

## CASE REPORT

DOI: 10.5336/caserep.2020-73667

## Peripheral Ossifying Fibroma in Maxillary Bone

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**ABSTRACT** Peripheral ossifying fibroma is a rare fibro-osseous lesion in the practice of otolaryngology. Peripheral ossifying fibroma is frequently seen in craniofacial bones. They are of two types, central and peripheral. Although these lesions can be seen at any age, they are more often seen in women in the second to fourth decade of life. Peripheral ossifying fibromas are generally less than 2 cm, painless, well-demarcated, slowly-growing lesions with pedunculated or sessile. Approximately 60% of it occurs in the anterior part of the maxillary bone. The diagnosis is made clinically, radiologically and histopathologically. Surgical excision should be performed to prevent recurrence and patients should be followed up for a long time. In this study, the clinical, radiological and surgical characteristics of a 33-year-old patient with peripheral ossifying fibroma in the maxillary sinus anterior wall were discussed in the light of the literature.

**Keywords:** Paranasal sinus diseases; maxillary sinus; ossifying fibroma

Fibro-osseous lesions are rare lesions that are characterized by replacement of normal bone tissue by fibrous connective tissues.<sup>1</sup> They are classified into fibrous dysplasia, ossifying fibroma and osseous dysplasia.<sup>2</sup> Peripheral ossifying fibroma is benign and it grows slowly.<sup>3-5</sup> It occurs when pluripotent cells of periodontal ligament transform into osteoblasts, cementoblasts and fibroblasts.<sup>3,5-8</sup> It occurs mostly in women and occurs at the age of 20-40.<sup>8-10</sup> Peripheral ossifying fibromas are usually painless lesions smaller than 2 cm.<sup>1,3-7,9,11</sup> They are most often located inside the bone. Approximately 60% of them occurs in the anterior part of the maxillary bone. Recurrence of the disease is common after surgical treatment.

### CASE REPORT

A 33-year-old male patient reported to the Otolaryngology Polyclinic of the Karadeniz Technical University Faculty of Medicine, with the complains of right sided facial pain and swelling in the right cheek. The

pain was located around the right eye and nose and it has been there for a long time and has been increasing during last year. He did not have any dental complaints. During ear, nose and throat examination, deviation of the nasal septum to the right was observed and approximately 1.5 cm of hard tissue was palpated between the anterior wall of the right maxillary sinus and nasal bone. No pathology was detected in endoscopic examination. On paranasal sinus tomography (CT), an expansile lytic bone lesions with cortical destruction of 21x13 mm in size, originating from the anterior wall of maxillary sinus and extending medially towards nasal process was observed (Figure 1a and Figure 1b).

In maxillofacial magnetic resonance imaging (MRI), an expansile lytic bone lesion with cortical destruction of 20x15 mm in size, extending from right nasal process of maxilla towards the anterosuperior wall of maxillary sinus was observed. From nasal process, the lesion inferiorly protruded incisor fossa and alveolar process (Figure 2a and Figure 2b).

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Peer review under responsibility of Türkiye Klinikleri Journal of Case Reports.

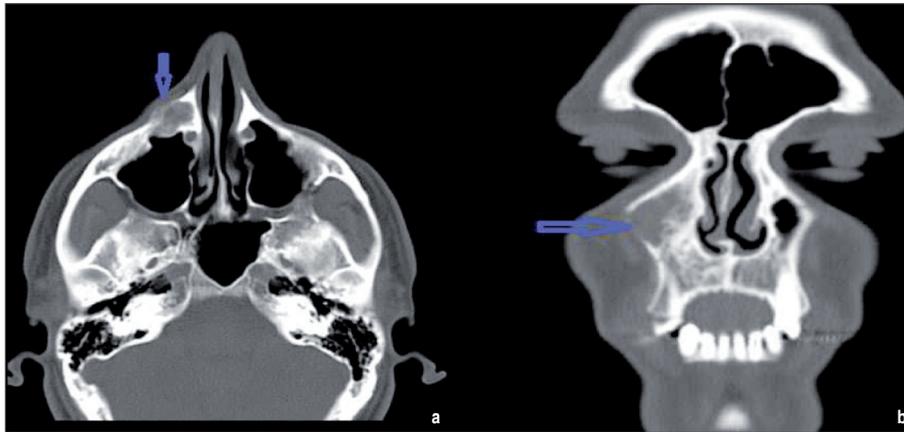
Received: 20 Jan 2020

Received in revised form: 08 May 2020

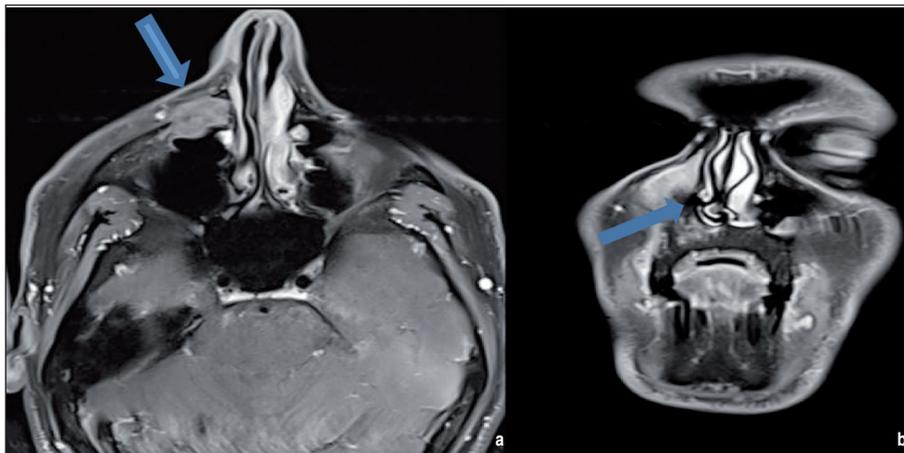
Accepted: 15 May 2020

Available online: 18 May 2020

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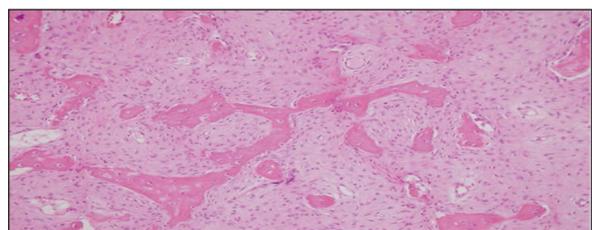


