it by far the leading cause of brain surgery. Although for a long time, ventricular shunt placement (VSP) was the only therapy available for hydrocephalus, nowadays endoscopic third ventriculostomy (ETV) becomes a reasonable alternative method that seeks to reduce the risk associated with shunt malfunction and its life-time dependence. The purpose of this paper is to analyse the success rate of ETV, by counting the number of patients who didn't need shunt placement within the 1 year after ETV surgery.

MATERIALS AND METHODS

The authors conducted a retrospective analysis of 161children with hydrocephalus who were treated either ETV or VSP at Marie Curie Emergency Children's Hospital, Bucharest between 2016 and 2018. Among those 161 examined children, 50 underwent ETV and 111 underwent ventricular shunt placement (VSP) as their first treatment.

Results

Among those from the first group, 24 patients were surgery-free after ETV while the others 26 needed shunt placement. We defined our success rate (48%) basing on the number of patients who didn't need any shunt placement within 1 year after ETV. We also reported a big tendency to failure for those within the ETV group who were already associated with intraventricular haemorrhage, born prematurely or with post-meningeal status. Thus, we recorded at least 10 cases of multilocular hydrocephalus with severe complications who needed multiple endoscopic interventions and shunt revision till the equilibrium was achieved.

Conclusions

This retrospective study stresses out the idea that in children with hydrocephalus a greater risk of failure is associated with ETV compared with shunt placement, but despite this fact eventually almost any hydrocephalus is treatable. Further investigations are necessary for understanding the reoperation probability in order to distinguish which treatment is long term beneficial.

Keywords

endoscopic third ventriculostomy, shunt placement, hydrocephalus, paediatric neurosurgery

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GLIOBLASTOMA: A STORY OF EVOLVING THERAPEUTIC STRATEGY

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OBJECTIVES

Glioblastoma (GBM), a grade IV WHO malignant tumour of astrocytic lineage, stands out as the most frequently diagnosed and lethal primary brain cancer with an incidence of 3 per 100,000 adult-years. Since the first recorded reports of gliomas, a wide variety of treatment modalities evolved to break barriers in terms of patient survival aided by state-of-the-art fundamental research translated into therapeutic agents.

MATERIALS AND METHODS

This paper, an overview of GBM treatment, aims to review published literature with emphasis on breakthroughs throughout 2-century history, current practice and future directions. We accessed the PubMed database and used the keywords 'glioblastoma treatment', 'history', 'current', 'future'. We selected only full English text articles.

RESULTS

Decades ago, surgery was the only treatment modality and involved maximal tumour removal with preservation of

neurological functions. Since GBM exhibited infiltrating character, gross total resection was unachievable, leading to poor results: better understanding of this eluding tumour was needed. Percival Bailey and Harvey Cushing's extensive work on glioma classification in 1926 considerably improved knowledge about GBM, followed by other classification systems, the latest (WHO, 2016) including molecular parameters and defining IDH-wildtype and IDH-mutant GBM. Although surgical technique lowered procedure related mortality rates (from 30-60% to 6% in Cushing's latest cases), patient survival remained unchanged, calling for new strategy. Radiotherapy and chemotherapy were added and opened the era to multimodality treatment. The overall survival with surgery alone was 3–6 months, while addition of radiotherapy increased survival to 12.1 months (10,4% 2-year survival) and including temozolomide chemotherapy, to 14.6 months (26.5% 2-year survival). This approach represents the current gold-standard multimodality GBM treatment; still, the prognosis remains unfavourable (5-year survival < 5%). New insight is brought by fundamental research on GBM molecular biology, genomics, epigenetics, proteomics or microenvironment and ongoing studies search for approval of efficient agents. Immunotherapy or nanoparticle-based therapies are other promising future directions of study.

CONCLUSIONS

GBM remains the most challenging neuro-oncological entity, despite all multidisciplinary efforts. However, new personalized therapeutic strategies emerge and bring hope to cut this modern-day Gordian knot: finding the cure for the so-far-undefeated brain tumour.

KEYWORDS

glioblastoma treatment, multimodality, history, future, targeted therapy

EXTREMELY RARE INTRACRANIAL TUMOURS IN CHILDREN. A SINGLE-CENTRE TWO-YEAR EXPERIENCE

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OBJECTIVES

To illustrate our surgical experience with extremely rare intracranial tumours in children. To highlight the importance of multimodal therapy and adequate logistics in such cases. To showcase important steps of the surgical treatment of such patients.

MATERIALS AND METHODS

Tumours of the Central Nervous System represent major causes of morbidity and mortality. The prognosis and outcome of children diagnosed with tumours of the central nervous system are dramatically influenced by the location of the lesion, the age of the patient, the associated pathology / comorbidities, pathology findings and overall general health status. The authors present a single-centre, two-year long experience with extremely rare tumours of the central nervous system. Our study group contains: 1 lesser sphenoid wing meningioma, 1 plexiform neurofibroma, 1 dumbbell trigeminal schwannoma, 1 poorly-differentiated glioneural tumor, 1 filum terminale meningioma and one conus medularis ependimoma. We illustrate the clinical, imagistic and surgical key-points in the management of these patients

underlining the importance of adequate preoperative planning and adequate surgical logistics.

RESULTS

There were no fatalities in our series, however one patient diagnosed with highly invasive plexiform neurofibroma of the left hemicranium presented at 6th months with inoperable multiple tumours. All other cases were discharged with favourable results.

CONCLUSIONS

Central nervous system tumours in children are high-risk lesions requiring the presence of the newest neurosurgical solutions available (surgical microscope, neuronavigation, neuroendoscopy, evoked potentials etc.) and customized neuroanesthesia solutions. Such cases always require multimodal treatment in specialized centres.

KEYWORDS

neurooncology, neurosurgery, pediatrics, management, outcome

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INTRACRANIAL SUPPURATIONS IN CHILDREN. A SINGLE-CENTRE TWO-YEAR EXPERIENCE

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Objectives

To address and debate the optimal treatment methods in intracranial suppurations in children. To highlight the importance of surgical and conservative treatment in such cases. To showcase a series of cases with challenging management.

Materials and Methods

Intracranial pyogenic infections are an important pathology in the modern paediatric neurosurgical practice due to both their frequency – which is apparently increasing - and their dark prognosis with high mortality and morbidity without immediate treatment. Such paediatric patients are absolute neurosurgical emergencies and their management should always be performed in a medical centre capable of multimodal approaches: neuroimagistic, surgical, paediatric neurosurgical ICU, ENT, infectious disease management, neuro-recovery etc. This material presents a single-centre two-year experience with intracranial suppurations. The authors approach the clinical and neurosurgical characteristics of the study group which consists of 16 patients. We noticed a higher incidence of intracranial infections in patients with decreased immunity as a result of poor nutrition, long-term corticosteroid use, ineffective antibiotic therapy, untreated dental

& ENT infections. In our series most infections started in paranasal sinuses, dental alveoles and the middle ear. The most commonly observed germs were Gram-positive (streptococci, staphylococci) followed by Gram-negative (Klebsiella sp., Pseudomonas sp.) and anaerobic (Bacteroides sp., Actinomyces sp.). The infections manifested as classical clustered intracranial expansive processes, epidural empyema, subdural empyema, cerebral abscesses or ventriculitis. In what regards our choices for surgical approaches, we always preferred open surgical approaches with the complete evacuation of the encapsulated abscess. Postoperatively, our patients received antibiotic therapy (including intraventricular single-dose protocols) according to guides and antibiograms, for a period of 6-8 weeks. Infectious disease check-up was performed in a specialized center - the "Victor Babes" Hospital for Infectious and Tropical Diseases in Bucharest, with subsequent re-assessment in our department.

RESULTS

Our series contains 1 fatality out of 16 patients (late treatment) - representing 6.25% of all cases. One case had major neurologic deficit (pre-existing at admission) - blindness in one eye - with clinical improvement following surgery. All other patients were discharged with good outcomes.

CONCLUSIONS

Early diagnosis and immediate referral of the patient in a multidisciplinary paediatric care centre, followed by rapid surgical intervention and targeted antibiotic treatment supervised by a infectionist should be the gold-standard for obtaining a maximum possible GOS.

KEYWORDS

intracranial pyogenic infections, suppurations, cerebral abscess, subdural empyema, ventriculitis, pediatric neurosurgery, management

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Cohen, Alan. Pediatric Neurosurgery: Tricks of the Trade. Thieme, 2016.

COMBINED PTERIONAL AND INTERHEMISPHERIC TRANSCALLOSAL APPROACH FOR A LARGE PARASELLAR CRANIOPHARYNGIOMA WITH THIRD VENTRICLE INVOLVEMENT AND POSTERIOR FOSSA EXTENSION

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Objectives

Craniopharyngiomas are slightly rare tumours with a slow, so-called benign growth, derived from the hypophysiopharyngeal duct. The most common neurologic findings in adults are visual disturbances and headaches. Pathologically, there are two subtypes described: adamantinomatous and papillary.

