Intraosseous lipoma of the parietal bone

Clinical History:

Headache. Unremarkable physical examination and medical history.

Imaging Findings:

As the patient suffered from headache, cranial radiographs were taken. The conventional radiograph in occipitofrontal and lateral projection showed a well defined, radiolucent, oval lesion with a thin sclerotic rim in the left parietal bone (Fig. 1 a,b). The lesion was oval with a thin sclerotic rim, hypodense and with a density of -44 Hounsfield units on CT (Fig. 2). There was no calcification within the lesion. On MRI, the lesion was bright on T1 and T2 weighted images (Fig. 3 a,b,c,d). The patient rejected surgical excision or biopsy of the lesion. Follow up was recommended.

Discussion:

Although fat represents one of the normal connective tissue elements within the bone, intraosseous lipomas are exceedingly rare [1]. The infrequency of lipomas of bone may be explained, in part, by the classification of osseous lipomas as other processes, including ischemic necrosis, simple or aneurysmal bone cysts, or fibrous dysplasia on the basis of their radiographic or histologic characteristics. In fact, osseous lipoma has been considered either a neoplasm or a degenerative phenomenon related to trauma, infection, or vascular compromise [2]. As in our case, these tumours may be entirely asymptomatic; however, approximately two thirds of patients with intraosseous lipomas have localized pain and soft tissue swelling [2]. The most common sites of intraosseous lipomas are, metaphyses of the long bones and calcaneus [1,2]. There are very few reported cases of intraosseous lipomas within the skull bones. Arslan et al. in 2000 have reported a case of frontal bone lipoma and mentioned that only 12 cases had been reported [3]. In addition parietal localization is significantly rare. To our knowledge, only two parietal bone lipomas have been previously reported and these lipomas were located frontoparietally [2]. Milgram described a classification of intraosseous lipomas. The roentgenologic features of an intraosseous lipoma are determined by the stage of the lesion.

Stage 1 lesions contain only viable lipocytes within the lesion and appear well defined and radiolucent on plain films and CT.

In stage 2 lesions, in addition to stage 1, there are areas of increased density due to calcification secondary to necrosis.

In stage 3 lesions the involution is completed and original trabecular bone pattern is absent. Radiodensity is both peripheric and central (5). Our case is an example of stage 1 lesion, there was no calcification in it, either peripherally or centrally.

CT and MRI are the best radiologic methods for the diagnosis of lipoma. CT is able to identify the fatty component
of an intraosseous lipoma with the characteristic low attenuation value of such tissue. In MRI, lipomas demonstrate
a characteristic high signal on T1 and T2 weighted images [2].
Our patient refused surgical excision or biopsy of the lesion, so the diagnosis was only made by radiologic methods.
In our case, the lesion was a typical lipoma with its CT and MRI characteristics.
As differential diagnosis of intraosseous lipomas: bone infarcts, enchondromas, bone cysts, chondromyxoid
fibromas, osteoblastomas and fibrous dysplasia are the pathologies to be considered [1,2]. For enchondromas and
bone infarcts there is a different situation. Especially a stage 3 lesion would be difficult to differentiate from
enchondroma, as they have the same radiologic appereance. In this situation tissue examination would be requ?red.
Pathologically, intraosseous lipomas may have a few trabeculae that may appear necrotic or normal. Histologically it
may not be possible to differentiate between a necrotic intraosseous lipoma and a bone infarct [2]. The excision of
lipomas in asymptomatic patients is not necessary for the risk of malignant change is very low, the diagnosis would
be certain by CT and MRI [5].

Differential Diagnosis List: Intraosseous lipoma of the parietal bone

Final Diagnosis: Intraosseous lipoma of the parietal bone

References:

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Intraosseous lipoma of the frontal bone.

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Yasuda Y.

Intraosseous lipoma of the skull: a report of two cases.


Milgram JW.

Intraosseous lipomas. Radiologic and pathologic manifestations.

Description: Occipito-frontal projection showed a well defined, radiolucent, oval lesion with a thin sclerotic rim in the left parietal bone. Origin:
Description: Lateral projection showed a well defined, radiolucent, oval lesion with a thin sclerotic rim in the left parietal bone. Origin:
Description: On coronal CT image, the lesion was oval with a thin sclerotic rim, hypodense and had a density of –44 Hounsfield units. Origin:
Figure 3

Description: Axial T2 weighted MRI image, the lesion shows bright signal intensity. Origin:
**Description:** Axial T1 weighted MRI image, the lesion is bright. **Origin:**
Description: Coronal T2 weighted MRI image, the lesion is bright. Origin:
Description: Sagittal T1 weighted MRI image, the lesion is bright. Origin: