FIBRO-OSSEOUS LESION – A CASE REPORTAND BRIEF REVIEW

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Abstract

We report a case of a 22 year old male patient who presented with swelling on upper left side of the face. Panoramic radiograph showed a radiopaque mass with respect to the posterior teeth of the left side of maxilla. The clinical, radiological and histopathological findings were suggestive of a fibro-osseous lesion of the left maxilla. The patient was asked to revisit for further treatment and follow up.

***Key words**: Fibro-osseous lesion, Maxilla, Swelling.*

Fibro-osseous lesion is a generic term used to define a group of disorders characterized by the replacement of bone by a benign connective tissue matrix. The matrix can show varying degrees of mineralization in the form of woven bone or of cementum-like, round, acellular, intensely basophilic structures. These lesions present with a range of clinical and radiographical appearance causing diagnostic difficulties. The diagnosis of these lesions becomes challenging due to overlapping histopathological features. This group of lesions consists of fibrous dysplasia, ossifying fibromas, cemento-osseous dysplasia, cemento-ossifying fibroma. Few of the cases of fibrous dysplasia has tendency to progress into malignancy. Incidence rate of malignant transformation is around 0.4% in case of non syndromic fibrous dysplasia, that is monostotic cases.[1,2]

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Case report

A male patient of age 22 years reported to our institute with the chief complaint of difficulty in brushing his teeth, as well as of enlargement of the upper part of face on the left side. There was no history of trauma or any other relevant medical or dental history.

Fig 1:Clinical photograph showing facial asymmetry

On extraoral clinical examination, a diffuse swelling on upper left side of the face was noticed. On intraoral examination solitary diffuse swelling was present in buccal vestibule with respect to 23,

24, 25, and 26, of size 2.5x1.5cm, extending anteriorly from mesial surface of 23 up to distal surface of 26 posteriorly(Fig 2).

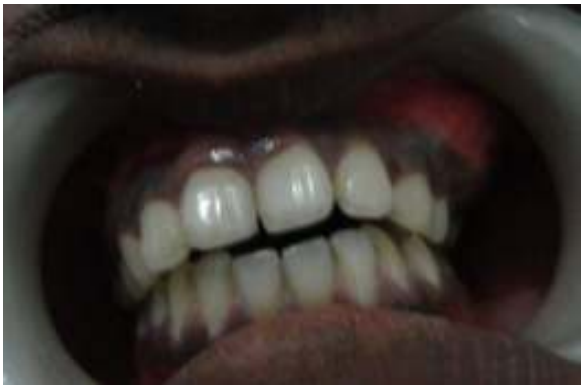

Fig 2:Intraoral photograph showing swelling in the left buccal vestibule

It was of firm consistency and the adjacent teeth were found to be vital. On the basis of history and clinical findings provisional diagnosis of peripheral giant cell granuloma was given as the lesion was peripherally located and the consistency was firm.

Radiographs were advised including an intraoral periapical radiograph,panoramic radiograph as well as aparanasal sinus view. Radiographs showedthe presence of a radiopaque mass with respect to the distal surface of 25 extending upto mesial surface of 28 and involving the apices of the roots of 25,26,27 and the mesial surface of 28. Superiorly the lesion extendsupto the floor of the maxillary sinus with elevation of the floor of the sinus .

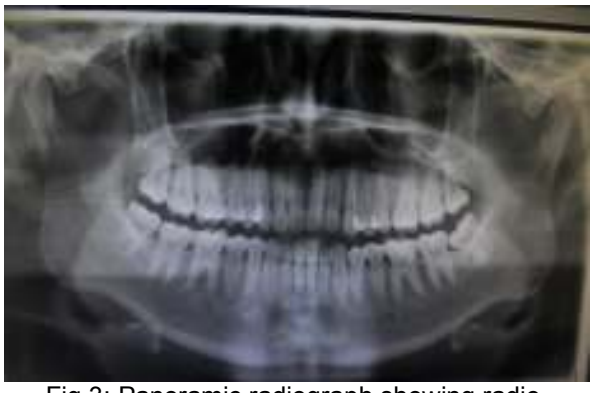

Fig 3: Panoramic radiograph showing radio opaque mass in the left posterior region of maxilla

Correlating the history, clinical and radiological findings, a differential diagnosis of fibrous dysplasia,giant cell granuloma and hyperparathyroidism were given. Patient was subjected to routine blood investigation and estimation of parathyroid hormone (PTH) levels. All the values obtained for the blood investigations were within normal range, including PTH level and thus hyperparathyroidism was ruled out.

