Foramen magnum meningioma case reports

2022

A case of delayed postoperative sigmoid sinus (SS) DAVF secondary to SS thrombosis after resection of a foramen magnum meningioma through a suboccipital craniotomy.

Observations: The authors visualized the clear architecture of the DAVF using fusion three-dimensional computer graphics (3DCG) images reconstructed from multimodal imaging studies. These fusion 3DCG images revealed that the feeders of the DAVF had connected through neovascularization to the SS at the previous thrombus site. The authors also reviewed previously reported cases of DAVFs that developed after craniotomy.

Lessons: This study indicated that SS stenosis and occlusion with sinus thrombosis are possible risk factors for delayed postoperative DAVF that demand special consideration [1)]

A case of a 61-year-old lady presenting with several weeks of progressive left-sided weakness, and found to have a foramen magnum meningioma. She was counselled on surgical resection of the tumour, and a preoperative computed tomography angiogram (CTA) was obtained for operative planning purposes. CTA demonstrated incidental bilateral internal jugular vein (IJV) stenosis, with enlarged extracranial collateral vessels and elongated styloid processes. The main surgical concern was potential injury of the extracranial collateral vessels during operative exposure, which may compromise her intracranial venous outflow in light of the IJV stenosis. A doppler ultrasound scan of the IJVs was performed, which demonstrated that blood flow was still present through both vessels. Through careful soft tissue dissection during surgery, potential complications and injury to the extracranial collaterals were avoided. We performed a literature review of the incidence of IJV stenosis, its associated conditions, and potential surgical implications. Complications from injury to vital collateral extracranial vessels should be considered during preoperative planning in patients with anatomical variants or risk factors for IJV stenosis, as seen in this case [2)].

A case of foramen magnum meningioma in a pregnant woman at 32 weeks of gestation, who presented with chronic neck pain and cervical myelopathy. She tested positive for COVID-19 infection. Magnetic resonance imaging findings were compatible with foramen magnum meningioma, and the pathologic analysis revealed a WHO grade-I meningioma. The patient underwent cesarean section followed by tumor excision due to fetal distress and rapid deterioration.

Clinical discussion: Management of meningioma during pregnancy requires a multidisciplinary approach. No guidelines for surgical intervention, timing of pregnancy termination, or mode of delivery for pregnant patients with foramen magnum meningioma have been established. While it is best to prolong the pregnancy for as long as possible, a cesarean delivery is preferred to avoid increased intracranial pressure. Operative management of meningioma is warranted if the tumor is growing or symptomatic. This patient died due to the added complication of COVID-19. Although the prognosis of foramen magnum meningioma is usually favorable, COVID-19 comorbidity can increase illness severity.

Conclusion: Maternal and fetal health status must be evaluated to decide whether surgical excision and pregnancy termination are needed. In this case, COVID-19 infection and meningioma disease course required further investigation [3].

A rare case of coincidentally found nasopharyngeal cancer and ventral foramen magnum meningioma. The 68-year-old male patient presented with a year history of ataxia. Radiological examination revealed lesions in the nasopharyngeal space and ventral foramen magnum. A needle aspiration biopsy for nasopharyngeal space and surgical removal for foramen magnum lesion were performed. The pathological diagnoses were nasopharyngeal cancer and meningioma, respectively. The concomitant occurrence of these two tumors is very rare and there is no known association between these two tumors. We report a case of ventral foramen magnum meningioma simultaneously present with nasopharyngeal carcinoma [4].

2021

2 cases of foramen magnum meningioma (FMM) that was first operated on with the diagnosis of carpal tunnel syndrome (CTS).

Conclusion: During the diagnostic assessment of CTS and recalcitrant CTS, a more proximal etiology of nerve compression should be considered, including FMM. If a more proximal cause of nerve dysfunction is suspected, cervical spine magnetic resonance imaging may be beneficial to evaluate a patient for spinal etiology [5].

A 52-year-old female presented with a history of neck pain with progressive spastic quadriparesis.

Clinical discussion: Magnetic resonance imaging MRI T1 and T2 weighted images revealed well-defied pure posterior foramen magnum Lesion. Although the lesion was very sticky to neurovascular components. Simpson grade I was achieved. Histopathology revealed Chordoid meningioma. The patient had a dramatic recovery.

Conclusion: Although choroid meningioma is usually well circumscribed, sticky tumors should be suspected. Recurrence of Chordoid meningioma should be suspected. Total excision should be achieved and routine follow-up should be informed. Reports about chordoid meningioma aren't common, but reports on choroid foramen magnum meningioma are very rare. The opportunity to give the patient a symptom-free and normal life should not be missed in such cases [6].

2015

Athanasiou et al. report a rare case of anterolateral meningioma of the foramen magnum (FMM) and high cervical spine presenting both intradural and extradural growth in a 7.5-year-old boy.

