

Case Report

Giant intracranial osteochondroma: A case report and review of the literature

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Abstract

Background: Intracranial osteochondromas are uncommon. The majority of lesions arise from the base of the skull or from bones developed by endochondral ossification. A minority of cases are attached to the falx cerebri in the fronto parietal location.

Case Description: We report a case of a giant intracranial osteochondroma in a 24-year-old man. This patient presented with complaints of convulsions and headache. Imaging studies of the brain, gross, and histological features concluded it to be an osteochondroma.

Conclusion: This case is reported in view of extreme rarity of the lesion, and to emphasize the fact that complete surgical resection is curative.

Key Words: Falx cerebri, intracranial, osteochondroma

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INTRODUCTION

Intracranial osteochondromas represent 0.1-0.2% of all intracranial tumors.^[3] They arise from the residual rests of primordial cartilage in basilar synchondroses entrapped during endochondral ossification of the skull base; hence they arise most commonly in the middle cranial fossa where so many sutures converge. About 15% of them arise supra tentorially attached to the falx cerebri in the fronto parietal location.^[3]

CASE REPORT

A 24-year-old man was admitted with a history of convulsions since 3 months and episodes of headache since 2 months. Neurological examination was

unremarkable. Preoperative computed tomography of the brain showed a mixed density mass of size 7 × 6 cm with calcifications in the right frontal lobe. Differential diagnoses offered were oligodendroglioma and meningioma. Magnetic resonance imaging showed a heterogeneous mass lesion of size 5.5 × 4.5 cm in the right frontal lobe with tiny hypo intense foci [Figure 1]. There was a mass effect over the ipsilateral cerebral hemisphere with sub falcine herniation to the left. A differential diagnosis of oligodendroglioma/astrocytoma was offered.

Operative findings

On opening the dura, a hard, glistening white smooth-surfaced irregular mass was seen in the right frontal region, with minimal attachment to the dura; the mass was resected en bloc [Figure 2].

Pathological findings

An ivory hard lobulated gray blue translucent mass

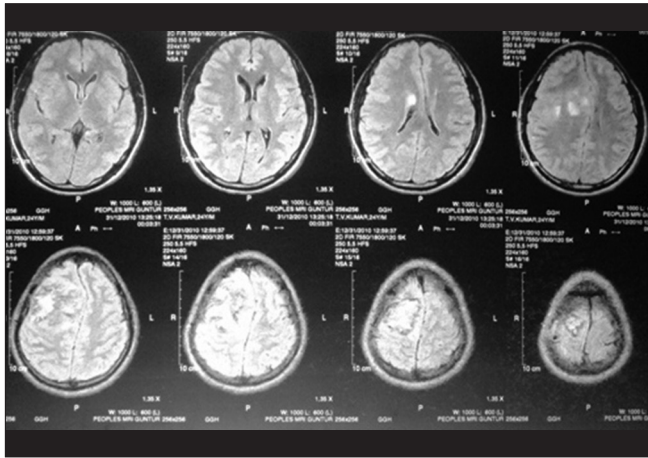


Figure 1: MRI scan with a heterogeneous mass lesion in the right frontal lobe

measuring $7 \times 7 \times 3.5$ cm was received. The cut section of the tumor showed a cartilaginous cap with underlying hard bone [Figure 3]. Microscopic examination revealed a tumor predominantly composed of lobules of cartilage with underlying bone [Figures 4 and 5]. The cartilaginous area showed lobular arrangement of clusters of lacunae containing single chondrocytes. There were no areas of necrosis, cellular pleomorphism, nuclear atypia, or binucleate chondrocytes.

DISCUSSION

Osteochondroma, also known as exostosis, is a benign cartilage capped tumor that originates on the surface of bones. They are commonly seen in long tubular bones such as the distal femur, proximal tibia, and proximal humerus. Intracranial osteochondromas are rare, if seen; the majority arise from the base of the skull. Very few cases arise from the dura attached to the falx cerebri in