Materials and Methods

A 30-year old man presented to our clinic accusing headache, blurred vision, dizziness, difficulties in mental focus and vague memory deficits for the past two years. The contrast-enhanced head MRI reveals a large parasellar tumour extending upwards in the third ventricle and also posteriorly in the interpeduncular and prepontine cisterns, associated with lateral and third ventricle active hydrocephalus.

Results

Considering the slightly larger extension of the tumour leftward, the decision was made in favour of a left pterional approach. Subtotal ablation of the tumour with preservation of the cavernous sinus and its components was achieved. Post-op, slight blurred vision persisted with the patient. Upon control contrast-enhanced

CT, the intraventricular and posterior fossa components were shown to be unresected. Consecutively, a second surgery was decided upon. A right paramedian fronto-parietal craniotomy was performed which permitted for total resection of the third ventricle formation via an interhemisperic transcallosal approach. Moreover, the third ventricle floor was opened reaching the interpeduncular fossa and performing total resection of the posterior fossa extension of the tumour and finally placing an external ventricular drainage at this level. Post-op, the patient had motor and verbal difficulties with slightly altered neurological status which improved slowly over the following weeks. After two weeks, the EVD was removed and the patient subsequently developed hydrocephalus the following days. As a therapeutical measure, a right-sided ventriculo-peritoneal shunt was placed. Post-op, following a daily kinetotherapy schedule the neurological status of the patient significantly improved and was finally transfered to a neurology department for further care, after a total of 31 days of hospitalization.

CONCLUSIONS

In conclusion, craniopharyngiomas are some of the most deceiving tumours of the CNS, purporting as benign formations but eventually leading to serious complications due to their localisation, extension and mixed consistency. Thus, craniopharyngiomas must be approached with the greatest of care and forethought, establishing a sound balance between extent of resection and unncessary heroic acts.

KEYWORDS

craniopharyngioma hydrocephalus pterional interhemispheric transcallosal

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SURGICAL MANAGEMENT OF POSTERIOR CRANIAL FOSSA MENINGIOMAS. A SINGLE-CENTRE STUDY AND REVIEW OF THE LITERATURE

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OBJECTIVES

Posterior fossa meningiomas (PFMs) account for approximately 7%–12% of all intracranial meningiomas. These tumors represent a challenging entity due to their proximity to critical vascular and neural structures.

MATERIALS AND METHODS

We reviewed consecutive patients who underwent surgery for PFMs in order to evaluate surgical management efficacy and factors influencing the clinical outcome. Data were collected from a series of 17 consecutive patients who underwent surgical treatment for PFM between 2014 and 2018 in the 3rd Neurosurgical Department of "Bagdasar-Arseni" Clinical Emergency Hospital.

RESULTS

There were 5 (29,4%) male and 12 (70,6%) female patients, with a sex ratio of 1:2,4 and mean age of 58 years. Mean tumour diameter was 43.66 mm. Histopathological examination identified 12 (70,6%) transitional meningiomas and 5 (29,4%) atypical meningiomas. There were 6 tumours (35%) invading the transverse

sinus, 3 tumours (18%) arising from the dura covering the petrous bone and invading the superior petrosal sinus, 6 tumours (35%) of convexity and 2 tumours (12 %) arising from the tentorium.

CONCLUSIONS

Surgical treatment remains the gold standard for managing PFMs tumours, but sometimes the resection can be limited by the proximity to important anatomical structures, that can be displaced or invaded by the tumour. Therefore, for a good clinical outcome, a balance between the extent of resection and the integrity of the critical structures surrounding the tumour is mandatory.

KEYWORDS

posterior cranial fossa, meningioma, surgical treatment

ADVANCES IN GLIOBLASTOMA THERANOSTICS

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OBJECTIVES

Glioblastoma is the most common malignant primary brain tumor and is characterized by a poor prognostic, despite the multimodal treatment that is currently available (surgery, radio- and chemotherapy). Recent advances in molecular biology make possible new diagnostic and more important therapeutic approaches. One of the therapies is based on a subtype of non-coding RNA (ncRNas), called microRNA. This paper presents our results regarding the role of Lis1 in glioblastoma and reviews potential diagnostic markers and therapeutic targets.

MATERIALS AND METHODS

We silenced the expression of Lis1 in U87 glioblastoma cells by stable transfection with specific ShRNA plasmids. U87 Lis1 silenced cells (shLis1 U87) and control U87 cells were then irradiated (20 Gy) and treated with temozolomide (TMZ) and using RTCA we evaluated their proliferative index. Using target prediction databases, we evaluated potential ncRNAs that could target Lis1.

RESULTS

ShLis1 U87 irradiated cells have a cell index of up to three times

lower than control cells and ShLis1 U87 cell treated with TMZ of up to four times lower. These data can be explained thought our previous results that demonstrated that ShLis1 cells have a smaller number of CD133+ cells which are radio- and chemoresistant. The scanning of target prediction databases indicated potential ncRNAs tha could target Lis1, and therefore alter its function, such as miR-125.

CONCLUSIONS

Silencing Lis1 increases the chemo- and radiosensitivity of U87 glioblastoma cells. By targeting Lis1 with small molecules, new adjuvant therapies could be development to fight the treatment resistance of glioblastoma. Non-coding RNAs could also become valuable biomarkers for early diagnosis of glioblastoma.

KEYWORDS

glioblastoma, Lis1, miRNA, treatment resistance

NAVIGATED TRANSCRANIAL MAGNETIC STIMULATION BRAIN MAPPING IMPROVES THE FUNCTIONAL OUTCOME IN GLIOMA PATIENTS

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OBJECTIVES

Gliomas have an infiltrative growth pattern which makes their complete resection difficult, especially when the tumour is situated in an eloquent area. Navigated transcranial magnetic stimulation (nTMS) is a non-invasive preoperative mapping method of eloquent cortical areas. In this paper we present our experience with nTMS cortical mapping for eloquent areas gliomas.

MATERIALS AND METHODS

Patients with gliomas located in motor or language eloquent areas who underwent nTMS mapping followed by surgery between March 2017 and January 2018 were included in the study. Patients were excluded if they presented TMS or MRI contraindications. The results of the nTMS brain mapping were integrated in the intraoperative neuronaviationg system and used as guidance for the surgical planning. Next we matched the nTMS patients' cohort with patients with eloquent area gliomas who underwent surgical resection in our institution before nTMS was available and evaluated the surgical and functional outcome.

RESULTS

Ten patients with gliomas in eloquent areas who underwent nTMS motor and/or language area mapping were included in the study. Median age was 57.5 years (28-73) and the male:female ratio was 4:1. In three only the motor cortex was mapped and in the other seven a language mapping procedure was also performed. Preoperative, four patients presented with aphasia and three had motor deficits that remitted or improved following surgery. No patients suffered new-onset or worsening of the preexistent neurological deficits following surgery in the nTMS cohort. In the pre-nTMS cohort two patients presented a temporary worsening of the neurological deficit.

CONCLUSIONS

nTMS preoperative cortical mapping combined with intraoperative neuronavigation is a useful tool for the resection of eloquent gliomas, that guides the resection in order to avoid the eloquent areas and therefore improving the functional outcome of the patients.

KEYWORDS

navigated transcranial magnetic stimulation, brain mapping, glioma

THE EVOLUTION OF THE NEUROSURGERY DEPARTMENT SIBIU

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OBJECTIVES

This paper presents the new Neurosurgery Clinic department of the Sibiu Emergency County Clinical Hospital, which moved and started operating in the new location from January 2015. The old section worked on the 1st floor of the hospital, had a number of 26 beds divided into 5 rooms, the bathroom was in common with the patients from the Surgery Department, as well as the office where the hospitalized patients' food was shared. The department faced a surge of infections, of the operating wounds, with a very resistant germ, which led to the renovation of the section and the promise of a new space.

MATERIALS AND METHODS

Moving the section to the new location, as a result from the reorganization of the Anaesthesia and Intensive Care department, offered to hospitalized patients, modern rooms and reserves equipped properly, with own or common sanitary groups in 2 - 3 salons, offices for doctors and nurses, treatment room, etc. The section also has a new modern operator block, according to European norms.

RESULTS

Due to the conditions offered by the new location and the compliance with the cleaning and disinfection protocols, the internal circuits, the storage and transport of waste, the department

registered zero infections of the operative wound. This, according to the quality concept, the activity of the department was focused on the patient and teamwork.

CONCLUSIONS

The average and auxiliary staff is an important part of the Neurosurgery team and therefore an optimal environment is ensured to allow each employee to value and develop their personal knowledge, experience and skills, understanding and respecting the requirements of the management system.

KEYWORDS

neurosurgery, infections, cleaning protocol, disinfection, patients, team

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CLINICO-IMAGISTIC FEATURES AND SURGICAL TREATMENT OF AGGRESSIVE MENINGIOMAS

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OBJECTIVES

Meningiomas are tumours of the meninges and represent between 14.3 and 19% of intracranial neoplasms. Usually these are benign tumours that are not technically involving the brain or the spine, but they grow and compress the adjacent nervous tissues. The vast majority of meningiomas are indolent. A small percentage, however, display malignant behaviour characterized by invasive growth patterns and/or markedly higher recurrence rates. Aggressive meningiomas are a different phenotype of meningiomas that grow rapidly and involve the nervous tissue, vessels or bone.