Incisional biopsy was performed and on gross examination the specimen showed 2 bits of bony tissue which were creamish in colour and both measuring approximately 1x1x0.5cm and hard in consistency. Both the bits were decalcified and then routine tissue processing was carried out. Histopathologically, initial sections showed fibrous connective tissue stroma composed of numerous multinucleated giant cells of varying sizes, with numerous nuclei ranging from 2-10 in number and areas of bony trabeculae. In few of the bony trabeculae and osteoblastic lining was noticed(Fig4),

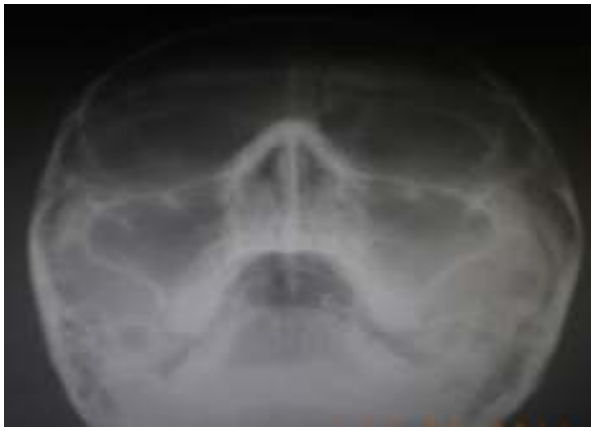

Fig 4:PNS view showing the elevation of maxillary sinus.

But on serial sections, multinucleated giant cells were absent in the fibrous connective tissue stroma and these sections showed fibrocellular connective tissue with irregular shaped immature bony trabeculaeinterspersed by collagen fibres and fibroblasts(Fig5&6). Considering the histopathological features diagnosis of fibro-osseous lesion was made.

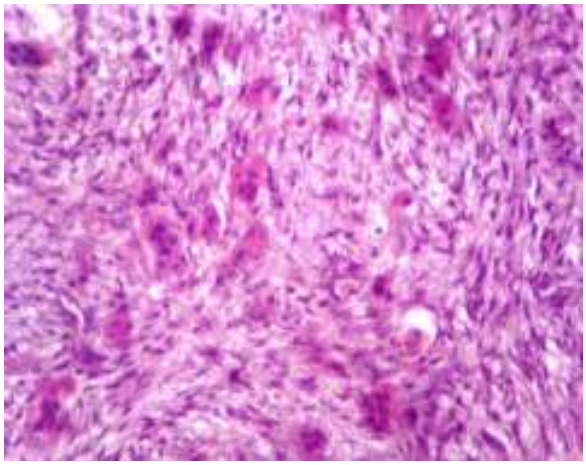

Fig 5: Photomicrograph showing fibrous stroma with multinucleated giant cells.

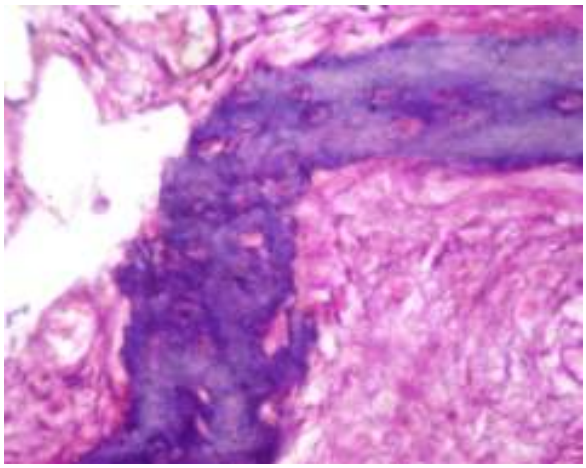

Fig 6: Photomicrograph showing fibrous stroma with immature bony trabeculae

Discussion

The spectrum of fibro-osseous lesions is poorly defined disorders affecting the jaws and craniofacial region that may have common characteristics including clinical, radiographic and microscopic features. Although most are of unknown etiology, some are believed to be neoplastic and others are related to metabolic imbalances. It is not uncommon to see these lesions presenting with a range of radiographic appearances, causing considerable diagnostic confusion.

Classification for fibro-osseous lesions of oral cavity was first given by Charles A Waldron in 1985, on the basis of the clinical, radiographical and histopathological features as:[3]

1) Fibrous Dysplasia
2) Reactive (dysplastic) lesions arising in the tooth bearing area:
   a. Periapicalcemento- osseous dysplasia.
   b. Focal cemento-osseous dysplasia.
   c. Florid cemento-osseous dysplasia.
3) Fibro- osseous neoplasms
   a. Cementifying fibroma.
   b. Ossifying fibroma.
   c. Cemento-ossifying fibroma.

Due to their varied features, similarities and understandingof their etiopathogenesis, these group of lesions of jaws have been under frequent renaming and reclassification, over period of time various classification systems have been put forward.

