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CASE REPORT

Giant convexity chondroma with dural involvement: Case report and review of literature

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ABSTRACT

Intracranial chondromas are rare benign cartilaginous tumors arising usually from the skull base. We present a case of giant chondroma with dural attachment. Imaging modalities and management pearls are discussed. A brief review of literature is also presented.

Key words: Chondroma, dural attachment, imaging, intracranial tumor, management

Introduction

Chondromas are benign, slow growing tumors with an estimated incidence rate of 0.2-0.3% of all intracranial tumors.[1] Most of them involve the skull base and usually arise from basilar syndesmoses. Chondromas arising from the brain parenchyma, duramater, leptomeninges and choroid plexus are exceedingly rare. Hirschfield reported these lesions first in 1851.[2]

Case Report

A 26-year-old male patient with intractable head ache and recent onset focal seizures came to our department after initial evaluation done elsewhere. His neurological examination revealed nothing remarkably. Enhanced computed tomography (CT) and magnetic resonance (MR) evaluation showed lesion with patchy calcification and patchy enhancement in left frontotemporal region with possible dural attachment, which made us to make a preoperative diagnosis of meningioma [Figures 1 and 2].

Patient underwent total surgical excision of the lesion along with involved dura. The lesion was hard and avascular in most of the areas with clear plane between the brain parenchyma except for the area of dural attachment [Figure 3].

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Duraplasty was done with pericranium. Postoperatively, patient developed focal seizures with generalization and postictal confusion, weakness of right side limbs and aphasia. He was treated with escalated doses of two antiepileptic drugs (AEDs). Postoperative CT scans showed complete tumor excision [Figure 4]. Patient recovered from his postictal deficits completely and discharged with normal neurology. Pathological examination revealed chondromatous elements, which confirmed nature of the lesion as chondroma [Figure 5]. Patient attending follow-up and on the course of tapering of AEDs.

Discussion

An intracranial chondroma is an extremely rare tumor commonly involves the skull base with the predilection to sphenoethmoid region.[3] According to the review of Mapstone, *et al*., only 20% of intracranial chondromas have meningeal origin.[3] The majority of patients are between 20 and 60 years of age. Some authors reported female predominance which is insignificant.[1] Intracranial chondromas are usually solitary. Multiple lesions are reported in association with Ollier's multiple enchondromatosis and Maffucci's syndrome.[4,5] These diseases related chondromas may exhibit greater cytologic atypia and cellularity and may have increased propensity to malignant change.[6]

Many theories have been suggested for the origin of intracranial chondromas. Skull base chondromas are

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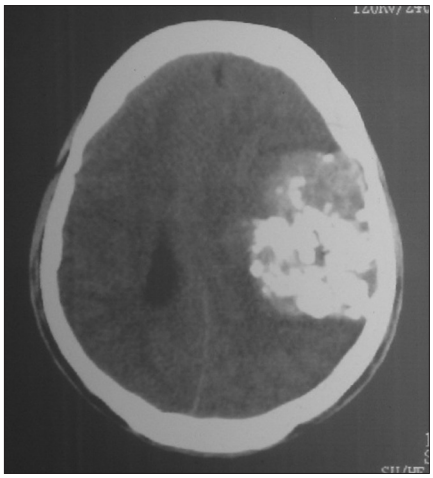

Figure 1: Plain computed tomography scan showing calcified mass lesion

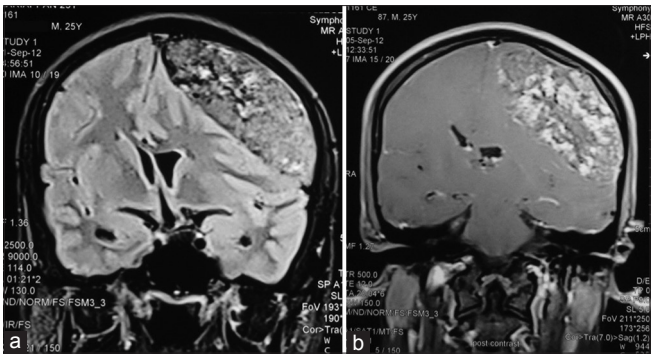

Figure 2: (a) Coronal plain magnetic resonance (MR) image showing heterogeneous intense lesion. (b) Coronal plain and contrast enhanced MR images showing patchy irregular enhancement pattern

