Fibro-Osseous Lesions of the Jaws: Report of Three Cases

ÜÇ OLGU SUNUMU: ÇENELERİN FİBRO-OSSEÖZ LEZYONLARI

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Abstract

The fibro-osseous lesions represent a large group of disorders that have many common characteristics including clinical, radiographic and microscopic features. Although most of them are unknown aetiology, some are believed to be neoplastic and others are related to metabolic imbalances. It is not unusual to see these lesions presenting with a large range of radiographic appearances, causing considerable diagnostic confusion owing to their similar histology. Fibro-osseous lesions of the jaws comprise a controversial group of pathologic condition that causes difficulty in classification, pathogenesis and treatment.

The aim of this study is to discuss the current concept of fibro-osseous lesions and to emphasize the importance of clinical and surgical findings of this lesions. In this article, three benign fibro-osseous lesions; fibrous dysplasia, focal cemento-osseous dysplasia, ossifying fibroma were evaluated according to their clinic, radiographic and histopathologic findings.

Key Words: Fibrous dysplasia of bone; bone development

Özet

Fibro-osseöz lezyonlar; klinik, radyografik ve mikroskopik olarak ortak özellikleri olan geniş bir grup bozukluğu temsil ederler. Bir çoğunun etiyolojisi bilinmemekle beraber bir kısmının neoplastik, bir kısmının ise metabolik düzensizlikler sebebiyle oluştuğuna inanılmaktadır. Bu lezyonları, gösterdikleri geniş radyografik görüntü çeşitliliği sebebiyle benzer histolojik lezyonlarla karıştırmak olağandır. Fibro-osseöz lezyonlar, sınıflandırılmaları, patogenezleri ve tedavileri açısından tartışmalı bir gruptur. Bu çalışmanın amacı, fibro-osseöz lezyonların şu andaki durumunu irdelemek ve bu lezyonların klinik önemi ve cerrahi bulgularını vurgulamaktır. Bu makalede üç fibro-osseöz lezyon; fibröz displazi, fokal semento osseoz displazi ve ossifiye fibroma, klinik radyografik ve histopatolojik bulgularına göe değerlendirilmiştir.

Anahtar Kelimeler: Kemiğin fibröz displazisi; kemik gelişimi

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Bone dysplasias constitute a group of conditions wherein normal bone is replaced with fibrous tissue containing abnormal bone or cementum.[1] Fibro-osseous lesions (FOL) are disturbances in bone metabolism where normal bone is replaced by a connective tissue matrix that then gradually develops cemento-osseous tissue.[2] This matrix displays varying degrees of mineralization in the form of woven bone or cementum-like round acellular intensely basophilic structures. The last ones are indistinguishable from "cementicles".[3] There is no universally agreed classification of FOL. It must be emphasized that precise diagnosis requires good clinical, radiological, and histological correlation. Because the histological findings alone may be similar for lesions with diverse behavioural characteristics and prognosis. In the absence of a good clinical and radiological information, the pathologist can only state that a given biopsy is consistent with a benign FOL.

Focal Cemento-Osseous Dysplasia (FCOD), in the tooth-bearing areas of the jaws is an asymptomatic benign condition, belonging to the spectrum of fibro osseous lesions. FCOD and periapical cemento osseous dysplasia are different names for the same pathological process.[4] The aetiology and

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pathogenesis of FCOD are unknown, and this lesion is considered to be a reactive or dysplastic process in the periapical tissues. Usually, it affects two or more mandibular anterior teeth, and the radiographic appearance varies depending on the state of development. In rare cases, the lesion may affect only one tooth, and thus mimic an apical granuloma or a cyst.[5-7] Ossifying Fibromas (OF) are typically encapsulated, circumscribed, benign neoplasms made up of highly cellular fibrous connective tissue that contains varying amounts of osteoid, bone, cementum, and cementumlike calcified tissue. Most ossifying fibromas of the craniofacial skeleton grow slowly and symmetrically and can result in bone expansion with facial asymmetry. In the craniofacial region, there are two apparent clinicopathologic variants of ossifying fibromas: the conventional slow-growing ossifying fibromas and the so-called juvenile active (aggressive) ossifying fibroma. Compared with conventional ossifying fibromas, juvenile ossifying fibromas occur more often in younger patients and have a greater tendency to recur; they can be locally destructive, primarily due to a combination of anatomic inaccessibility and incomplete removal. At the microscopic level, juvenile ossifying fibromas also demonstrate encapsulation, however, their stroma tends to be more cellular and vascular than that of conventional ossifying fibromas, and their calcified elements proliferate in what is described as a characteristic garlandlike pattern. Still, juvenile ossifying fibromas are benign neoplasms and do not metastasize. Like most benign tumours, both conventional ossifying fibromas and juvenile ossifying fibromas are asymptomatic but can cause considerable facial asymmetry and tooth displacement. Compared with juvenile ossifying fibromas of the mandible, juvenile ossifying fibromas of the maxilla tend to be more difficult to remove adequately without surgical morbidity and eventual recurrence.[8,9]

FD of bone is characterized by the replacement of normal bone and marrow by fibrous tissue, within which irregular trabecular of woven bone are haphazardly distributed.[10] FD may affect a single bone (called monostotic FD) or multiple bones (called polyostotic FD [PFD]) and may be associated with endocrinopathies.[11] Monostotic type, which accounts for 80% of cases, affects only one bone,usually the maxilla, the polystotic type affects multiple bones. Craniofacial bones, including the maxilla and the mandible, are commonly affected by FD, often causing disfigurement. However, despite the frequency of craniofacial involvement, the dental features of FD have been poorly characterized, mainly in isolated case reports with sparse information about the effects of FD on dental tissues.[12,13] The development, eruption, and shedding of primary teeth followed by the development and eruption of permanent teeth are sequential events that may be altered by metabolic dysfunction within dental tissues or the presence of bony pathosis within the jaws. It remains unclear whether the presence of FD in the jaws has any effect on tooth development and function. Maxillary and mandibular FD is associated with significant facial and palatal asymmetries, heterogeneous dental anomalies, malocclusion, and a high caries index score.[14] The disease usually becomes apparent during the first 3 decades of life, and the clinical course can differ markedly among patients.[15] The most common clinical sign of CFD is swelling or deformity of the affected site.[16-18]

Case 1

A 29 years old female patient was referred to Oral And Maxillofacial Surgery Department in GATA complaints of continuous pain and neurological symptoms. In clinical examination, a rigid expansion was observed in the right side of the mandibula (Figure 1). Panoramic radiography and computerized tomography (CT) images revealed a lucent-opac mixt area in the right side of mandibula from canine to second molar (Figure 2, Figure 3 A,B,C). All the teeth of right mandibula were vital in vitalometry test. It was decided to curettage of the lesion under general anaesthesia. The lesion was removed by carefully because of close relationship of arteria and nervous alveolaris inferior. Specimen was sent to the pathology department. Histopathological examination of all the specimens showed essentially similar histological features

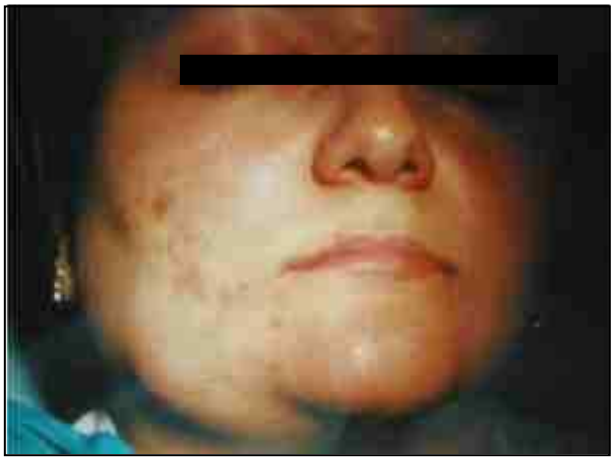

Figure 1. Clinical appearance of the patient and rigid swelling on the right side of the mandible (Case 1).