The various Classifications systems proposed by authors are listed as below.[4]

a. Charles Waldron Classification of the Fibro-Osseous Lesions of The Jaws (1985)
b. Working Classification of Fibro-Osseous Lesions By Mico M. Makek (1987)
c. Pieter. J. Slootweg&Hellmuth Muller (1990)
d. WHO Classification (1992)
e. Waldron Modified Classification Of Fibro-Osseous Lesions Of Jaws (1993)
f. Brannon & Fowler Classification (2001)
g. WHO Classification Of Fibro-Osseous Lesions Of Jaws (2005)
h. Paul. M. Speight & Roman Carlos Classification (2006)
i. Eversole Classification (2008)

Comparisonof a couple of the commonly seen fibro-osseous lesions have been discussed in the Table 1.[4, 5]Lesions like central giant cell granuloma and cherubism may exhibit fibrous stroma and bony trabeculae microscopically making diagnosis of fibro-osseous lesion difficult. Even though the pathogenesis of these two lesions aredifferent,they can be put into this category. Both of these present with woven bone

Type of fibro-osseous lesion	Clinical features	Radiological features	Histopathological features
Fibrous dysplasia	-First and second decades -Slow growing and asymptomatic -maxilla favoured -cease growing after puberty -causes cosmetic problem **Variants**: -**Monostotic**- single bone is affected. -**Polyostotic**—morethan one bone affected. ***2 types-*** ***Albrights syndrome*** -fibrousdysplasia plus cafe-au-lait macules and endocrine abnormalities (precocious puberty in females). ***Jaffe-Lichtensteinsyndrome*** **-**multiple bone lesions of fibrous dysplasia and skin pigmentations	-Poorly defined radiographic mass. -Sometimes shows cortical bone expansion. -Radio opaque Ground glass appearance or peaud'orange" effect.	-Cellular connective tissue stroma. -Foci of irregularly shaped immature trabecular bone likened to Chinese characters -Interspersed with fibrous stroma containing plump fibroblasts and collagen fibers.
Ossifying fibroma	-Third and fourth decades. Slow growing -Asymptomatic may be indistinguishable from cement osseous dysplasia. -Body of mandible favoured site.	-Well-defined lucency, have opaque foci	-Fibrous connective tissue stroma. -Cellularity can vary from lesion to lesion. -Bony spheroids, trabeculae, or islands surrounded by osteoblastsare evenly distributed throughout the fibrous stroma

Table 1: Clinical,radiological and histopathogical features of fibrous dysplasia and ossifying fibroma**.**

and giant cells as do few of the fibro-osseous lesions.It has been suggested that the occurrence of a giant cell lesion in association with a fibro-osseous disease may represent a reaction to a stromal change in the original tumor. Theoretically osteoblasts, through a paracrine mechanism may activate osteoclasttype giant cells.[6, 7, 8]One such event can be appreciated in this present case.

Central giant cell granulomas (CGCG) that arise de novo generally present before the end of the third decade.In contrast, CGCGs that occur in combination with fibro-osseous diseases of the jaws typically appear at a later age. As is in this present case, age of the patient being in the early decade, initial stage of fibrous dysplasia has to be considered in the list of differentials.[8]

Differential diagnosis of reactive lesions of bone, osteomyelitis, and infective osseous dysplasiahas to be ruled out and most importantly over diagnosis of low grade osteosarcoma which shows well-formed osteoid and bone with very minimal cellular atypia has to be avoided, which can be often confused with fibrous dysplasia or any other fibro-osseous lesions.[9]

Conclusion

Fibro-osseous lesions being of diverse origin, and where histopathology alone might not be sufficient to pinpoint the diagnosis, it is essential that the diagnosis be well grounded in the correlation of the clinical, radiographical and pathological findings, and not relying solely on any one of these parameter.

References

1. Fibro-osseous lesions of the jaws. J Oral MaxillofacSurg 1993; 51:828–35.
2. Speight PM, Carlo R. Maxillofacial fibro-osseous lesions Mini-symposium. Current Diagnostic Pathology 2006; 12: 1–10.
3. Waldron CA. Fibro-osseous lesions of the jaws. J Oral Maxillofac Surg. 1985; 43(4):249-62.
4. Makek MS. So called "fibro-osseous lesions" of tumorous origin. Biology confronts terminology. J Craniomaxillofac Surg. 1987;15(3):154-67.
5. Eversole R, Su L, ElMofty S. Benign fibro-osseous lesions of the craniofacial complex. A review. Head Neck Pathol. 2008;2(3):177-202
6. Wong GL. Paracrine interactions in bone secreted products of osteoblasts permit osteoclasts to respond to parathyroid hormone. J Chem 1984; 259:4019–22.
7. Penfold CN, McCullagh P, Eveson JW, Ramsay A. Giant cell lesions complicating fibro-osseous conditions of the jaws. Int J Oral MaxillofacSurg 1993; 22:158–62.
8. Waldron CA, Shafer WG. The central giant cell reparative granuloma of the jaws. Am J Clin Pathol 1966; 45:437–47
9. MacDonald-Jankowski DS. Fibro-osseous lesions of the face and jaws. Clin Radiol 2004;59:11–25

Conflict of Interest: *None Declared*