MATERIALS AND METHODS

We retrospectively reviewed the case file of 25 patients operated in our department between January 2011 and December 2018. We excluded from the study patients with non-aggressive meningiomas, regardless the size of the tumour.

RESULTS

Mass effect was detected in 29% of cases. 92% of patients had undergone surgical treatment. The male: female ratio was 2:1. The

main symptoms were headache, progressive palsy and seizures. Also, 90% of patients had other non-related health issues, like arterial hypertension, diabetes, depression or chronic renal disease. The patients became symptomatic more than 2 months before the first presentation and 92% of the patients had undergone meningioma resection with that occasion. The tumour involved the bone with lysis in 30% of cases and an important blood vessel in 34% of cases. There has been detected recurrence in 16% of cases.

CONCLUSIONS

Aggressive meningiomas are eventually fatal tumours. They show a high rate of recurrence, even if total surgical excision of the tumour is achieved. This type of tumour has an unusual growing pattern and can invade the bone, blood vessels or brain. Surgical procedures are challenging due to the implication of various tissues and the outcome depends on the location, size, grade of invasion and associated health issues.

KEYWORDS

aggressive meningioma, invasion, recurrence

MICROSURGICAL CLIPPING OF PARACLINOID ANEURYSMS

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Objectives

The term paraclinoid aneurysm is nonspecific and includes ophthalmic segment aneurysm (ophthalmic artery aneurysm and superior hypophyseal aneurysm) but also those located on the dorsal and ventral surfaces of internal carotid artery segment. These aneurysms are rare and account for no more than 5% of all intracranial aneurysms. We discuss our microsurgical results for a series of 21 patients operated for paraclinoid aneurysms between January 2014 /May 2019.

Materials and Methods

It was a retrospective study on a series of patients with paraclinoid aneurysms operated in our department by two senior neurosurgeons. The essential neuroimaging investigation used was four vessels cerebral angiography. Eight aneurysms (38%) were unruptured at the time of surgery. At admission, most of the patients were in good neurological condition. Approximately half of the aneurysms (10 cases) had a diameter larger than 10 mm. All patients underwent surgery using pterional approach. Proximal control was secured by neck dissection of the internal carotid artery and its temporary clipping.

RESULTS

In 62% of the cases (13 patients) postoperative angiography was performed in order to confirm occlusion of the aneurysm. We chose to use this technique selectively for large and difficult aneurysms. For this group, perfect clipping of the aneurysms was proved in all cases. The follow-up period varied widely from 2 to 48 months (mean, 18 months). According to modified Rankin scale (mRS), postoperative results were excellent and good in most patients (mRS 0-1) – 18 patients (85,7%), poor (mRS 4-5) – 2 patients (9,5%), death (mRS-6) – 1 patient (4,7%). Best results were obtained in patients with unruptured aneurysms or who, preoperatively, were included in 1st and 2nd grade of Hunt&Hess scale, in which excellent and good results occurred in all cases.

CONCLUSIONS

Paraclinoid aneurysms are very challenging for their proximal control, adequate neck exposure and clip ligation. Many neurosurgical reports consider endovascular therapy the preferred option for these aneurysms. We can conclude that, for an experienced surgical team, microsurgical clip ligation of these aneurysms is a good therapeutic option.

KEYWORDS

paraclinoid aneurysms, microsurgical clipping

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SURGICAL STRATEGY IN LARGE OLFACTORY GROOVE MENINGIOMAS RESECTION

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OBJECTIVES

Olfactory groove meningiomas (OGMs) constitute 9–18% of all intracranial meningiomas. These tumours arise in the midline of the anterior cranial fossa at the junction of the cribriform plate and planum sphenoidale and grow symmetrically to the anterior sagittal sinus and falx or mainly to one side.

MATERIALS AND METHODS

We conducted a retrospective study of 32 patients with large olfactory groove meningiomas, which were evaluated and operated in the Neurosurgical Department of the National Institute of Neurology and Neurovascular Diseases between January 2009 – June 2019. The diameter of the meningioma varied between 4.7 – 9 cm. Tumours were operated on through the unilateral frontolateral (27 patients) and bifrontal approaches (5 patients). The extent of the tumour resection was classified according to the Simpson classification. All the 32 patients were followed-up with annual CT or MRI scans and neurologically evaluated in our clinic. The follow-up period ranged widely from 2 to 114 months (mean, 34 months).

RESULTS

Total tumour removal (Simpson Grade 1 or 2) was achieved in most of the cases, 29 patients (90.6%).). Meningiomas operated through the bifrontal approach were entirely resected in 4 (80%) out of 5 cases. In patients operated through the frontolateral approach (27 patients), total tumour removal was achieved in 25 cases (92.6%). Subdural hygroma, postoperative haemorrhage, cerebrospinal fluid (CSF) leak, postoperative seizures, diffuse cerebral edema were considered postoperative complications. Postoperative mortality was 6.25% (2 patients). In our series, tumour recurrence occurred in 3 patients (9,3%). All of them required surgery. The recurrence rate was higher in patients with tumours having paranasal extension. None of the patient underwent postoperative radiation or radiosurgery.

CONCLUSIONS

For the removal of large olfactory groove meningiomas two different surgical approaches can be used: unilateral frontolateral approach and bifrontal approach. The use of microsurgical techniques allowed total removal of the large meningiomas, with low rates of mortality and mortality. Considering the operative morbidity and mortality, we could conclude that, the unilateral frontolateral can be suitable for resection in almost of case of large olfactory groove meningiomas.

KEYWORDS

olfactory groove meningiomas, unilateral fronto-lateral approach, surgical results

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ASSEMBLING OF THE INTRACRANIAL PRESSURE SENSOR FROM THE PERSPECTIVE OF THE INSTRUMENTAL NURSE

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OBJECTIVES

In the present paper entitled *Assembling of the intracranial pressure sensor*, we will describe the procedures by which this intervention is performed, from the point of view of the instrumental nurse. The assembling of the *intracranial pressure sensor* is recommended to pacients with traumatic brain injuries or to those who do not require a surgical intervention, but it is necessary to monitor their intracranial pressure. This paper presents the operating times, the materials used, the necessary instruments and the patient's positioning.

MATERIALS AND METHODS

Installing the intracranial pressure sensor is an invasive surgical intervention with a high risk of infection, the nurse having the role of supervising and applying the aseptic and sterilization rules of the materials used in this intervention.

RESULTS

Knowing the operating times and the applicable procedures specific to the Surgical Block have the result of reducing the operating times, avoiding the nosocomial infections, the incidents and the accidents and, above all, creating a proper working environment.

CONCLUSIONS

For a good and complex approach to emergency neurosurgical

cases, a close collaboration is needed within the surgical team consisting of doctors and nurses. The nurse must direct his / her attention, through his/her professionalism, to the patient, keeping in mind the patient's needs.

KEYWORDS
intracranial pressure sensor, traumatic brain injuries, intracranial pressure, instrumental nurse

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SURGICAL MANAGEMENT, PITFALLS IN INTRAOPERATIVE DIAGNOSIS AND OUTCOME OF THE NEURAXIS ENDODERMAL CYSTS: REPORT OF TWO CASES

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OBJECTIVES

Endodermal cysts are rare, slow growing lesions, also known as neurenteric or enterogenous cysts, that are formed due to an error in embryogenesis. They are most often located in the subdural space of the spinal canal, commonly in the cervicothoracic region. Intracranial endodermal cysts are frequently situated in the posterior cranial fossa as extraaxial lesions, anterior to the brainstem or within the fourth ventricle [1].

MATERIALS AND METHODS

Two cases of patients with endodermal cysts are presented. Case one is a 20-year-old male presenting with 1-year history of severe recurrent headaches and MRI scan revealing a left lateral medullary cystic lesion. The lesion was removed using a left suboccipital hemicraniectomy. The second case is a 66-year-old female presenting with asymmetric paraparesis with grade 4+/5 strength on muscle testing on the left and 3+/5 on the right, lower back pain radiating on both legs and sphincterian function preserved. The MRI scan showed a cystic mass situated intradurally at the lumbar vertebrae L1-L2. A laminectomy at this level was performed in order to remove the tumour.

RESULTS

The two patients underwent surgery. The cysts contained a milky consistency fluid. The cysts collapsed after draining the liquid. In the first case, the capsule was thin, adeherent to the surrounding arahnoid membrane and in close relationship with neurovascular structures, therefore, the resection of the cyst wall wasn't achieved completely. In the second case, the cyst capsule was removed entirely. Histopathologic examination confirmed the endodermal nature of the cyst. Postoperatively, there were no new neurological deficits, but both patients developed aseptic meningitis due to the irritating content of the cyst, that remitted within 3 days. At the six-month follow-up, none of the patients had signs of recurrence on the MRI scans.

CONCLUSIONS

Endodermal cysts, even though are rare, should be considered in differential diagnosis of cystic lesions. Surgical resection is the treatment of choice and has good outcome.

KEYWORDS

endodermal cysts, spinal canal, brainstem

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DIABETES INSIPIDUS. A POSSIBLE COMPLICATION OF VERTEBROMEDULLARY TRAUMA (TVM)

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Objectives

Central diabetes insipidus (CDI) is a hormonal imbalance due to lack of ADH and is characterized by excessive diuresis and significant hydro-electric modifications with a systemic impact which frequently occurs after a craniocerebral trauma. This article presents the case of a 39-year-old patient with no medical history, who presents to the emergency room with paraplegia, lumbar and pelvic pain after an accidental fall from a height of approximately 3 meters. Suspicion falls on a TVM which is confirmed by imagistic methods. At admission, the patient was hemodynamically and respiratory stable, with normal lab tests, except for a slight leukocytosis.

Materials and Methods

The patient was admitted on the neurosurgical ward, where antalgic treatment and anti-inflammatory drugs-dexamethasone, were administered and he was prepared for urgent surgical intervention. The attending doctor explained the risks and benefits of the surgery to the family and obtained the informed consent. In the operating room, surgical decompression was performed and the vertebral column was stabilized with rods and screws. The surgery lasted for 3.5 h, the bleeding was estimated to approximately 1000 ml and the patient had 2 hypotensive episodes.

The initial postoperative evolution was normal and the specific recovery treatment had been initiated. One week after surgery, the patient started to have excessive diuresis, over 300 ml/h. Significant modifications of the seric ionogram were observed which required parenteral administration of potassium. The urinary output was strictly monitored and the clinical and paraclinical observations raised the suspicion of CDI. Dexamethasone was immediately halted. The seric ADH level was dosed and it turned out to be significantly low (1,3 ng/L; normal values for ADH: 2-8 ng/L). Therefore, the suspicion of postoperative CDI was confirmed and the treatment was promptly initiated with desmopressin. Desmopressin acetate nasal spray had been used.

RESULTS

The patient responded to the treatment, the urinary output had been significantly reduced (100 ml/h; K=3,8 mEq/l), the recovery treatment could be performed and the patient was discharged one month after the accident.

CONCLUSIONS

Although less frequent, CDI has to be taken into consideration in vertebral trauma cases. The physiopathological mechanisms through which the production/secretion of ADH is altered are not entirely known, the risk factors include local fat emboli, thrombosis or glandular tissue necrosis due to a significant hemorrhage which leads to severe hemodynamic instability.

KEYWORDS

central diabetes insipidus, vertebromedularry traumatism, desmopressin

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THE IMPACT OF NURSING CARE OF A PATIENT WITH CEREBRAL MENINGIOMA

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INTRODUCTION

Cerebral meningiomas are the most common dural tumours, have different management strategies and a wide range of prognoses. Symptoms typically appear gradually and vary depending on the tumour location. Symptoms may include any of the following: headaches, seizures, change in personality or behaviour, progressive focal neurological deficit, confusion, drowsiness, hearing loss or tinnitus, nausea or vomiting, visual disturbances.

CASE REPORT

A 47-year-old woman admitted in our department with two months history of visual disturbances gait imbalance and dysphagia. In addition, the patient presented diabetes type II, gastritis and hypertension. Brain MRI revealed a large homogeneous mass in the petroclival region on the left side.

RESULTS

After surgical treatment, the patient developed grade IV facial palsy (House-Brackmann scale) and paraesthesia on the right leg. The management of postoperative care was difficult due to additional diseases and post op complications. The patient's data were collected from her daily treatment reports.

DISCUSSIONS

The neurological deficits resulting from meningioma location and

the progression of symptoms dictate whether they need to be resected or stereotactic radiation therapy only. In order to assess effectively care for patients with meningioma, it is necessary to be familiar with symptomatology and pathology. Based on this, care management may be performed and individualized as needed.

CONCLUSIONS

This case report describes the clinical signs as well as the importance of the nurse's role in the rehabilitation of patient surgically treated for this type of tumor. The nurse's role requires promoting physiological stability while monitoring for life-threatening complications.

KEYWORDS

cerebral meningiomas, patient, nurse

THEORETICAL-METHODOLOGICAL STUDY ON PREOPERATIVE TRAINING OF PATIENTS IN THE NEUROSURGICAL SECTION

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OBJECTIVES

The present work emphasizes the importance of the patient's preoperative preparation before surgery. The information obtained from the interpretation of the data and the critical analysis, results from their own research and their comparison with the data belonging to other authors, led to the identification of current issues and news related to the subject matter that was brought to the attention in the article's title.

MATERIALS AND METHODS

The reason for elaborating this work lies in the real needs and, on another plane, the impact on the researched field of the current effects of leadership on the increase of the performance of the nurse in the work process.

RESULTS

The preoperative training of the patients in the neurosurgery department is performed by the neurosurgeon assisted by the medical assistant and includes the clinical and paraclinical examination, the psychic preparation, hygienic care, the functional, vital and vegetative follow-up, as well as the observation of the change in the patient's condition and the pre-operative diet. develop and analysed the activities of the nurse.

CONCLUSIONS

The method of data collection used in this research is the survey, and the instrument used is the questionnaire. The motivation for choosing as a research method for the survey based on the questionnaire was due to the fact that it increases the consistency of questions and answers. Through the scientific aspects analyzed, I avoided the treatment of general ideas, focusing, in particular, on emphasizing the particularities of the preoperative preparation of the patients in the neurosurgery department.

KEYWORDS

neurosurgeon doctor, medical assistant, preoperative patient preparation, investigation, functional follow-up, organizational culture, procedures, change, success

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EXPERIENCE OF BRAIN TUMOURS IN THE DEPARTMENT OF NEUROSURGERY, EMERGENCY COUNTY HOSPITAL SIBIU

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OBJECTIVES

Brain tumour is an intracranial neoplasm that occurs in the brain or the central spinal canal. An abnormal and uncontrolled cell division, usually in the brain, involving neurons or glial cells (which include astrocytes, oligodendrocytes, and ependymal cells) or occasionally in the lymphatic tissue, blood vessels, cranial nerves, brain envelopes (meninges), skull, pituitary gland, or pineal gland is the main leading cause of formation of primary brain tumours. Majority of the brain tumours in adults are secondary or metastatic tumours, i.e. cancers that are primarily located in other organs may spread to the brain and create brain tumours.

MATERIALS AND METHODS

A total of 211 patients with brain tumours diagnosed in the Department of Neurosurgery in Emergency County Hospital Sibiu between 2014-2019 were included in this study. The clinical characteristics and pathological features were analysed. Navigation advanced operating microscope was available.

RESULTS

There were 111 males and 100 females with a M:F ratio of 1.11:1. The median age of patients was 51,05 years (range 18-83 years). Females patients were older (mean age 54,12 years) than male patients (49,32 years). The lesions were supratentorial in 187

patients (88,62%), infratentorial in 24 (11,38%). Surgical treatment involved complete resection in 73,4% of cases, subtotal resection in 26,6%. In 35,68% of cases were primary brain tumors and brain metastases were 64,32% of cases based on histopathological examination.

CONCLUSIONS

Brain tumours require specialized and complex care by neurooncologists, medical oncologists, radiation oncologists, and brain tumour neurosurgeons. Primary care providers should be acquainted with their management, as they are at the forefront of diagnosis, care coordination, and management of complications. Take into consideration the results of our own study, the management of the patients with brain metastases should include a thoracic CT scan or anteroposterior and lateral chest X-ray, clinical breast examination, abdominal ultrasound exploration, and skin, kidney and prostate examination.

KEYWORDS

brain tumours, primary brain tumours, brain metastases

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CHOLINE IN PRIMARY MOTOR CORTEX (M1) PREDICTS RECOVERY AFTER DECOMPRESSIVE SURGERY IN CERVICAL SPONDYLOTIC MYELOPATHY

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OBJECTIVES

Cervical spondylotic myelopathy (CSM) is a heterogeneous spinal disorder with increasing frequency as the population continues to age. Although surgical management is the most common CSM treatment, this approach is not effective in all the cases. Whether the patients, in whom the improvement after surgery is absent or partial, have remote cerebral alterations that are incompatible with recovery is not known. In this study, we advocate that measures of Choline levels by means of magnetic resonance spectroscopy (1H-MRS) in radiologically normal appearing primary motor cortices (or M1) before surgical intervention provide valuable prognostic information of clinical recovery after surgery.