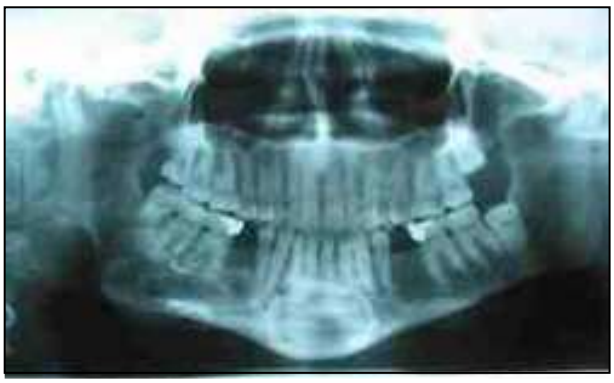

Figure 2. Panoramic view of the lesion (Case 1).

with the focal cemento-osseous dysplasia (Figure 4). The complaint of parastesia of the patient was becoming less day by day. Patient was observed by 3 months follows-up period.

Case 2

A 29 year old man patient was referred to the Oral and Maxillofacial Surgery Department in GATA for complaint of asymptomatic swelling on his left mandibular region. The patient indicated that this swelling on the left mandibular region developed 2-3 years ago and infected sometimes. In his clinical examination an extra oral swelling noticed that this swelling decreased of vestibular sulcus dimension intraorally (Figure 5). Patient had no pain, tenderness and neurological symptoms. In panoramic radiography the internal structure of lesion was seen a mixed radiolucent-radiopaque density (Figure 6). In addition, computed tomography (CT) revealed that some focus of destruction on lingual and vestibular side of the lesion (Figure 7 A,B,C). According to all these information incisional biopsy was made under local anaesthesia and speci-

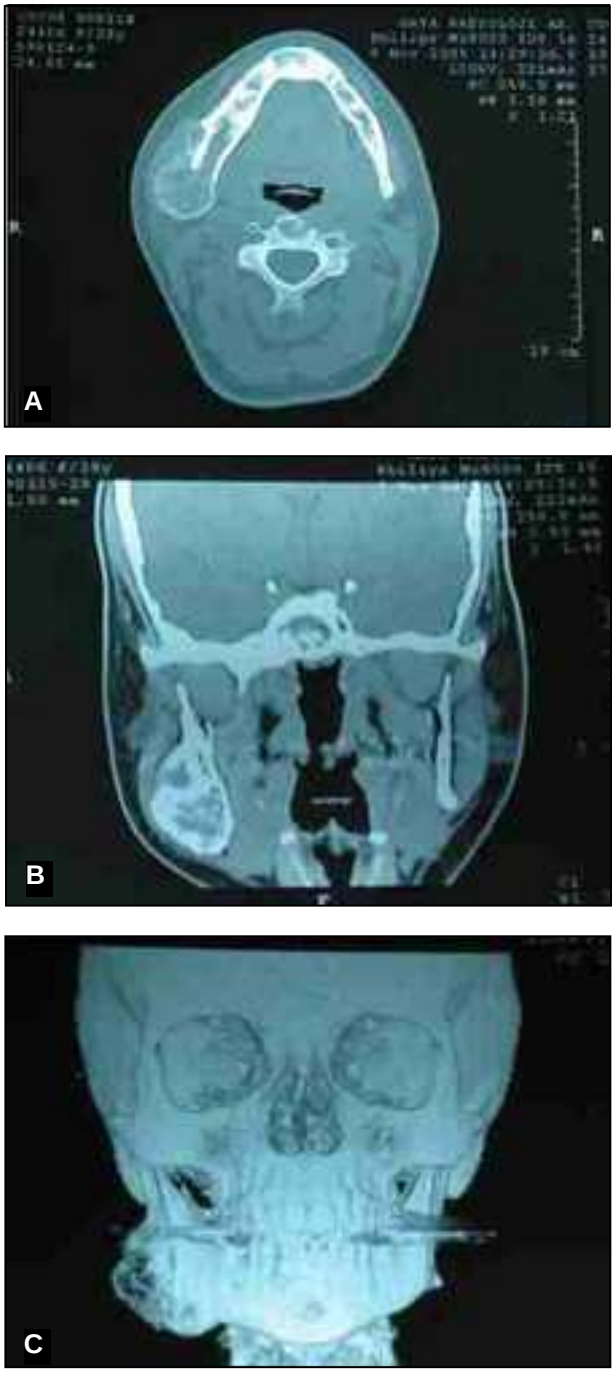

Figure 3. The appearance of the lesion on the axial (a), coronal (b), and 3D (c) CT images (Case 1).

