Quiz

Correct answer to the quiz. Check your diagnosis

Post-traumatic fibro-osseous lesion of the rib

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Post-traumatic fibro-osseous lesion of the rib (PTFOL) is a rare lesion that is most commonly noted incidentally. Ten incidence of PFOL is unknown but it is thought that it is underdiagnosed, as many of the cases are misdiagnosed as fibrous dysplasia. This could be attributed to the lack of familiarity of the lesion by radiologists, pathologists and orthopedic surgeons. PFOL is regarded as a reactive bony lesion which in most incidences is related to trivial trauma. However, in many of the reported cases similar to our case, no history of trauma is identified. It clinically, radiologically and sometimes histologically overlaps with some boney lesions including osteoid osteoma, fibrous dysplasia, Erdheim-Chester disease and eosinophilic granuloma (Table I). PFOL usually presents as well-defined nodule (Fig. 1) composed of intervening bland fibrous stroma and xanthomatous component (Fig. 2).

Our case interestingly showed significant xanthomatous component. The histological pattern of the lesion whether predominantly xanthomatous versus fibrotic has no clinical significance. The key histolog-

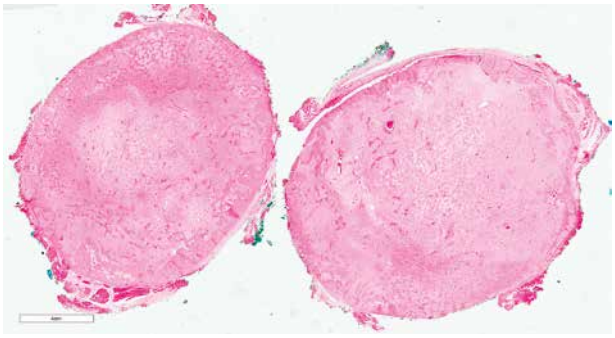

Fig. 1. Low power view showing PFOL as a well-defined nodule composed of anastomosing slender woven bony trabeculae (HE staining, original magnification 40×)

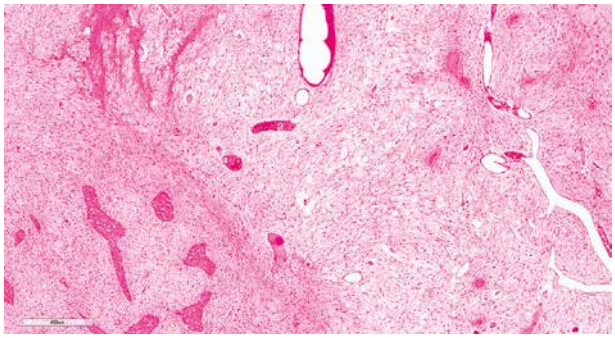

Fig. 2. Medium power view showing PFOL with intervening bland fibrous stroma admixed with xanthomatous component (HE staining, original magnification 200×)

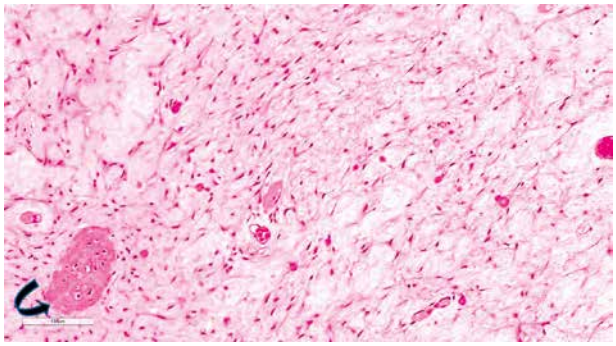

Fig. 3. High power view showing PFOL focusing on a woven bony trabecula (arrow) merging with intervening fibro-xanthomatous background (HE staining, original magnification 400×)

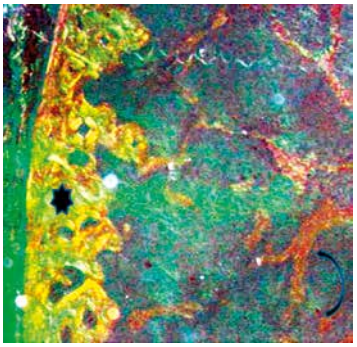

Fig. 4. PFOL shows the central immature anastomosing woven bony trabeculae (arrow) and the thicker peripherally surrounding lamellar cortical bone (star) (Polarized light)

Table I. Salient clinical, radiological and histological features of bony lesions that may occur in the rib and overlap with PTFOL

Lesions	Clinically	Radiologically	Histologically
Osteoid osteoma	Unusual in the rib Age range 10-30 years	Identification of nidus Solitary Hot spots on bone scan	Presence of nidus with vascular fibrous stroma Numerous plump osteoblasts lining bony trabeculae Xanthomatous cells are absent
Erdheim-Chester disease	Multiple bones Unusual in the rib +/– Extra-skeletal tissues Life-threatening with complications Median age 53 years	Boney sclerosis with increased cortical density	Diffuse xanthomatous cells infiltration of the bone marrow Irregularly thickened lamellar and woven bone trabeculae Variable number of osteoblasts and osteoclasts
Fibro-osseous dysplasia	Age range 3-15 years Multiple, if polyostotic type, in settings McCune-Albright & Mazabraud's syndromes No history of trauma	Well-defined lytic lesion +/– sclerotic borders Ground glass appearance	Thin, irregularly shaped metaplastic woven bone trabeculae No osteoblastic rimming Fibrous stroma No xanthomatous cells aggregation No bone maturation from woven to lamellar
PTFOL	History of trauma Median age 54 years (range 31-79 years) Limited to ribs +/– rare adjacent boney extension (scapula or vertebra)	Well defined lesion	Central xanthomatous cells Network of thick woven bony trabeculae Maturing with transformation of the woven to lamellar bone
Eosinophilic granuloma (EG)	Usually children & young adults +/– Extra-skeletal tissues	Variable appearance: Well-defined +/– sclerotic border Permeative or moth eaten lytic lesion	Sheets of Langerhans's cells with characteristic grooved nuclei Inflammatory background rich in eosinophils With regressing EN, extensive fibrosis with reactive bone reactive No zonal pattern CD1a and Langerin positive stains

ical feature of PFOL is transformation of anastomosing network of woven bony trabeculae (Fig. 3) noted centrally to mature lamellar bone noted peripherally which continue with the cortical bone (Fig. 4).

Most patients with PFOL show no recurrence and there is a controversy in the literature as regards their management, whether the lesion should be left and followed by imaging or it should be excised to rule out a more worrisome lesion, that may overlap clinically and on imaging. Our patient was well and did not show lesional recurrence, during the 7 years follow up period.

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