MATERIALS AND METHODS

Twenty-one patients underwent clinical (modified Japanese Orthopedic Association Scale, mJOA; 9-Hole Peg Test, 9-HTP) and neuroimaging (T2-weighted MR image, point-resolved spectroscopy sequence imaging for a volume of interest of 15x15x15 mm3 placed bilaterally at M1 level) testing before decompressive surgery, and six months later, clinical testing. Relative concentrations of choline (marker of cell membrane integrity/inflamation) were quantified and compared to those in age-sex matched healthy controls (n=16). In patients, clinical

recovery was defined as change (Δ9-HPT) and recovery rate (RRmJOA) in clinical scores over the six months. Spearman Rank Order correlation was used to determine the relationships between metabolite concentrations and clinical recovery.

RESULTS

Compared to controls, significantly high levels of choline were found in both left and right M1 in our patients ($p=0.009$ and $p=0.005$ respectively). Choline levels were negatively correlated to RRmJOA.

CONCLUSIONS

Increased cell membrane turnover and compromised neuronal-glial interactions in remote primary motor cortices were related to functional recovery. We suggest that 1H-MRS might be a sensitive method to monitor remote cerebral neurobiological compounds, mirroring recovery or deterioration events, which might predict surgical output in CSM. Such objective data would help clinicians to set realistic therapeutic goals, by selection of individualized rehabilitation strategies based on the prediction of functional potential. In addition, they can also be helpful as an individual prognostic indication to relatives and patients.

KEYWORDS

1H-MRS; 1H-MRS = proton MRS; 9-HPT = 9-hole peg test; CSM = cervical spondylotic myelopathy; M1 = primary motor cortex; MRS = MR spectroscopy; NAA = N-acetylaspartate; SCI = spinal cord injury; cervical spondylotic myelopathy; clinical outcome; mJOA = modified Japanese Orthopaedic Association; mJOA-LE = mJOA lower-extremity motor domain; mJOA-UE = mJOA upper-extremity sensorimotor domain; neuroinflammation; remote motor system; spinal decompression surgery

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SKULL BASE RECONSTRUCTION AFTER ENDOSCOPIC SKULL BASE SURGERY

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OBJECTIVES

Recent advances in technology and techniques in have revolutionised skull base surgery with the introduction of endoscopic endonasal approaches. One of the greatest limitations of endoscopic endonasal skull base surgery remain the repair of osteodural defects, with a variety of techniques ans materials described in the literature.

MATERIALS AND METHODS

We have retrospectively analysed all the endoscopic skull base surgeries performed within the last 5 years in the department of Neurosurgery at N. Oblu Clinical Emergency Hospital, Iasi.

RESULTS

In this series 151 patients were operated on, 171 surgical interventions. Pituitary adneomas represented 72% of the cases and skull base pathology represented 18% (meningiomas, chordomas, cranipharingyomas, noniatrogenic CSF leak, meningocele) an 10% ENT malignancies with basal extensions. The highest rate of intraoperative CSF leak was in skullbase surgeries 59% but with a rate o surgical reintervention of only 3.7%, whereas for pituitary the rate of CSF leak was 27% with a

rate of surgical reintervention of 6.5%. The closure techniques used in our series evolved during the years from sellar packing, to complex reconstructive techniques such as gasket seal, inlay techniques to recently bilayer button technique, combined with the use of pediculated flaps and lumbar drains in some cases.

CONCLUSIONS

Size, localisation of the defect and the presence of a high-flow CSF leak are major determinants of the reconstructive options. While smaller skull base defects with low CSF flow are successfully managed with a variety of avascular and/or noncellular techniques, larger defects with high CSF flow require more robust repairs, the nasoseptal flap playing a pivotal role in the reconstruction of larger defects.

KEYWORDS

skull base surgery, endoscopy, meningioma, pituitary adenoma, chordoma, CSF leak

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BRAIN VASCULAR PATHOLOGY – A CONTINUOUS CHALLENGE

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OBJECTIVES

Vascular pathology is a great challenge for neurosurgeons all around the world. Surgery for vascular pathology poses huge difficulties and require a long learning curve. Surgical vascular pathologies are represented by aneurysms, arteriovenous malformations, cavernomas and arteriovenous fistulas. Vascular pathology often become symptomatic suddenly, in young and active adults and have devastating consequences.

MATERIALS AND METHODS

Starting from September 2019 under the aegis of "Excellence in interdisciplinary research doctoral and postdoctoral, carrier alternatives through entrepreneurial initiative (EXCIA)" Code SMIS 2014+: 125245, I will perform a prospective clinical study including all patients with cerebral aneurysms, arteriovenous malformations and cavernomas admitted in the Fourth Department of Neurosurgery, Emergency Clinical Hospital Bagdasar-Arseni Bucharest. In order to assess the potential number of cases, which will be included, I made a guidance analysis. In this guidance analysis I performed a retrospective study including patients with vascular pathology admitted in our department from January 2018 to December 2018.

RESULTS

Over a period of time of one year, there were 29 patients with

cerebral aneurysms, 25 patients with brain arteriovenous malformations, 29 patients with cavernomas and 2 patients with arteriovenous fistulas.

CONCLUSIONS

Vascular pathology is a great challenge that neurosurgeons have to face. Big neurosurgical centres have to deal with vascular pathology each year. Following this guidance analysis, I can appreciate that the prospective study will include approximately 85 patients. Extensive analyses and prospective studies are needed in order to proper assess outcome and costs of these patients.

KEYWORDS

arteriovenous fistula, arteriovenous malformation, aneurysm, cavernoma, EXCIA, POCU

ACKNOWLEDGEMENTS

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COST ANALYSIS OF PATIENTS WITH VASCULAR CEREBRAL PATHOLOGY

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OBJECTIVES

Vascular cerebral pathology (intracranial aneurysms, vascular malformations) is an important health problem worldwide, because it becomes symptomatic in young and active population. The main complication, cerebral haemorrhage is a major cause of mortality, morbidity and long-term neurological deficits.

MATERIALS AND METHODS

The main objective of this study is performing a prospective clinical study including all patients with cerebral aneurysms, arteriovenous malformations and cavernomas in the Fourth Department of Neurosurgery, Emergency Clinical Hospital Bagdasar-Arseni Bucharest, from September 2019 to September 2020. This project unfolds under aegis of "Excellence in interdisciplinary research doctoral and postdoctoral, carrier alternatives through entrepreneurial initiative (EXCIA)" Code SMIS 2014+: 125245.

RESULTS

The aims of this project are: statistical analysis of patients, cost analysis of entire hospitalization and cost specific for diagnosis and treatment, cost analysis of health services, elaboration of treatment guidelines based on hospitalization costs and improvement of health services.

Conclusions

Taking into consideration the increased impact on active population, limited resources and high costs needed for treatment of these patients, a uniform analysis is needed. Cost analysis will improve diagnosis and therapeutic management and will develop health strategies for these patients.

Keywords

cost, health services, vascular

Acknowledgements

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EXCIA - A NEW POSTDOCTORAL AND DOCTORAL RESEARCH PROJECT

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OBJECTIVES

Projects funded from European funds are good research opportunities. They offer funding to research projects won through open contest, create interdisciplinary research laboratories putting in contact researches from different domains, assess fulfilment of research objectives, and coordinate research activity, in other words promote an excellent research environment.

MATERIALS AND METHODS

EXCIA - "Excellence in interdisciplinary doctoral and postdoctoral research, carrier alternative through entrepreneurial initiative" Cod SMIS 2014+: 125245 is a research program funded through the Human Capital Operational Program 2014-2020. It is coordinated by The Bucharest University of Economic Studies, and University of Medicine and Pharmacy Carol Davila is a partner in this program. The aim of this program is to support excellence in the entrepreneurial training of young researchers at doctoral and postdoctoral level, excellence based on an interdisciplinary approach, meant to increase the European sustainability of a career through innovative initiatives in research and in a wide range of type activities, such as lucrative initiative or by increasing employability in the economic, medical, sociological fields social and legal sciences.

RESULTS

The project has a duration of 1 year, starting from September 2019. A total of 97 researches will receive funding for their projects, 67 of them being in the doctoral programe anf 30 being postdoctoral. Other funded activities are mobility stages in countries from the European Union, participations in scientific events and disseminations of research results.

CONCLUSIONS

EXCIA stimulate postdoctoral and doctoral research, integrate interdisciplinary activity, and diversify the entrepreneurial approach. EXCIA develops a collaborative network for young entrepreneurs and fulfil standards of exigency at European level for the entrepreneurial initiatives.

KEYWORDS

doctoral, EXCIA, European fund, postdoctoral, research

ACKNOWLEDGEMENTS

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MICROSURGERY PRINCIPLES FOR RESECTION OF SPINAL EPENDYMOMAS

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OBJECTIVES

Ependymomas are rare intramedullary tumours, accounting for 39% of all primary spine tumours, having a slow growth pattern and their symptoms are usually not specific in the early phase. Given these circumstances, most of the patients present with serious neurological deficits which impose an urgent surgical treatment.

MATERIALS AND METHODS

We retrospectively reviewed the case files of patients with spinal cord ependymomas who underwent surgery between January 2008 and December 2018. Neurological status was evaluated preoperatively and postoperatively using the Modified McCormick Scale and ASIA score.

RESULTS

Thirty-four patients were included in the study of which twenty (58.8%) were female. Mean age was 44.1 years old. Patients presented with non-specific symptomatology (i.e. back pain, sensory deficits). The mean duration of symptoms before surgery was 36.2 months. Gross-total resection (GTR) was achieved in thirty-one cases (91.2%). Follow-up MRI studies showed no recurrence in GTR ependymomas, while surgical reintervention

was needed in the three cases with subtotal resection after approximately 17 months from the first surgery. Ninety-one percent of the patients improved their function after surgery, and the others maintained their preoperative neurological status.

CONCLUSIONS

Microsurgical resection is the first-line treatment for intramedullary ependymomas and achieving gross-total resection is curative. Most of the patients improve their neurological function following surgery.

KEYWORDS

ependymomas, intramedullary, surgical resection

INTRACEREBRAL HAEMORRHAGE AT DIALYZED PATIENTS

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DEFINITION

The intracerebral haemorrhage represents a haemorrhagic accumulation in the brain parenchyma caused by changes produced by chronic hypertension at dialyzed patients, amyloid angiopathy and coagulation disorders.

METHODS

We followed-up 105 patients with intracerebral haemorrhage in a period of 9 years (2000-2019). 70 % of them were men and 30 % were women. 80% of the intracerebral haemorrhages were supratentorial and 20 % were infratentorial localized. As for topographic localization 10 % of the intracerebral haemorrhages were lobar, 70 % in the basal ganglia and thalamus and 20% were infratentorial. The patients ages were between 30 and 60 years.

CONCLUSIONS

All patients presented acute haemorrhage with neurological status deterioration after haemodialysis sessions. All of the patients presented edema, ischemic necrosis, around the haemorrhagic lesion. There wasn't found any ruptured cerebral malformations at the angioCT scan, neither any presence of haemorrhagic intracerebral tumours. The volume of all intraparenchymatous haemorrhages were comprised between 30 and 70 ml. The prognosis depended of the neurological status at the hospital

admission and localization of the hematoma (the thalamic ones had a negative prognosis). The treatment was approached multidisciplinary: neurologist, neurosurgeon, nephrologist and cardiologist. The operative decision was taken individually, for every patient according to the neurological status, the localization of the hematoma, the age and the family wish. Of those 105 patients, 80 were operated and 25 presented very altered neurological status (GCS <5 points) or the family refused surgery.

KEYWORDS
intracerebral haemorrhage, haemodialysis, mental status, thalamic localization, multidisciplinary, surgery decision

OUR SURGICAL EXPERIENCE IN TREATING LUMBAR DEGENERATIVE PATHOLOGY

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Introduction

Lumbar degenerative diseases are one of the most important causes of lowback pain nowadays. The exponents of this pathology are represented by lumbar disk hernia and lumbar spinal stenosis.
The aim of this article is to study on a group of patients operated in our clinic (Spitalul Clinic Județean de Urgență Sibiu) the rate of complications and the leading causes of this pathology.

Material and Methods

We selected a lot of patients in a retrospective study that were operated in our clinic on a period of 5 years (3 june 2014- 3 june 2019) of lumbar disk herniation and lumbar spinal stenosis. In all the patients with lumbar disk herniation was performed standard discectomy and in the patients with lumbar spinal stenosis was performed rapid decompression of the nerve root. A full recovery was observed at 1 to 2 months postoperatively in most patients.

Conclusions

Our goal was to see how many patients developed any sort of postoperative complications, if there was any recurrence in the process and if so, which cause was incriminated the most in the hernia recurrence. We wanted also to see the incidence of these pathologies amongst male or female patients at different ages.
The data collected represents our experience in the operating theatre on this pathology. Standard discectomy was chosen over

microdiscectomy because there is no benefit in the patient follow-up using the last technique to the first one.

KEYWORDS
lumbar disk herniation, lumbar spinal stenosis, standard discectomy, nerve root decompression, postoperative complications, recurrence

THE REALITY OF THE NEUROSURGERY SECTIONS - MEDICAL MALPRACTICE AND HOSPITAL-ACQUIRED INFECTIONS

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OBJECTIVES

Neurosurgery it's a special branch of medicine, both in terms of the implications and the psychological use of the specialists, as well as the risk of the medical malpractice. Also, in this section, Hospital-acquired infections (HAI) can be real time bombs - for the neurosurgeon, the medical unit, the qualified institutions and, of course, for the patient too. HAI occurs in 0.4% of cases in the neurosurgery section - while global data from the European Union estimates that they affect approximately 4.1 million people annually [1].

MATERIALS AND METHODS

In this paper I propose an exhaustive analysis of the two problems that the specialists are facing, namely medical malpractice and Hospital-acquired Infections, researching and analysing the specialized literature. Thus, I've identified the neurosurgical subspecialties prone to medical malpractice, the costs involved in such a civil complaints, as well as the situations in which intra-operative and post-operative multidrug resistances occur.

RESULTS

Following the evaluation of the available medical literature, I found cases of nosocomial meningitis due to K. pneumoniae ESBL together with various pathogens, including Acinetobacter

baumanii, Serratia marscescens, Proteus spp. As for malpractice, the spine surgery claims, compared to the interventions of cranial or peripheral nerves were in 85% of the claims definitive solutions [2].

Conclusions

Applying the guides and protocols in Neurosurgery can halve the occurrence of medical malpractice as well as applying a multimodal model of prevention of hospital-acquired infections, it can reduce the incidence of multidrug-resistant bacteria [3].

Keywords

medical malpractice, hospital-acquired infections, multidrug-resistant agents

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SPINAL INTRAMEDULLARY EPIDERMOID CYST: CASE REPORT AND UPDATED LITERATURE REVIEW

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OBJECTIVES

Epidermoid cysts are tumours which arise from ectodermic tissue inclusion during neural tube closure. Their intramedullary location is not frequent, representing less than 1% of all intraspinal tumours. Only a few cases are reported worldwide.

MATERIALS AND METHODS

Case report: A 47-year-old patient is admitted in our department for bilateral asymmetrical progressive paraparesis and proprioceptive ataxia. The MRI shows a T11 medullar mass. We performed gross total removal of the tumour. The histological examination was concordant with the pearly intraoperative aspect – epidermoid cyst. We present an updated literature review conducted using PubMed. We used the following search terms: „intramedullary epidermoid cyst”, „spinal epidermoid tumour”, „intramedullary epidermoid tumour”.

RESULTS

We have retained 73 articles, written in English, with available full text, addressing this pathology. Information like sex, symptoms, signs, location, size, treatment, outcome were collected and analysed. Spinal epidermoid cysts are benign rare tumors that are more common in younger patients. They typically present with low

back pain and progressive paraparesis. Some of them were acquired after trauma, surgery or punctures.

CONCLUSIONS

Gross total removal is desirable as long as the neurological function is preserved. A close follow-up should be maintained even if recurrence rate is low.

KEYWORDS

spinal epidermoid cyst, intramedullary tumors, pearly tumors

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VERTEBROPLASTY AND KYPHOPLASTY FOR VERTEBRAL BURST FRACTURE. 47 CASES REVIEW

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Objectives

Vertebroplasty and kyphoplasty are minimally invasive methods for the treatment of vertebral burst fractures. In this study, we present our experience with vertebroplasty and kyphoplasty performed percutaneously in day clinic hospitalization.

Materials and Methods

Between 01.2017 and 09.2019, 37 patients (total 58 vertebrae) with fracture due to osteoporosis, tumour and trauma underwent vertebroplasty or kyphoplasty. After radiological and general clinical evaluations, all patients were operated in a day care mater under general (laringean mask) or local anaesthesia. Mean operation time was 42 minute all of them were discharged on the day of operation or the next day (first 24 h).

Results

The most common symptom was severe back pain. Mean preoperative Visual Analogue Scale (VAS) score for pain was 7.8 and the mean postoperative value was 2.3. Cement leakage was observed in 6 patients, one of them present leakage to the epidural space, but no neurological deficits were found so no other intervention was performed. Another patient present with infections spondilitys of the cemented vertebra and underwent biopsy and antibiotic treatment.

Conclusions

Vertebroplasty and kyphoplasty are safe, effective minimally invasive procedures. Patients can therefore avoid the potential complications of larger surgery, or prologue immobilization, and are discharged and mobilized early.

Keywords

vertebroplasty, kyphoplasty, vertebral burst fracture, VAS scale, cement leakage, day clinic hospitalization

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RECURRENCE OF TRIGEMINAL NEURALGIA AFTER MICROVASCULAR DECOMPRESSION UNDER DIFFERENT BIOMATERIALS

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OBJECTIVES

The trigeminal neuralgia caused by neurovascular compression is a neurosurgical pathology and requires preoperative identification as exact as possible of the neurovascular conflict. In our centre, after surgical intervention with microsurgical decompression, very few cases return to our clinic with signs of recurrence.