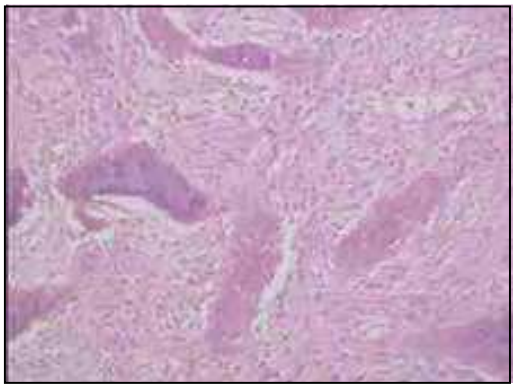

Figure 4. Histopathologic view of the lesion (Case 1) (HEx100).

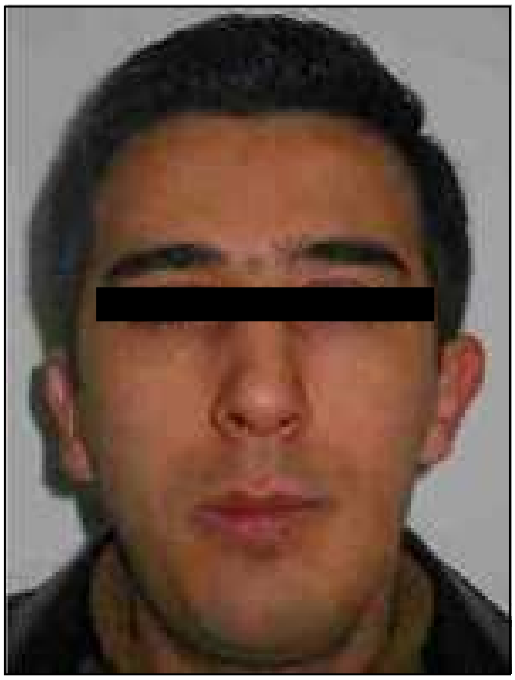

Figure 5. The extraoral appearance of the patient (Case 2).

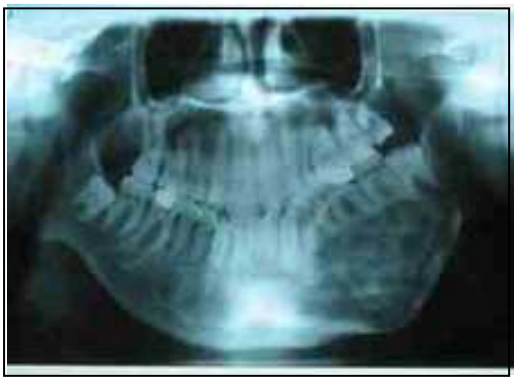

Figure 6. A mixed radiolucent-radiopaque structure of the lesion in panoramic radiography (Case 2).

men was sent to the pathology service. The findings were compatible with ossifying fibroma of the mandibula (Figure 8). Thus, it was decided to resection of the lesion under general anaesthesia. Curettage and contouring was performed of the mandibular surfaces. There was no evidence of malignant disease in any submitted tissue fragments. These finding and clinical observation confirmed the presurgical diagnosis. The patient was

