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Case Report

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Fıbrous Dysplasıa of the Posterıor Mandıble Wıth One Year Follow Up, A Rare Case Report

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ABSTRACT

Background/Aıms: Fibrous dysplasia is a non-neoplastic, developmental hamartomatous bone disorder that typically manifests during active skeletal growth and often stabilizes over time. This report aims to present the clinical, radiological, and histopathological findings of a patient diagnosed with fibrous dysplasia in the posterior mandible.

Materıals And Methods: A 22-year-old female patient with long-standing swelling and facial asymmetry in the posterior mandible was examined. Radiographic imaging and histopathological analysis of an incisional biopsy were performed to confirm the diagnosis.

Results: Clinical examination revealed swelling and facial deformity without pain or functional impairment. Radiographs showed a poorly defined radiopaque lesion with buccal and lingual cortical expansion and a ground-glass appearance. Histopathology confirmed fibrous dysplasia. A conservative management approach involving periodic monitoring was adopted.

Conclusıon: Fibrous dysplasia in the mandible can present with facial asymmetry without pain. Conservative follow-up is a viable management option in stable cases. Long-term monitoring is essential to detect any changes in lesion size or malignant transformation.

Keywords: Biopsy, Follow-Up, Mandible, Fibrous Dysplasia

Introductıon

Fibrous dysplasia is a benign, developmental hamartomatous condition of bone characterized by the replacement of normal bone and marrow with fibro-osseous tissue, including irregularly arranged trabeculae of immature bone. It accounts for approximately 2.5% of all bone lesions and around 7% of benign bone tumors. Clinical manifestations often include pain and skeletal deformities, with common involvement of long bones, craniofacial bones, ribs, and pelvis. The condition typically arises during childhood or adolescence and shows a tendency to become quiescent with skeletal maturity [1-3].

The etiology of fibrous dysplasia remains incompletely understood, though it is recognized as a developmental disorder by the World Health Organization. It is associated with activating mutations in the GNAS gene located on chromosome 20q13.3. These somatic mutations are not present in normal bone tissue, making them a potential diagnostic marker for the disease [2-5]. Fibrous dysplasia can be classified into monostotic (involving a single bone), polyostotic (multiple bones), and polyostotic forms associated with endocrinopathies, such as in McCune-Albright syndrome. The syndrome is characterized by polyostotic fibrous dysplasia, café-au-lait skin pigmentation, and various endocrinological abnormalities. Although the monostotic form is generally considered less severe, it is of particular concern in

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dentistry due to its higher prevalence in the maxillofacial region, particularly the maxilla and mandible [2,5,6].

It is presented in this case report that a monostotic fibrous dysplasia localized in the left posterior mandible of a young adult female patient.

Diagnosis

The most common symptom of fibrous dysplasia is the gradual, painless enlargement of the bones involved in the craniofacial region, which is clinically seen as facial asymmetry. The maxilla is the most frequently affected in the craniofacial region [5,6]. A malformed limb, limb pain or pathological fracture can be seen in long bones. Orbital dystopia, diplopia, proptosis, blindness, epiphora, strabismus, facial paralysis, hearing loss, tinnitus, nasal congestion, etc. symptoms may also be seen [4,6]. Fibrous dysplasia may accompany endocrinopathies. Increased serum alkaline phosphatase rate is seen in 40% of polyiostatic fibrous dysplasia cases but it is observed more rarely in monostatic type [5,7]. The diagnosis is based on clinical findings, as well as radiographic examination results and histopathological findings [5,8].

Radiological Features

Radiologically, it is most frequently observed as areas of diffuse radiopacity with normal bone, thinned cortex, expansive, ground glass appearance. Bone expansion and thin cortices can be monitored with CT [6,8].Radiographic appearance varies according to the developmental stage and the amount of bone matrix within the lesion. It differs from ground glass as homogeneous or mixed radiolucent or radiopaque according to the age of the patient [8]. While it is more radiolucent in the early stages and at a young age, it becomes mottled and more radiopaque with age [5,8-10].

Histopathological Features

Histopathologically, fibrous dysplasia reveals a slightly to moderately cellular fibrous connective tissue stroma admixed with foci of irregulary shaped trabeculae of immature bone which likened to Chinese characters or alphabet soup [6-9]. The bone is predominantly woven in type and since there is usually no osteoblast around the bone trabeculae, it is thought that bone is formed by metaplastic change. As the lesion matures, the woven bone may turn to lameller bone. Cystic degeneration areas, hemorrhage and osteoclasts can also be seen in the lesions. Typically fibrous dysplasia continues with the surrounding bone tissue, without definite borders [6,9,10].