MATERIALS AND METHODS

Patients included underwent brain Magnetic Resonance Imaging (MRI) with positive clinical diagnoses of trigeminal neuralgia. After they underwent surgical intervention in our center, with microvascular decompression and using different biomaterials, as a spacer. The 141 patients in this study group were discharged with no postoperative complication. In some very few cases, patients came with signs of recurrence (5 out of the total of 141). They were subject to a new intervention with resolving the neurovascular conflict using a new technique in putting other biomaterials on the trigeminal nerve.

RESULTS

The cases with trigeminal neuralgia recurrence were re-evaluated and reoperated using a different technique. The success rates of reintervention technique, pain recurrence rate and rates of

complications are also reported, as to the experience of our department regarding this type of pathology. Also, a review of the literature is done, comparing the results from multiple centers with ours, regarding the reintervention rates and results.

CONCLUSIONS
The patients with recurrence of trigeminal neuralgia were successfully treated in our department with good results, comparable to the literature, using our technique.

KEYWORDS
trigeminal neuralgia, recurrence of trigeminal neuralgia, reintervention technique

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Wei Xiong2,5*, Rao-Ping Wu1,3*, Meng-Xia Tan1,3*, Zhou-Jie Tong4*, Ling-Kun He2, Shu Guan1, Li-Juan Liu2, Can-Can Yin2, Yu-Lin Shen1, Hui-Xiang Ge1, Yun Gao1,6 Published November 15, 2017, Int J Clin Exp Pathol 2017;10(11):11317-11325 Teflon granuloma after microvascular decompression of the trigeminal nerve root in a patient with recurrent trigeminal neuralgia
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TOWARD A STAT3 INHIBITOR IN GLIOBLASTOMA

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Objectives

According to the 2016 WHO classification, glioblastoma (GBM) is classified as a grade IV, being known to be one of the most lethal brain tumours. Diffuse infiltration of tumour cells in the normal brain makes a total resection impossible, the unresected cells being responsible for recurrence. Despite the multimodal treatment used today, median survival remains very low, new therapies being needed to improve patient survival. One of these molecular findings that have kept a central place in the attention of neuro-oncologists is signal transducer and activator of transcription-Stat3. Elevated levels of Stat3 have been highlighted in various types of cancer, GBM included. In this study, we evaluated the in vitro effect of a Stat3 inhibitor (InhibitorX) on GBM cell lines.

Materials and Methods

In this study two GBM cell lines (U252 and A 172) were subjected to various concentrations of InhibitorX in culture medium in order to determine the in vitro effect on cell growth. The concentrations

of InhibitorX used were 50µM, 100µM and 200µM, alone and in combination with temozolomide (TMZ), radiotherapy and hypoxia. The inhibitory rate of cell growth was measured using MTT assay, and compared with a negative control.

RESULTS

The maximum inhibitory effect of InhibitorX on GBM cell lines was obtained at 200µM after 6 days of treatment. The effect on cell growth was similar to Temozolomide at 50µM concentration. Hypoxia accentuated the effect of InhibitorX on both cell lines, but we didn't note the same thing for radiotherapy and chemotherapy.

CONCLUSIONS

Our results showed a potent in vitro inhibitory effect on both GBM cell lines. In vivo studies and clinical approaches should consider InhibitorX as a potential therapeutic drug that can be used for GBM treatment in the future.

KEYWORDS

glioblastoma, Stat3, targeted therapy

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PLATELET-DERIVED GROWTH FACTOR RECEPTOR AND IONIZING RADIATION IN HIGH GRADE GLIOMAS

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OBJECTIVES

Treatment of high-grade gliomas (HGG) remained elusive due to their high heterogeneity and aggressiveness. Surgery followed by radiotherapy represents the mainstay of treatment for HGG. However, the unfavourable location of the tumour that usually limits total resection and the resistance to radiation therapy are the major therapeutic problems. Chemotherapy with DNA alkylating agent temozolomide is also used to treat HGG, despite modest effects on survival. Dysregulation of several growth factor receptors (GFRs) were detected in HGG and receptors amplification in glioblastoma has been suggested to be responsible for heterogeneity propagation through clonal evolution. Molecularly targeted agents inhibiting these membrane proteins have demonstrated significant cytotoxicity in several types of cancer cells, when tested in preclinical models. Platelet-derived

growth factor receptors (PDGFRs) and associated signaling were found to be implicated in gliomagenesis. Moreover, HGG commonly display a PDGF autocrine pathway that is not present in normal brain tissues.

MATERIALS AND METHODS

We have previously shown that both the susceptibility towards PDGFR and the impact of the PDGFR inactivation on the radiation response were different in different HGG cell lines. Therefore, we have decided to extend our investigation, using two other HGG cell lines that express PDGFR at the cell surface. Here, we investigated the effect of PDGFR inhibition alone or in combination with gamma radiation in 11 and 15 HGG cell lines.

RESULTS

Our results showed that while targeting the PDGFR represents a good means of treatment in HGG, the combination of receptor inhibition with gamma radiation did not resulted in any discernible difference compared to the single treatment.

CONCLUSIONS

The combination of receptor inhibition with gamma radiation did not resulted in any discernible difference compared to the single treatment.

KEYWORDS

high grade glioma; radiotherapy; PDGFR

ONCOLOGY NEUROSURGEON – EVOLVING ROLE IN THE MODERN ERA

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OBJECTIVES

A shift from the established pathological diagnosis to biological markers analysis assisted diagnosis was marked starting from 2016, when the updated World Health Organisation (WHO) Classification of Tumours was adopted. Moreover, with the latest high-tech molecular and imaging facilities such as spectroscopy and intraoperative MRI, neuronavigation, brain mapping and ultrasonography becoming popular worldwide, oncology neurosurgeon's role in daily practice is permanently reinventing itself.

MATERIALS AND METHODS

The alternative studies for brain tumours management do not only provide a more accurate diagnosis and predict the prognosis, but also help decide when and whether or not to re-operate. Often, they point towards the suitable type of resection. Eight patients with IDH mutant low-grade gliomas were diagnosed and underwent surgery in our clinic since 2016. In glioblastoma surgery we recorded ten cases where we used MRI with DTI sequencing in order to have a maximum precision of the resection.

RESULTS

From the eight patients with IDH mutant low-grade gliomas, following surgery and radiotherapy, six went into remission, while the other two, developed tumour regrowth with malignant transformation. Regarding the glioblastoma group, using the MRI with DTI sequencing allowed a larger resection with preservation of the motor pathways and no postoperative deficits. The development of these techniques on CNS tumour diagnosis raises the following main dilemmas for the neurosurgeon: what is the impact of the high-tech findings on the extent of the planned resection, how do the lack of new findings affect the surgical plan, where does surgery stand within the treatment options, how appropriate is it to re-operate in case of recurrence?

CONCLUSIONS

The achieved results and literature data promote the importance of neurosurgery as a central piece treatment option and suggest that further genetic components determining different outcomes under similar circumstances would have to be identified and better described until brain surgery for tumour resection becomes obsolete. Issues that arise are the ways in which molecular data is to be interpreted in the guidance of surgical care and when it's imperious to use them, considering its lack of reimbursement. Moreover, modern studies have grown useful, though not absolute, regarding the management of CNS tumours. The need for a fellowship of neuro-oncology becomes a must, in all developed countries.

KEYWORDS

neurosurgical oncology, molecular biology, high tech studies, cerebral tumor, multimodal treatment

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SURGERY FOR SPONTANEOUS INTRACEREBRAL HAEMORRHAGE (SICH). A PRESENT CHALLENGE

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OBJECTIVES

Spontaneous intracerebral hemorrhage (SICH) is a devastating form of stroke characterized by high morbidity and mortality. Large volume hematomas result in mechanical compression of the surrounding brain tissue and vessels, resulting in hypoperfusion and progression of stroke. Furthermore, blood-brain barrier dysfunction within the surrounding brain, combined with breakdown products from the hematoma, can accelerate reactive inflammation. The correct therapeutic approach to this type of pathology remains a challenge for neurosurgeons all around the globe.

MATERIALS AND METHODS

From the experience gained at the Bucharest Emergency Clinical Hospital, Department of Neurosurgery 1, the authors highlighted the main causes of this kind of pathology, the possibilities of diagnosis and, in particular, the choice of the appropriate treatment for each case depending on the position and associated pathologies.

RESULTS

Treatment algorithms for SICH vary greatly and are subject to

institutional biases. Medical efforts to terminate the cascade of events leading to secondary brain injury are ill defined and the role of surgery is controversial. Open craniotomy necessitates the destruction of a significant volume of normal brain tissue in order to access deep-seated lesions. Furthermore, patients with SICH typically have multiple medical comorbidities that often complicate a prolonged open surgical procedure. Minimally invasive surgical strategies utilizing an endoscope have been advocated as a rapid method to evacuate hematomas while minimizing access-related brain tissue destruction. However, these methods do not allow for bimodal dexterity and precise movements, and they largely depend on an already compromised clotting cascade to terminate the recurrence of hematomas after evacuation.