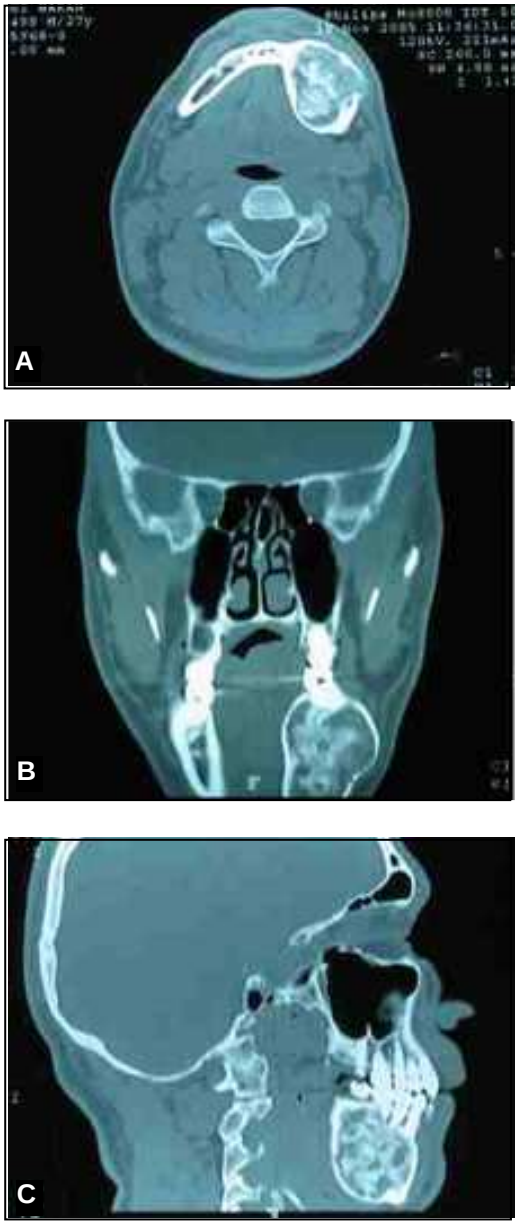

Figure 7. CT images of the patient; axial (a), coronal (b), sagital (c). Destruction canbe seen on lingual and vestibular side of the lesion (Case 2).

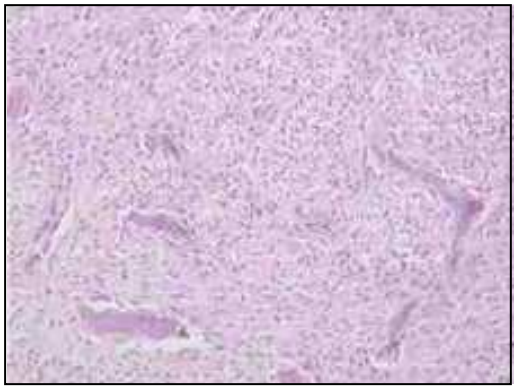

Figure 8. Histopathologic image of the lesion (Case 2) (HEx100).

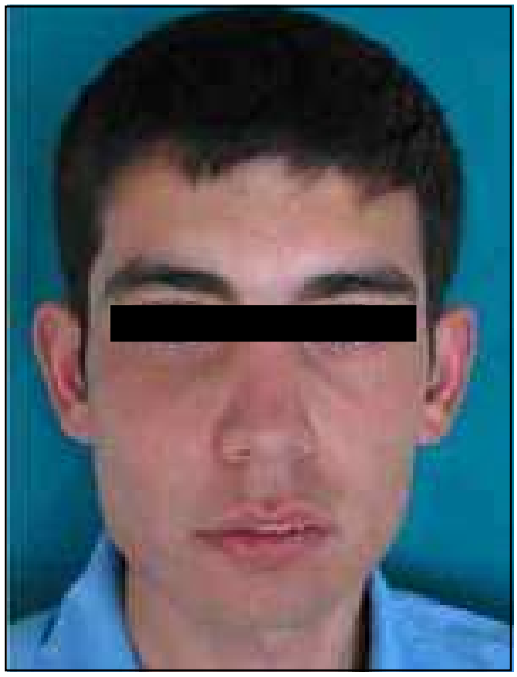

Figure 9. The extraoral view of the patient (Case 3).

subjected to clinical and radiological follow-up after excision of the lesion to discard possible relapses. Follow up and control of the patient is still going on.

Case 3

A 22 year old man patient was referred to the Oral And Maxillofacial Surgery Department in GATA for complaint of swelling and difficulty in eating (Figure 9). In extra oral examination swelling of the right posterior maxillary region and decreasing of nasolabial sulcus depth was observed. In radiographic examination it was seen mixt radiolucent and radiopaque appearance from right maxillary region to maxillary sinus and orbit floor (Figure 10). There were no ulcerations overlying mucosa of the lesion. In computed tomography, it was observed some focus of destruction on palatal and vestibular side of the lesion (Figure 11 A,B,C). It was also observed that the lesion was extended from sphenoid bone to medial wall of the maxillary sinus region. Due to the largeness of the lesion, bone scintigraphy was demanded (Figure 12). According to all these information, incisional biopsy was made under local anaesthesia and specimen was sent to the pathology service. The findings were compatible with fibrous dysplasia (Figure 13). Thus, it has been decided to resection of the lesion under general anaesthesia. Curettage and contouring were performed to swelling of the vestibular side o the right maxillary region. There was no evidence of malignant disease in any submitted tissue fragments. These finding and clinical observation confirmed the presurgical diagnosis. The patient was subjected to clinical and radiological follow-up after excision of the lesion to discard possible relapses. Follow up and control of the patient has been going on. All of these 3 patients informed for this study and case report.