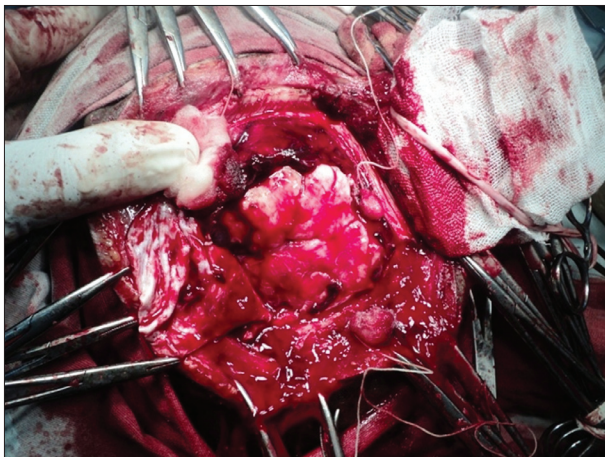


Figure 2: Glistening white irregular mass being resected en bloc



Figure 3: Cut section of the lobulated tumor with grayish blue translucent areas

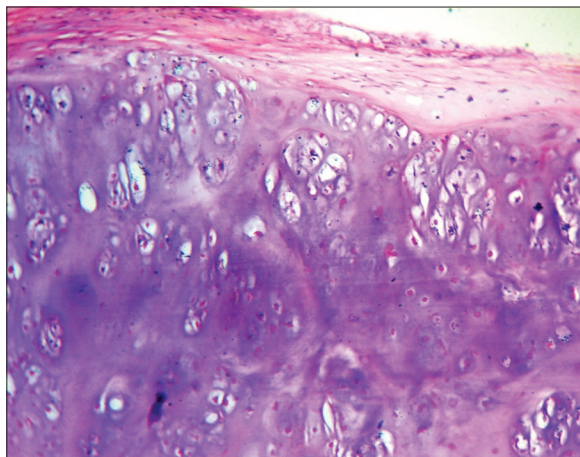


Figure 4: Tumor showing a well-capsulated cartilaginous cap (H and E, ×400)

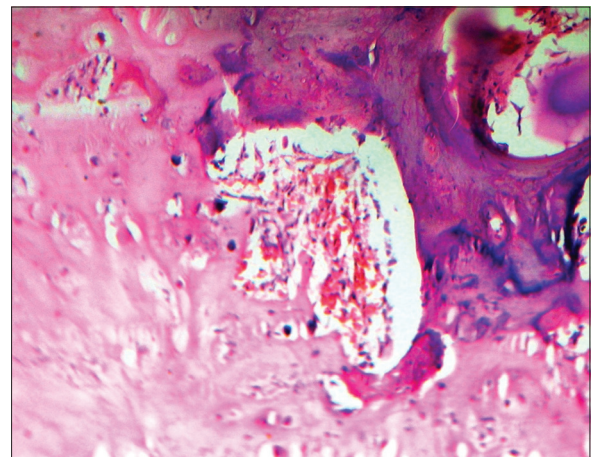


Figure 5: Tumor showing the central core of osseous tissue (H and E, ×400)

the fronto parietal location as in the present case. Extra skeletal osteochondromas originate from nonskeletal or noncartilaginous tissue. Intracranial osteochondromas are solitary but few cases occur as components of generalized mesenchymal neoplasias including Maffucci's and Ollier's disease. These tumors are seen as a result of defective endochondral ossification.

Intracranial osteochondromas arise at any age with a predilection for younger individuals. Tumor grows slowly over many years and can attain a very large size without clinical symptoms, especially when supratentorial. Tumors arising from the base of the skull present earlier. They have also been reported to arise from cranial nerves,^[4] walls of the ventricles, and from the choroid plexus, posterior clinoid process.^[6] In imaging studies the main differential diagnosis were meningioma and oligodendroglioma because both can show calcifications.^[5]

The main pathological differential diagnosis was low grade chondrosarcoma, which was ruled out in the present case by the absence of cellular pleomorphism, nuclear atypia, and binucleate chondrocytes. An extensive skeletal survey of the patient and past clinical history ruled out the possibility of a secondary deposit from a low-grade chondrosarcoma.

Complete surgical excision is curative.^[2] Tumors of the base of the skull, due to incomplete excision, may show

recurrence. Transition to chondrosarcoma has been rarely documented.^[1] In the present case the tumor was resected completely and patient was relieved of all the symptoms. Follow-up of the patient with clinical examination and imaging studies of the brain showed no evidence of any recurrence.

CONCLUSION

This case is reported in view of extreme rarity of the lesion, and to emphasize the fact that complete surgical resection is curative.

REFERENCES

1. Bonde V, Srikant B, Goel A. Osteochondroma of basi-occiput. *Neurol India* 2007;55:182-3.
2. De Benedittis G, Bernasconi V, Etorre G. Tumors of the fifth cranial nerve. *Acta Neurochir (Wien)* 1977;38:37-64.
3. Kumar S, Shah AK, Patel AM, Shah UA. CT and MR images of the flat bone Osteochondroma from head to foot: A pictorial essay. *Indian J Radiol Imaging* 2006;16:589-96.
4. Paulus W, Scheithauer BW, Perry A. Mesenchymal, non-meningothelial tumors. In: David N, editor. *WHO classification of tumors of central nervous system*. 4th ed. Lyon: IARC; 2007. p. 176-7.
5. Somerset HL, Kleinschmidt-DeMasters BK, Rubinstein D, Breeze RE. Osteochondroma of the convexity: Pathologic-neuroimaging correlates of a lesion that mimics high-grade meningioma. *J Neurooncol* 2010;98:421-6.
6. Ito U, Hashimoto K, Inaba Y. Osteochondroma of the posterior clinoid process. Report of a case with special reference to its histogenesis. *Acta Neuropathol* 1974;27:329-35.