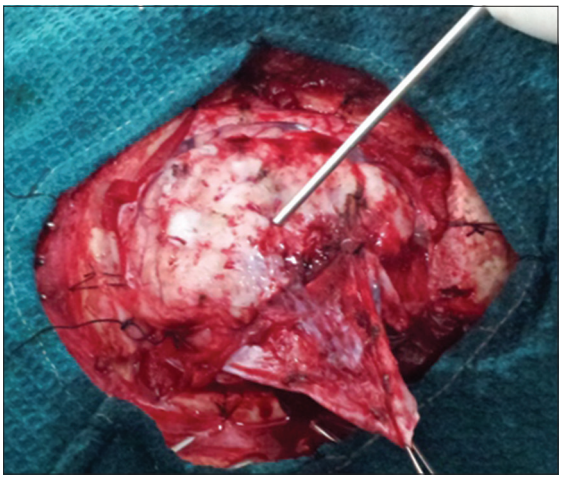

Figure 3: Intraoperative picture showing calcified mass

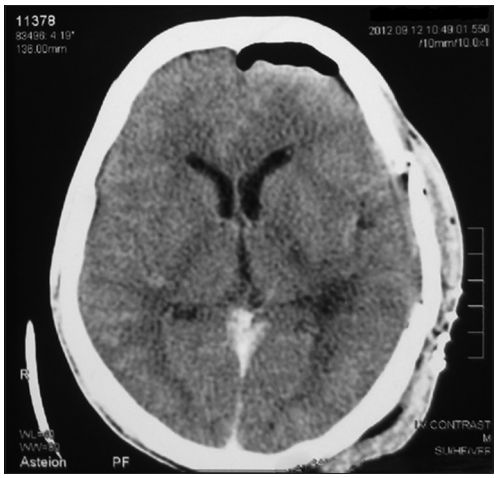

Figure 4: Postoperative contrast enhanced computed tomography showing complete excision of the lesion

believed to originate from embryonic rests of chondrogenic cells along baseline syndesmoses.[1,7] However, intradural chondromas are thought to develop from heterotopic chondrocytes or metaplasia of other normal tissue including meningeal fibroblasts[2] and perivascular mesenchymal[8] tissue or displacement and migration caused by trauma or inflammatory process.[2] Those is arising outside the skull base most of them found to originate from meninges particularly convexity region. Chondromas originating from the brain parenchyma and intraventricular location are also reported.[9]

Intracranial chondromas grow slowly predominantly by expansion without invading the brain.[10,11] The clinical manifestations of these tumors are characterized by local dysfunction secondary to compression and remodeling of the surrounding tissues and seizure activity. Some patients may present with focal signs due to local compression of adjacent brain tissues or increased intracranial pressure. Due to the slow growing nature patients often present with a long-standing history of signs and symptoms and also these tumors are of very large size at the time of presentation.[3]

Chondromas show variable density due to differences in the degree of calcification in CT imaging. Hyperostosis or erosion and destruction of the adjacent bone may often seen.[9] Slight to moderate patchy enhancement is a feature seen in contrast enhanced CT scans. This type of commonly occurring chondromas are classified as Type 1 by Lacerte *et al*. whereas less common Type 2 variety show low-density area in the center, correlating with an area of cystic degeneration and the high density thick calcified rim in the periphery.[12] The lack of peritumoral edema indicates extremely slow growth and benign nature of the lesion. The intensities of this tumor in MR images have been reported to be nonspecific. Patchy enhancement and the lack of dural tail sign help to differentiate chondromas from meningioma though it is difficult.[13] Cerebral angiogram is the choice of imaging which will demonstrate an avascular extra-axial space-occupying lesion with displacement of vessels in the vicinity of chondromas incontrast to the findings seen in meningiomas.[13] The main differential diagnosis for an