The patient presented with progressive tetraparesis and gait instability. Neuroimaging revealed an

anterolateral tumor of the foramen magnum, C1 and C2 cervical spine level. The patient was treated in two stages: During the first operation, the extradural part was resected while the intradural part was removed in a second operation. Following the second operation, the patient showed almost complete neurological recovery as a result of cervical spinal cord and brainstem decompression but was complicated with cerebrospinal fluid leakage and infection by Acinetobacter. He sustained two further operations for dural sealing and external ventricular drainage and was treated with intraventricular administration of antibiotics.

Histopathology of the tumor confirmed a meningotheliomatous meningioma. At the 6-month post-op follow-up examination, the patient exhibited complete neurological recovery and no radiological tumor recurrence. To the authors' best knowledge, we report the third case of sporadic pediatric meningioma of the foramen magnum and high cervical compartments with an extradural growth.

Accurate pre-operative estimation of possible extradural growth is crucial towards surgical planning and sufficient treatment. Treatment of choice is total resection in a single operating session to avoid re-operations and increased risk of complications. If not possible, a re-operation should always attempt to secure the desired result [7)].

A 59-year-old woman was admitted with a sudden severe headache that had lasted for 5 days. Neck stiffness was present, but no other neurological deficits were present. Subarachnoid hemorrhage and intra-tumor hemorrhage were not noted on a head computed tomography(HCT). The patient's cerebrospinal fluid was xanthochromic. Magnetic resonance imaging(MRI)demonstrated a gadolinium-enhanced tumor with hemorrhagic changes around the foramen magnum. After conservative therapy, MRI showed a decrease in tumor size and a dural tail sign. This tumor was diagnosed as a hemorrhagic meningioma, and was resected with a posterior suboccipital approach. Histology confirmed that this tumor was a benign transitional meningioma with hemorrhagic change. This is a rare case involving benign meningioma onset by hemorrhagic change. Postoperative tumor recurrence was not present. [8)].

2011

Ghanta and Mohammad report the case of a seventy-year-old female who presented with history of neck pain and weakness in all four limbs for three months. Neurological examintaion showed quadriparesis with grade 4/5 power, hypertonia and hyperreflexia. Two days before surgery, she devoloped urinary retention and was catheterized. Magnetic resonance imaging (MRI) revealed a large ventral foramen magnum meningioma of size 3.5 × 2.8 × 3.2 cm severely compressing the brainstem.

Pre operative MRI showing large ventral foramen magnum meningioma severely compressing the brainstem

Surgery was done in supine position with head turned to the left and fixed in sugita head frame. The tumor was approached by a linear incision of 9 cm, behind the mastoid process. Right retromastoid suboccipital craniectomy was done. Bone removal was done laterally till the sigmoid sinus was exposed and inferiorly including the foramen magnum. No resection of the occipital condyle was done. Dura was opened in cruiciate manner. Intraoperatively brainstem was severely stretched posteriorly by the tumor. Vertebral artery was seen adjacent to the base of the tumor. Tumor was soft to firm in consistency and intial debulking of the tumor was done. Total excision of the tumor was

done(Simpson grade-2) with minimal handling of the brainstem as the tumor size provided great space for microsurgical removal. Post operatively, patient had transient lower cranial nerve palsy and mild left hemiparesis which recovered completely. Post operative MRI revealed complete excision of FMM.

Neurological examination at one year follow-up revealed power of 4+/5 on the left side and no cranial nerve deficits [9)].

2009

A 72 year-old woman developed posterior neck pain and a tingling sensation in the left arm. Magnetic resonance imaging showed a well defined and homogenously enhancing mass at the foramen magnum with no dural attachment. Angiography did not demonstrate a blood supply to the tumour via the posterior meningeal branches of the vertebral artery. The mass was totally removed via a midline suboccipital approach. Intraoperatively, the mass was found to adhere to the dentate ligament without a dural attachment. Histopathology findings were consistent with the diagnosis of meningioma.

This case is the first report of a meningioma originating from the dentate ligament and the tumour may have originated from the pia-arachnoidal extension of the spinal cord to the dura [10)].

2008

A case of a foramen magnum meningioma highlights the importance of the neurologic exam when evaluating a patient with dysphagia. A 58-year-old woman presented with an 18-month history of progressive dysphagia, chronic cough, and 30-pound weight loss. Prior gastroenterology and laryngologic workup were unrevealing.

Her neurologic examination revealed an absent gag reflex, decreased sensation to light touch on bilateral distal extremities, hyperreflexia, and tandem gait instability. Repeat esophagogastroduodenoscopy was normal, whereas laryngoscopy and video fluoroscopy revealed marked hypopharyngeal dysfunction. Brain magnetic resonance imaging demonstrated a 3.1 x 2.7 x 2.9 cm foramen magnum mass consistent with meningioma. The patient underwent neurosurgical resection of her mass with near complete resolution of her neurologic symptoms. Pathology confirmed the diagnosis of a WHO grade I meningothelial meningioma.

CNS pathology is an uncommon but impressive cause of dysphagia. The case demonstrates the importance of a thorough neurologic survey when evaluating such a patient [11)].

1)
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