Ossifying fibroma

Ossifying fibroma is a rare benign bone tumor that occurs mostly in the jaw, but also affects paranasal sinuses and fronto-ethmoidal complex.

Also commonly referred to as osteofibrous dysplasia (OFD), especially when in the extremities, they should be differentiated from non-ossifying fibromas and fibrous dysplasia.

Epidemiology

These lesions are most frequently encountered in young children (often <10 years).

Histology

They comprise of haphazardly distributed lamellated bony spicules on a background of fibrous stroma. Despite being benign, they can be locally aggressive. Immunohistochemical staining of lesions shows positive keratin cells in the majority of the cases.

Location

lower extremity

tibia: most frequent site 5 (90% of the time); there is a predilection for the anterior tibial cortex

femur: occurs in a diaphysial location

mandible and maxilla: these are examples of cementum-poor cement-ossifying fibromas 2 (see WHO classification scheme for odontogenic tumours)

sinonasal: expansile lesions with peripheral ossification and central lucency Radiographic features

Plain radiograph and CT

well-circumscribed lesion

evidence of intracortical osteolysis with a characteristic sclerotic band (osteoblastic rimming)

moderate cortical expansion

homogeneous lesion matrix

MRI

Reported signal characteristics include

T1: low signal

T2: iso-high signal

T1 C+ (Gd): typically shows enhancement

Treatment and prognosis

Tend to regress over time. For locally aggressive lesions, surgical resection is often curative although recurrence has been reported.

Complications

pathological fracture(s)

limb bowing

Differential diagnosis

Imaging differential considerations include

fibrous dysplasia: has no osteoblastic rimming

adamantinoma: may share a common origin with ossifying fibromas osteoid osteoma

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Case reports

A case of juvenile psammomatoid ossifying fibroma of the greater wing of the sphenoid bone and lateral orbital wall in an 11-year-old child and show a surgical video. Although rare, they should be considered in the differential diagnosis of fibro-osseous lesions of the spheno-orbital region [1)].

A 14-year-old male presented to the clinic with a history of progressive left proptosis. Imaging studies revealed a well-circumscribed lesion involving the left orbital roof and showing internal areas of calcification and sclerosis. He underwent a transcranial resection of the lesion and follow-up imaging revealed no evidence of recurrence.

Conclusion: JPOFs are locally invasive lesions that require careful diagnosis and meticulous excision to prevent recurrence [2)].

A 20-year-old man admitted for the management of ossifying fibroma of the orbital roof extending inside the orbit mimicking meningioma and revealed by a progressive proptosis and headache. The patient underwent surgery for the subtotal removal of the tumor with its frontal infiltration with a good outcome. All meningiomas like tumors are not meningiomas and other tumors such as ossifying

fibroma might be mistaken for meningioma and even get confirmation from the pathological anatomy study. Need be for these tumors to be looked at more closely for better therapeutic decision-making [3].

2016

Occipital bone is an extremely rare location for these tumors; only two cases have been reported.

Cotúa Quintero et al, present the first case reported as psammomatoid subtype of ossifying fibroma, according to the 2005 WHO classification. An 18 years old male patient with infratentorial tumor, in the occipital bone, that produces mass effect over the cerebellum.

This case may provide a guide to consider these lesions for a more rapid and precise diagnostic in future cases [4].

1977

A rare ossifying fibroma in the occipital bone is described, and the available literature reviewed. The rapid growth seen in this case was remarkable and led us to believe this was a malignant osteogenic tumor. Full knowledge and the correct diagnosis of ossifying fibroma should have prevented an unnecessarily extensive operation for this benign lesion [5].

1)
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2)
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3)
El Akroud S, Dokponou YCH, El Mostarchid M, Chahdi H, El Asri AC, Gazzaz M. Management and positive outcome of skull-base ossifying fibroma: a case report. J Surg Case Rep. 2021 Jul 14;2021(7):rjab304. doi: 10.1093/jscr/rjab304. PMID: 34276961; PMCID: PMC8279691.
4)
Cotúa Quintero C, Saab Mazzei A, Revuelta Barbero J, Parajon Diaz A, Ley Urzaiz L. Juvenile psammomatoid ossifying fibroma of the posterior fossa: a case report and review. Springerplus. 2016 Jul 15;5(1):1089. eCollection 2016. PubMed PMID: 27468389.
5)
Yamashita J, Aoki M, Waga S, Handa H. Ossifying fibroma of the occipital bone. Surg Neurol. 1977 Apr;7(4):189-92. PubMed PMID: 403629.