Discussion

The frequency and clinicopathological aspect of the these lesions were mentioned in various

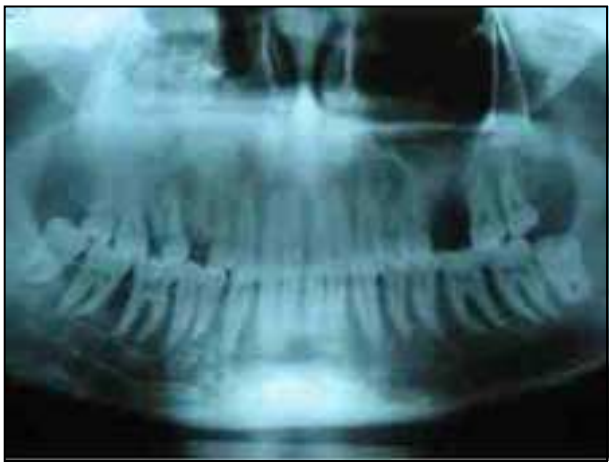

Figure 10. Panoramic radiograph of the patient (Case 3)

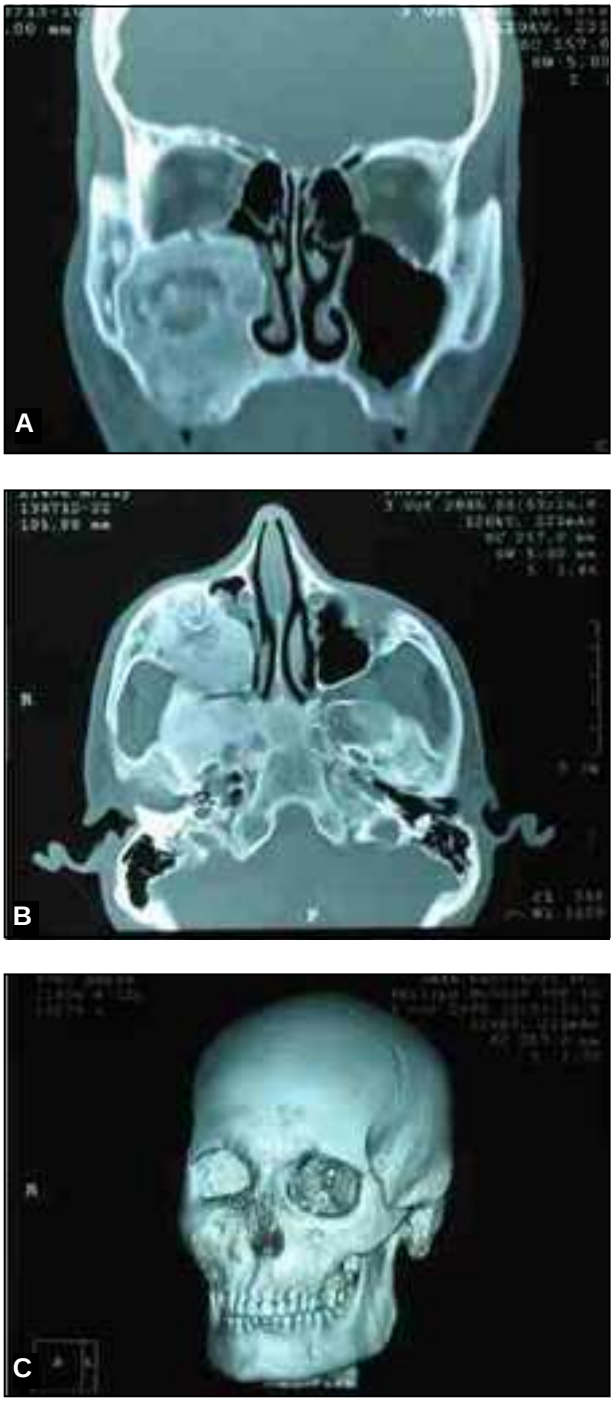

Figure 11. CT images of the patients; coronal (a), axial (b), 3D (c) (Case 3).

reports and analyses of benign FOL's of the jaws, which are remarkable for their similarities. But still FOL's of the jaws continue to be a problem in diagnosis and classification for the clinicians and pathologists.[19] It is essential that the oral and maxillofacial surgeon, the radiologist and the pathologist integrate all relevant and available information to come up with a correct diagnosis and appropriate disease management. FOL's exhibit a variety of clinical behavior, but share microscopic features consisting of a benign connective tissue matrix and new bone formation.