Case Report

A 22-year-old female patient presented to the clinic with a longstanding complaint of swelling in the left mandibular region and associated facial asymmetry. Her medical history was unremarkable, with no evidence of systemic disease. Clinical examination revealed the absence of tooth 36, which the patient did not recall having extracted, and the duration of the swelling and lesion could not be precisely determined. Aside from the swelling and facial asymmetry, there were no symptoms such as pain, paresthesia, or functional impairment in the affected area. (Figure 1).

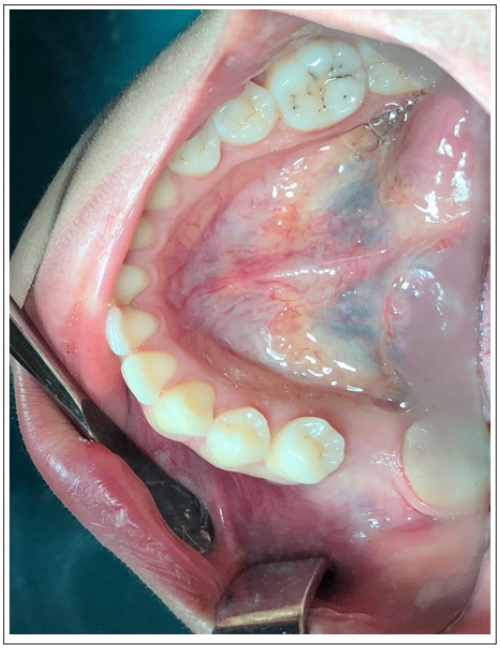

Figure 1: Intraoral view of the patient, lesion area

A computed tomography (CT) scan was performed for detailed radiological evaluation. The imaging revealed a poorly demarcated radiopaque lesion with a characteristic ground-glass appearance, exhibiting expansile growth and localized radiolucent areas. The lesion extended from the region of tooth 34 to 37, involved the mandibular canal, and demonstrated both buccal and lingual cortical expansion. (Figure 2 and Figure 3).

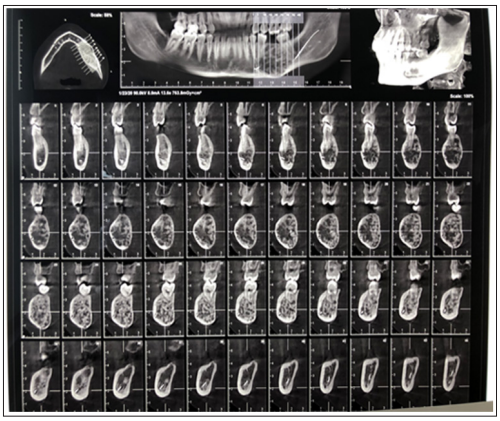

Figure 2: Pre-op CT image

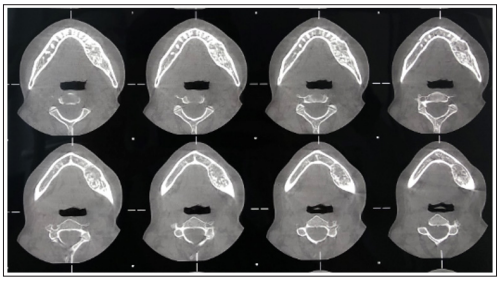

Figure 3: Pre op CT image, axial section

An incisional biopsy was performed under local anesthesia. A left mandibular nerve block was administered, complemented by

buccal nerve anesthesia for anterior support. Following adequate anesthesia, a full-thickness mucoperiosteal flap was elevated to expose the lesion site. Using trephine burs, a firm, curettage-type specimen was obtained in a single piece. (Figure 4) The specimen was immediately fixed in 10% buffered formalin and submitted to the Department of Oral Pathology at the same institution for histopathological evaluation.

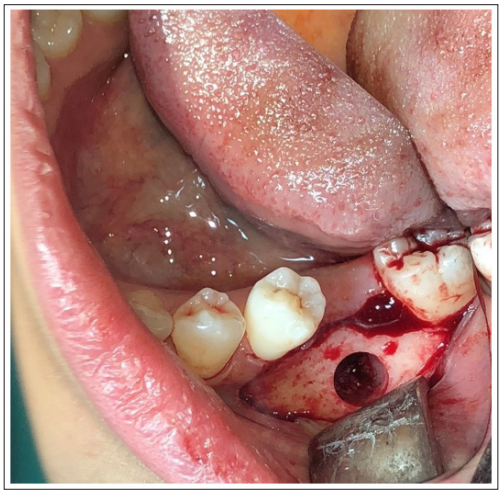

Figure 4: The operated area

Gross examination revealed a cylindrical, hard tissue specimen measuring 0.7 × 0.5 × 0.5 cm, with an off-white appearance. After decalcification in 10% formic acid, histological analysis was performed. (Figure 5).