CONCLUSIONS

SICH should be treated in a multidisciplinary manner. The critical care, neuroradiology, neurology, and neurosurgical teams must initially evaluate all patients who present imaging-confirmed SICH. Deep seated-small-volume clots in patients with a stable neurological examination are treated medically with antihypertensives, reversal of coagulopathy, and serial imaging that includes computed tomography angiography. Patients with evidence of large volume clots and clinical or neuroimaging evidence of impending neurological deterioration, such as subfalcine or transtentorial herniation, are emergently treated with surgical clot evacuation. The decision to treat using an open versus a minimally invasive method depends largely on the size of the clot and its location (superficial or deep).

KEYWORDS

spontaneous intracerebral hemorrage, deep intracerebral hemorrhage, open craniotomy, minimally invasive neurosurgery

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THE PATIENT WITH BRAIN ANEURYSM

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OBJECTIVES

The patient with brain aneurysm.

MATERIALS AND METHODS

The cerebral aneurysm is a disease that evolve because of the existence of some weak points in the arterial wall. This determines the abnormal expansion of a cerebral artery and its excessive blood filling. If this small bag breaks, there is an increased risk of intracranial bleeding, brain stroke, and other brain damage that can be fatal if a fast and adequate treatment is missing.

RESULTS

Moreover, the cerebral aneurysm is a pathogenesis inevitably related to cerebrovascular structure, even though the etiology of this anomaly can be diverse. The local turbulence and discontinuity of the normal architecture at the bifurcation of vessels can determine the propensity of formation of saccular aneurysms in these locations. Distal aneurysms may be smaller compared to proximal locations, but the risk of rupture is similar.

CONCLUSIONS

Causes and risk factors: The development of cerebral aneurysm is still a topic under discussion. An etPacictorial is likely, reflecting the interaction of environmental factors such as atherosclerosis or hypertension and a congenital predisposition associated with different vascular abnormalities. Dolichoectasia aneurysms of the

proximal vessels have an atherosclerotic etiology. These elongate, tortuous dilations with an aneurysmal neck often contain laminated thrombi.

KEYWORDS

Infectious aneurysms are usually located on the distal branches of the middle cerebral artery, reflecting the embolic origin of the lesions

REFERENCES

Traumatic aneurysms can be located in peripheral cortical branches after contact with skull fractures. Distal embolization of tumor fragments from a cardiac myxoma or choriocarcinoma may result in the formation of neoplastic aneurysm. Galen's vein aneurysms malformations can cause hydrocephalus associated with aqueduct compromise or congestive heart failure at children.

GIANT CYSTIC SACRAL MALIGNANT SCHWANNOMA. A CASE REPORT

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OBJECTIVES

To present a rare case of a giant cystic malignant schwannoma of the sacrum mimicking a Tarlov Cyst.

MATERIALS AND METHODS

A 61-year-old women with a history of right lower limb numbness with no sensory loss at this level. An MRI demonstrated a predominantly right sacral mass with cystic component and bone erosion at this level, also with involvement of the nerve roots.

RESULTS

Firstly, we performed a bioptic puncture from the lesion under radiological control in order to obtain a histopathological result (sacral schwannoma with malignant cells). Subsequently the patient underwent surgical treatment for the lesion, which revealed a solid mass with chystic component, the histopathological examination of the tumour is still in process. The postoperative course was uneventful with complete resolution of symptoms.

CONCLUSIONS

To the best of our knowledge cystic malignant schwannoma of the sacrum is a very rare diagnosis overlooked by practitioners for more common cystic etiologies, but its treatment is significantly different. Care should be taken to include this diagnosis in a differential for a cystic sacral mass.

KEYWORDS
schwannomas, tumour, malignant, spine, sacrum.

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THE COMPLEMENTARY ROLE OF TRADITIONAL CHINESE MEDICINE IN THE TREATMENT OF LUMBAR VERTEBRAE STENOSIS

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OBJECTIVES

The etiological and diagnostic approach of Traditional Chinese Medicine give the possibility of identifying the internal and external factors that favorize the degradation of the spine earlier than usual, and also gives the approach of treatment by acupuncture.

MATERIALS AND METHODS

In the TCM approach the patients were divided in the following syndromes:

1. Accumulation of wind, cold and humidity
2. Accumulation of heat and humidity
3. Blood stagnation
4. Kidney and Liver Yin deficiency
5. Liver's Qi stagnation
6. Spleen Qi deficiency
7. Kidney Yang deficiency

The syndromes are actually different diseases, with different etiology and treatment. They cause the degradation of different organs. In conclusion the patients also have comorbidities. The presentation is composed from a short theoretical explanation and a clinical case.

RESULTS

The result of associating the specific TCM methods is not only symptom relief, but also the objective change demonstrated by the comparative study of the MRI.

CONCLUSIONS

The treatment and care by the TCM rules can remove the cause of the disease and also can cure the syndrome. This approach can aid for a faster recovery after surgery and reduces the risk of relapse. We consider that in this way the condition of complementarity between Western Medicine and TCM is accomplished.

KEYWORDS

medicine, early onset ageing, degenerative processes, complementarity, acupuncture

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Efficacy of acupuncture for degenerative lumbar spinal stenosis: protocol for a randomised sham acupuncture-controlled trial Zongshi Qin,1,2 Yulong Ding,3 Jiani Wu,1 Jing Zhou,1,2 Likun Yang,1 Xiaoxu Liu,1,2 and Zhishun Liu1 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5129088/

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QUICK DECISION MAKING IN NEUROSURGERY: HOW TOO MUCH EXPERIENCE OR THE LACK OF IT CAN CREATE INAPPROPRIATE RESPONSE STRATEGIES

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OBJECTIVES

Surgery is a domain in which naturalistic or dynamic decision making is often involved. In dynamic decision making, the goal is often to control a problem, instead of devising an optimal response.

In the case of an adverse event, like other professionals, surgeons adopt decisions after a quick mental calculation of the degree of risk/time. If there is little time, the decision is based on fast intuitive or rule-based factors. In other words, The fast-intuitive decisions are a type of affect heuristic, in which emotional response, plays a lead role. It is a subconscious process that shortens the decision-making process and allows people to function without having to complete an extensive search for information. In this kind of decision making, only one response option is available at a time, and this response is primarily based on previous experiences, stored as memories. Since previous experiences are the ones that dictate the behavior, novice surgeons rarely use it, since they do not possess the necessary experience of relevant events.

Rule-based decision making involves identifying the situation and respond by using a reference from some authority. Unlike intuitive decision making, this requires mental effort, since the individual has to recall the matching rule for the event and

implement it. With time, in repetitive situations, the rule-based becomes intuitive. However, this kind of rapid response is not always a good one, and this strategy ends up disadvantaging the patient. In this study, we perform a review of pertinent literature regarding strategy and decision making and try to show how by applying some cognitive training, the response to adverse events, which require quick action, can be dramatically improved.

IMMUNOTHERAPY FOR GLIOBLASTOMA MULTIFORME: WHERE DO WE STAND?

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OBJECTIVES

Glioblastoma multiforme (GBM) represents the most common and aggressive primary malignant tumour of the central nervous system. Despite the current gold-standard first-line multimodal treatment, including maximal tumour resection, followed by adjuvant radiation therapy and temozolomide-based chemotherapy, the prognosis of this patients is very poor, with median overall survival of less than 15 months, less than 5% of them surviving more than 5 years. Suppression of the immune system is one of the mechanisms through which glioblastoma cells evade all known therapies, becoming one of the most difficult to treat diseases. Therefore, the glioblastoma-mediated immunosuppressive microenvironment is an important target for treatment and a thrilling area for the researchers worldwide.

MATERIALS AND METHODS

The goal of this review was to analyse published literature, in order to present the main immunotherapies which are currently studied for the treatment of glioblastoma multiforme. Papers were

identified using PubMed electronic database and only publications written in English were included.

RESULTS

The immune suppression and its remarkable genetic heterogeneity are the main reasons that make glioblastoma so difficult to treat. The goal of cancer immunotherapy is to harness the power of the immune system and to produce a tumour-specific immune response capable to reject tumour cells. We identified 4 main immunotherapies that are intensively investigated: tumour-specific/associated antigens vaccines, dendritic cell vaccines, immune check-point inhibitors (CTLA-4 inhibitors, PD-1/PD-L1 inhibitors) and CAR (chimeric antigen receptor) T-cell therapy. The first results of clinical trials involving these therapies are promising, but there is a need for large-scale multi-institutional phase III clinical trials, in order to demonstrate the effectiveness of the immunotherapies in the treatment of glioblastoma multiforme.

CONCLUSIONS

Immunotherapy appears as a salvation path and a way which can provide an optimal personalized therapeutic strategy for our patients, but there are many challenges that must be overcome until we will have a safe immunotherapy-based treatment. As neurosurgeons, we must have a comprehensive understanding of this therapy, in order to offer, when the immunotherapy will be available worldwide, the best option of treatment for our patients.

KEYWORDS

glioblastoma multiforme, immunotherapy, vaccines, CTLA-4, PD-1, PD-L1, CAR T-cell