Treatment should be based largely on the clinical behaviour for each case. There are no commonly accepted guidelines for treatment of these diseases, but the 3 general approaches involve monitoring, medical management, or surgery. Certain cases may be monitored for disease activity and progression. Depending on the location of the lesions age of the patient, and the patient's views toward surgery, serial clinical exami-

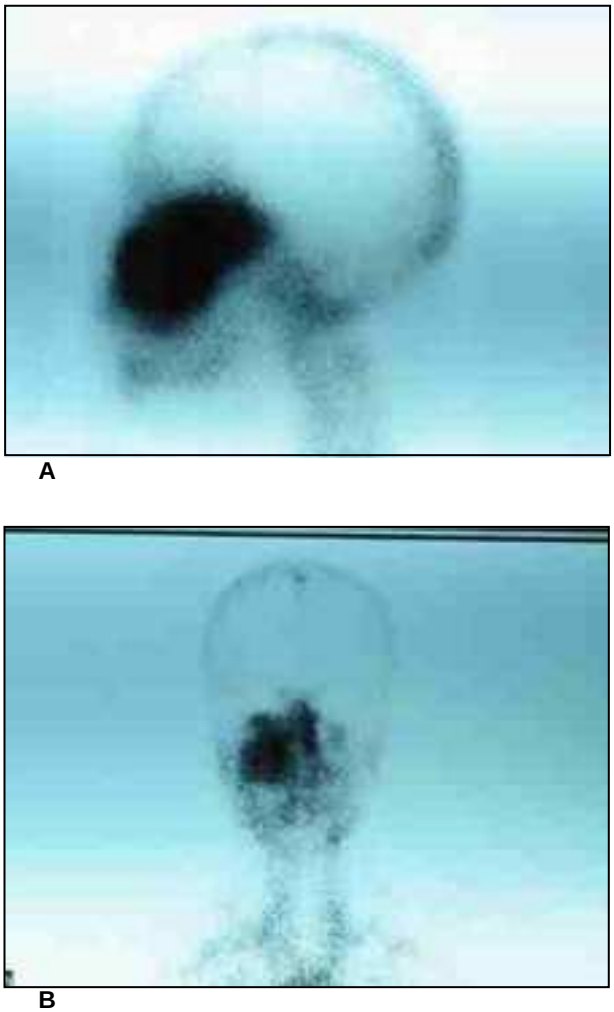

Figure 12. Scintigraphic analysis of the patient (Case 3).

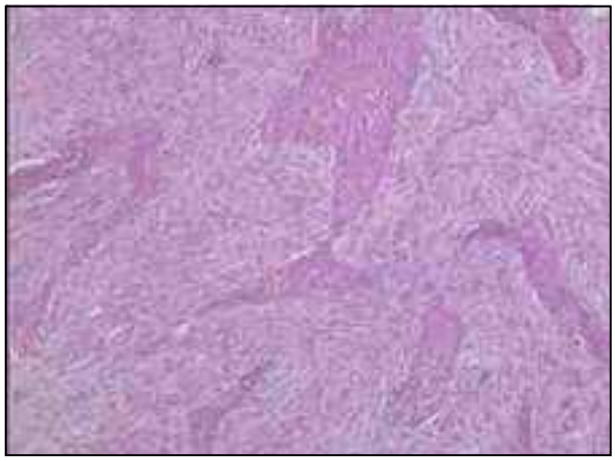

Figure 13. Histopathologic view of the lesion (Case 3) (HEx100).

nations can be the best option. Early definitive treatment of FOL's should help decrease recurrence and morbidity. But if functional and aesthetic problems exist, the surgery is required. In our all 3 cases surgery were performed because there have functional and aesthetic problems.

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