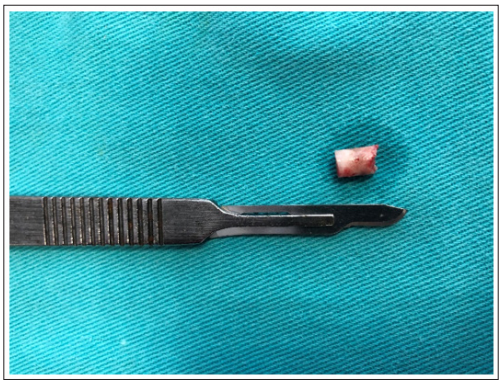

Figure 5: The obtained biopsy specimen

Microscopically, the lesion consisted of a moderately cellular fibrous stroma interspersed with irregularly shaped, thin trabeculae of woven bone. Notably, these trabeculae lacked prominent osteoblastic rimming and appeared to merge with areas of lamellar bone containing bone marrow. (Figure 6) Based on these findings, the lesion was diagnosed as a benign fibro-osseous lesion consistent with fibrous dysplasia.

The diagnosis, prognosis, and treatment options were thoroughly discussed with the patient. Following informed consent and mutual agreement, a conservative approach involving clinical and radiological monitoring every six months was adopted. At the one-year follow-up, no changes in lesion size or signs of malignant transformation were observed. (Figure 7 and Figure 8) The patient continues to be monitored through routine follow-ups.

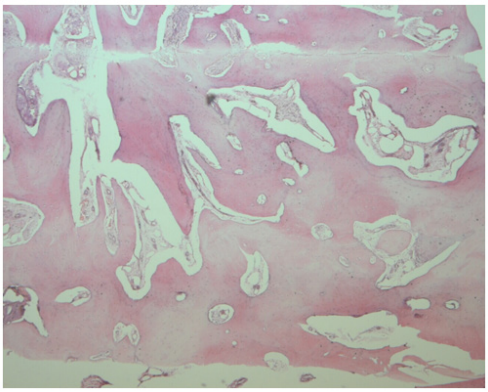

Figure 6: x40 magnification. Hematoxylin&eosin

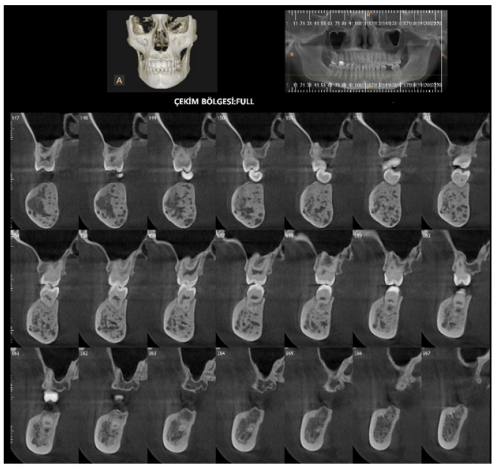

Figure 7: one year-follow up CT

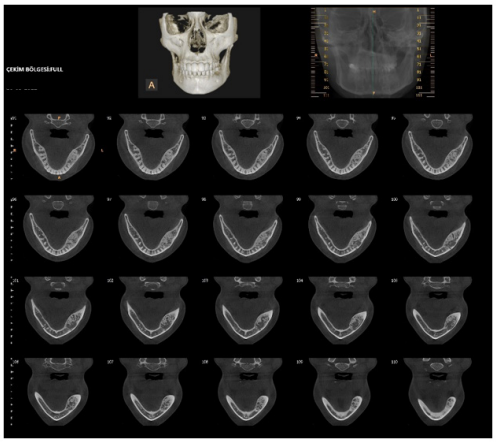

Figure 8: one year-follow up CT, axial section

Dıscussıon

Fibrous dysplasia is a non-genetic, metabolic bone disorder, accounting for approximately 2.5% of all bone tumors and over 7% of benign bone tumors. In the polyostotic form, craniofacial involvement is seen in about 50% of patients, while in the monostotic form, it occurs in 10–27% of cases. Among jawbone lesions of the monostotic type, the maxilla is more frequently involved than the mandible, making mandibular involvement, as in our case, relatively uncommon [5,10,11].