**FIGURE 1:** Non-contrast computed tomography images, (a) (axial section) and (b) (coronal section). Blue arrow indicates well-defined hypodense lesion of bone origin in the anterior wall of the right maxillary sinus.



**FIGURE 2:** T1 weighted magnetic resonance images with contrast, (a) (axial section) and (b) (coronal section). Blue arrow indicates homogeneously contrasted well-defined mass lesion leading to bone expansion in the anterior wall of the right maxillary sinus and defect in the bone cortex.

The patient underwent septoplasty under general anesthesia. A vertical incision of 2 cm from the anterosuperior of the right inferior concha to the nasal bone apertura was made, the periosteum was elevated and the lesion in the maxillary bone was excised. However, total resection was not performed for cosmetic concerns, and for the lesion was considered as fibrous dysplasia. The patient was discharged without any problem. Histopathological examination was reported as peripheral ossifying fibroma (Figure 3). Computed tomography was performed again in the second postoperative month and according to the CT scan, no recurrence was observed in the operation site (Figure 4). Follow-up of the patient continues. The necessary permissions were obtained from the patient in order to use all his clinical informations.



**FIGURE 3:** Bone lamellae with osteoblastic rimming inside proliferated fibroblastic stroma (HE, x200).

## DISCUSSION

Peripheral ossifying fibroma is frequently seen in craniofacial bones. It has two types, central and peripheral. Etiological factors are chronic irritation, trauma and dental stones. These etiological factors were not present in our patient.



**FIGURE 4:** Non-contrast computed tomography images, resection cavity in the anteromedial wall of right maxillary sinus, no recurrence at the operation site.

Peripheral ossifying fibroma generally manifests in second to third decades of life. Almost two thirds of the cases in the literature are seen in women.<sup>12</sup> In peripheral ossifying fibromas, calcifications are best seen on computed tomography, whereas it is seen as low intensity lesion in magnetic resonance T2 weighted images. Large lesions are seen as radiopaque masses on direct radiography.<sup>13</sup>

60% of peripheral ossifying fibromas are seen in the maxillary bone, most often in the anterior part of the maxilla.<sup>12</sup> In our patient, the mass extended from the right nasal process of maxilla to the anterosuperior wall of maxillary sinus.

Biopsy and histopathological examination are essential for diagnosis of peripheral ossifying fibroma. Histologically, peripheral ossifying fibroma is often composed of abundant plasma cells and cellular fibrous tissue with fibrovascular tissue areas. Generally, intact or ulcerated squamous epithelium and endothelial proliferation are observed.

Ossification can be seen from small round calcified areas to large trabecular bone areas surrounded by osteoblasts. It is similar to peripheral giant cell granuloma, pyogenic granuloma and peripheral odontogenic fibroma. The peripheral giant cell granuloma is specific to gingiva and alveolar mucosa, and is formed by the response of the periosteum to irritation. Histopathological examination shows multinucleus giant cells resembling osteoclasts, bleeding foci, hemosiderin accumulation and a highly vascularized connective tissue matrix.<sup>14</sup> Peripheral giant cell granuloma has histopathological resemblance to peripheral ossified fibroma due to the presences

of immature or lamellar bone accumulation, whereas cement-like material accumulation is observed less in peripheral ossifying fibroma.<sup>15</sup> Histological examination is of great importance in the differential diagnosis of peripheral ossifying fibroma from other reactive proliferating gingival lesions. The fact that mineralization is more prominent in the advanced stages of the lesion facilitates differential diagnosis.

The main treatment for peripheral ossifying fibromas is total surgical excision, but recurrence is common.<sup>12</sup> They cited 16% recurrence in Cundiff's case series and 20% in Eversole and Rovin's work. In such cases, surgical excision may be required.<sup>15</sup> The absence of total resection at the beginning, is the cause of repeated injuries and recurrence in the presence of local irritation. In case of massive bone destruction, reconstruction surgery may be required simultaneously or in a separate session. Radiotherapy has no place in these masses unlike other fibro-osseous lesions.

To summarize, peripheral ossifying fibroma is a rare fibro-osseous lesion that is rarely encountered in the practice of otolaryngology and leads to cosmetic problems. The diagnosis is made clinically, radiologically and histopathologically. In the treatment, total surgical excision should be performed and patients should be followed up for a long time in order to prevent relapse.

#### Source of Finance

*During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.*

#### Conflict of Interest

*No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.*

#### Authorship Contributions

**Idea/Concept:** Osman Bahadır; **Design:** Handan Turgut Semerci; **Control/Supervision:** H. Bengü Çobanoğlu; **Data Collection and/or Processing:** Handan Turgut Semerci; **Analysis and/or Interpretation:** H. Bengü Çobanoğlu; **Literature Review:** Osman Bahadır; **Writing the Article:** Handan Turgut Semerci; **Critical Review:** Osman Bahadır; **References and Fundings:** H. Bengü Çobanoğlu; **Materials:** Handan Turgut Semerci.

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