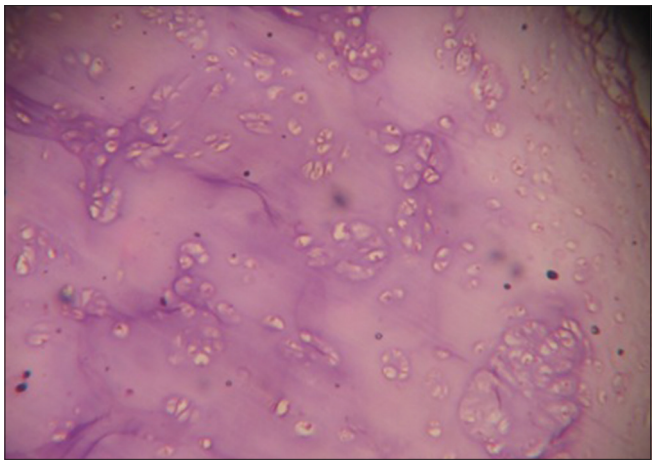

Figure 5: Histopathology reveals chondroid cells in islands

intracranial chondroma is meningioma. Other possibilities are osteochondroma, enchondroma, calcification of postoperative hematoma and low-grade chondrosarcomas. Rapid recurrence, invasion or metastasis indicates malignant transformation.[6]

Complete surgical resection along with dural attachment if any is the treatment of choice. The long-term prognosis is good after total removal.[14] In cases of subtotal removal, long term follow-up is necessary to diagnose rare malingnant transformation. Hardy, *et al*., reported a patient with a survival period of 44 years after complete removal of a convexity chondroma.[15] Falconer *et al*. reported three cases of chondroma treated with radiotherapy without improvement.[16]

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Conflicts of interest

There are no conflicts of interest.

References

1. Berkmen YM, Blatt ES. Cranial and intracranial cartilaginous tumours. Clin Radiol 1968;19:327-33.
2. Chorobski J, Jarzymski J, Ferens E. Intracranial solitary chondroma. Surg Gynecol Obstet 1939;68:677-86.
3. Mapstone TB, Wongmongkolrit T, Roessman U, Ratcheson RA. Intradural chondroma: A case report and review of the literature. Neurosurgery 1983;12:111-4.
4. Nakase H, Nagata K, Yonezawa T, Morimoto T, Sakaki T. Extensive parasellar chondroma with Ollier's disease. Acta Neurochir (Wien) 1998;140:100-1.
5. Chakrabortty S, Tamaki N, Kondoh T, Kojima N, Kamikawa H, Matsumoto S. Maffucci's syndrome associated with intracranial enchondroma and aneurysm: Case report. Surg Neurol 1991;36:216-20.
6. Patel A, Munthali L, Bodi I. Giant cystic intracranial chondroma of the falx with review of literature. Neuropathology 2009;29:315-7.
7. Dutton J. Intracranial solitary chondroma. Case report. J Neurosurg 1978;49:460-3.
8. Ahyai A, Spoerri O. Intracerebral chondroma. Surg Neurol 1979;11:431-3.
9. Nakayama M, Nagayama T, Hirano H, Oyoshi T, Kuratsu J. Giant chondroma arising from the dura mater of the convexity. Case report and review of the literature. J Neurosurg 2001;94:331-4.
10. De Coene B, Gilliard C, Grandin C, Nisolle JF, Trigaux JP, Lahdou JB. Unusual location of an intracranial chondroma. AJNR Am J Neuroradiol 1997;18:573-5.
11. Li TC, Chen Y, Lin SW, Tseng SH. Chondroma of the falx: Case Report. Tzu Chi Med J 2005;17:269-72.
12. Lacerte D, Gagné F, Copty M. Intracranial chondroma. Report of two cases and review of the literature. Can J Neurol Sci 1996;23:132-7.
13. Kurt E, Beute GN, Sluzewski M, van Rooij WJ, Teepen JL. Giant chondroma of the falx. Case report and review of the literature. J Neurosurg 1996;85:1161-4.
14. Ozgen T, Pamir MN, Akalan N, Bertan V, Onol B. Intracranial solitary chondroma. Case report. J Neurosurg 1984;61:399-401.
15. Hardy RW Jr, Benjamin SP, Gardner WJ. Prolonged survival following excision of dural chondroma. J Neurosurg 1978;48:125-7.
16. Falconer MA, Bailey IC, Duchen LW. Surgical treatment of chordoma and chondroma of the skull base. J Neurosurg 1968;29:261-75.