Although fibrous dysplasia can occur at any age, it typically presents in childhood or young adulthood, with 75% of patients being diagnosed before the age of 30. A female predilection has also been reported in the literature, which aligns with the demographic characteristics of our 22-year-old female patient. The most commonly reported symptoms of craniofacial fibrous dysplasia include facial asymmetry and swelling. Additional manifestations such as dental malocclusion, pain, facial contour distortion, alveolar abscess, and cellulitis have also been described [5,11,12]. In this case, the only clinical symptom was facial asymmetry.

The differential diagnosis of fibrous dysplasia includes other benign fibro-osseous lesions of the jaws, such as cemento-ossifying fibroma, cemento-osseous dysplasia, and low-grade intramedullary osteosarcoma. Histopathological examination remains the gold standard for definitive diagnosis [10-12]. In our case, the clinical presentation, radiographic ground-glass appearance, and histological features supported a diagnosis of fibrous dysplasia.

Management strategies for fibrous dysplasia include observation, medical therapy, and surgical intervention. Surgery is indicated for diagnostic biopsy, correction of deformities, prevention of pathological fractures, or removal of symptomatic lesions. The choice of treatment depends on the lesion's location, extent, clinical symptoms, and impact on function and aesthetics. Periodic monitoring is appropriate in asymptomatic lesions that pose no risk of fracture or functional impairment. Since our patient exhibited no symptoms other than facial asymmetry and did not consent to surgical intervention, conservative follow-up was deemed suitable [5,13,14].

Medical treatment may be considered in specific cases. High-dose glucocorticoids are sometimes used for rapidly enlarging lesions near critical structures such as the optic nerve, particularly when associated with aneurysmal bone cyst-like features. Bisphosphonates, particularly intravenous formulations, have shown efficacy in reducing bone pain and increasing cortical thickness in moderate to severe cases, while oral formulations appear less effective [13-15].

Surgical recontouring may be performed to improve facial aesthetics in stable lesions. Lesions typically stabilize after skeletal maturity, but long-term follow-up remains essential. Radical surgery is considered in cases of functional impairment or cosmetic concern, with reconstruction options including iliac crest grafts, rib or calvarial bone, or vascularized free flaps. Partial resection and cosmetic contouring may be preferred after age 17 due to lower recurrence rates and greater emphasis on aesthetic outcomes [13-15].

In this case, the patient was diagnosed with fibrous dysplasia, classified as a benign fibro-osseous lesion based on histopathological analysis. After discussing treatment options, the patient declined surgical intervention and opted for periodic observation. At the one-year follow-up, there was no evidence of lesion progression or malignant transformation on clinical or radiographic examination.

Although rare, malignant transformation of fibrous dysplasia has been reported with a prevalence ranging from 0.4% to 4%. Therefore, periodic follow-up with clinical and radiographic evaluation every year is recommended [11,14]. Our patient continues to undergo regular follow-ups without any signs of malignant transformation.

Early detection of fibrous dysplasia may occur during routine dental visits through clinical examination and panoramic radiography. Thus, dental practitioners must be adequately informed about this condition to facilitate timely diagnosis and management, reducing potential complications [11,13-15].

Conclusıon

Main Points

1. **Rare Localization Insight:** This case contributes to the limited literature on monostotic fibrous dysplasia of the posterior mandible, a relatively uncommon site, highlighting the variability in craniofacial presentation.
2. **Diagnostic Triad Emphasis:** The study underscores the importance of integrating clinical, radiological (ground-glass appearance), and histopathological findings for accurate diagnosis and differentiation from other fibro-osseous lesions.
3. **Conservative Management Validated:** It supports the efficacy of non-surgical, conservative management in asymptomatic cases, reinforcing the role of individualized treatment planning based on clinical stability and patient preference.
4. **Long-Term Surveillance Advocacy:** The case emphasizes the necessity of regular long-term follow-up due to the rare but significant risk of malignant transformation, guiding clinicians in ongoing patient care.

This case report highlights the importance of preserving function and facial aesthetics as the primary goals in managing non-progressive fibrous dysplasia. Conservative management through periodic follow-up is an effective strategy in asymptomatic cases without functional or structural complications. Accurate diagnosis and long-term monitoring are crucial for minimizing risks and ensuring patient well-being.

Declaration of Patient Consent

The authors confirm that appropriate informed consent was obtained from the patient. The patient consented to the use of clinical and radiological images and information for academic and publication purposes, with the understanding that her identity will remain confidential.

Conflicts of Interest

The authors declare no conflicts of interest related to this study.

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