CASE REPORT

Florid osseous dysplasia

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SUMMARY

Florid osseous dysplasia (FOD) is the most dramatic and rare variant of the cemento-osseous lesions in which the normal cancellous bone is replaced by dense, acellular cemento-osseous tissue in a background of fibrous connective tissue. It appears to be a widespread form of periapical cemental dysplasia (PCD). No clear definition indicates that when the multiple lesions of PCD can be termed as FOD. If PCD is identified in three or four quadrants or is extensive in one jaw, then it is considered as FOD. Here, in this article, we report a case of FOD in 35-year-old woman.

BACKGROUND

Florid osseous dysplasia (FOD) is a benign jaw lesion discovered most frequently in the mandible of middle-aged women of dark-skinned population. Generally, these lesions are asymptomatic, are detected incidentally during routine dental examination and are named so because of the close resemblance with cementum. Hereby, we report a case of FOD along with a review of the literature.

CASE PRESENTATION

A 35-year old female patient (figure 1A) reported to the outpatient department with a yellowish-brown stains and deposits on teeth and wanted to get her teeth cleaned. The patient was not under any medication. No history of drug allergy or any relevant family history was present. No deleterious habits were present. General examination revealed her to be well built, healthy and well oriented with time and space. On extraoral examination, asymmetry of lower face was noticed due to a diffuse swelling on the middle third to posterior inferior border of mandible. The overlying skin was smooth, intact with no surface discolouration or elevation in local temperature (figure 1B). On intraoral examination, a heavy band of calculus and stains was present on all teeth. Intraoral examination revealed a diffuse swelling extending from 44 to 46 region causing the expansion of buccal and lingual alveolar ridges (figure 1C). On palpation, it was hard and non-tender. Teeth were non-tender to percussion. On further examination 34 was grossly decayed. Intraoral periapical radiograph of right mandibular region demonstrated an ill-defined radiopacity attached to the apices of 45, 46 (figure 2A). Mandibular lateral cross-sectional occlusal radiograph revealed ill-defined radiopacity surrounding 44, 45 and 46 region along with bucco-lingual expansion of cortical plates (figure 2B). Orthopantomogram revealed diffuse radiopaque mass with few internal radiolucent areas present in right body of mandible along with increase in

Figure 1 A 35-year-old female patient with florid osseous dysplasia of right posterior mandible: clinical photograph of facial profile showing (A) ill-defined swelling on the right lower face (shown by arrows), (B) showing mandibular asymmetry due to swelling on right lower border of mandible. (C) Intraoral view showing a diffuse swelling extending from 44 to 46 region causing bucco-lingual expansion of alveolar ridges.

Figure 2 Radiographs of a 35-year-old female patient with florid osseous dysplasia of right posterior mandible. (A) Intraoral periapical radiograph of right mandibular region demonstrating radiopacity attached to the apices of 45, 46. (B) Mandibular lateral cross-sectional occlusal radiograph showing ill-defined radiopacity surrounding 44, 45, 46 region along with bucco-lingual expansion of cortical plates. (C) Orthopantomogram showing diffuse radiopaque mass with few internal radiolucent areas present in right body of mandible along with increase in vertical height. The radiopacity was surrounded by a thin radiolucent rim.

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Figure 3 CT of a 35-year-old woman with florid osseous dysplasia of right posterior mandible: (A) axial CT showing asymmetric mandible due to bony expansion on right side (120 Kvp; 80 mA; 1500 ms and slice thickness: 3mm), (B) three-dimensional CT showing bucco-lingual expansion of posterior border of mandible on the right side (shown by arrows) (120 Kvp; 80 mA; 1500 ms and slice thickness: 3 mm), (C) three-dimensional CT showing asymmetry of mandible on right side (shown by arrows) (120 Kvp; 80 mA; 1500 ms and slice thickness: 3 mm), (D) three-dimensional CT showing asymmetry of mandible on right side (shown by arrows) (120 Kvp; 80 mA; 1500 ms and slice thickness: 3 mm).

vertical height. The radiopacity was surrounded by a thin radiolucent rim (figure 2C). These internal radiolucent masses are suggestive of initial osteomyelitic changes. Further CT was advised to distinguish the lesion through cortical bone. Axial CT revealed asymmetric mandible due to bony expansion on right side (figure 3A). Three-dimensional CT clearly revealed buccolingual expansion of posterior border of mandible (figure 3B–D). On the basis of case history, clinical presentation and radiographic features, working diagnosis of FOD was made and the patient was subjected to biochemical investigations including serum alkaline phosphatase, calcium and phosphorus. All of them were found to be within normal range.

INVESTIGATIONS

The radiographic appearance though not pathognomonic is characteristic and aids in making the diagnosis. There are

Figure 4 Various radiographic stages of florid osseous dysplasia.

various radiographic stages (as shown in figure 4). In early stage, it appears as well-defined radiolucent lesion which may be misdiagnosed as endodontic infection. But, in FOD there is neither root resorption nor tooth displacement. Second, pulp vitality test can also help to distinguish between these two. Gradually, it becomes mixed radiolucent–radiopaque lesion with a thin radiolucent rim (as seen in our patient). Later, it converts into a diffuse radiopacity with ill-defined borders and greater proportion of anastomosing thick, curvilinear, cellular bony trabeculae (ginger root pattern).^{1 2}

DIFFERENTIAL DIAGNOSIS

There are various lesions in the jaws that have a similar radiographic appearance like polyostotic fibrous dysplasia, chronic diffuse sclerosing osteomyelitis, Paget's disease and ameloblastoma. Schneider and Mesa² reported two cases of each florid cemento-osseous dysplasia and chronic diffuse sclerosing osteomyelitis and tried to mark the distinguishing features.

TREATMENT

Management may not be very satisfactory and is directed mainly to relieve the symptoms. Asymptomatic patients require only a periodic follow-up to ensure that there is no change in the disease pattern along with prophylaxis and reinforcement of proper oral hygiene in order to control periodontal disease and prevent tooth loss. Progressive bone loss under a denture can also create significant clinical problems due to the exposure of lesion; hence, good denture maintenance should be reinforced at follow-up visits. Generally, antibiotics are not effective as

Florid osseous dysplasia versus Paget's disease

Involves the tooth bearing area above inferior alveolar canal
No such changes

Florid osseous dysplasia versus Fibrous dysplasia

4th–5th decade of life

Bone is replaced by cementoid-like tissue in a background of fibrous connective tissue

Florid osseous dysplasia versus chronic diffuse sclerosing osteomyelitis

Multiple exuberant lobulated densely opaque masses

Involves the tooth bearing area above inferior alveolar canal

Usually seen in middle aged dark skinned female

Florid osseous dysplasia versus ameloblastoma

Does not cause root resorption

Entire maxilla or mandible is involved

Raised serum alkaline phosphatase and urinary hydroxyproline levels
Loss of lamina dura and widening of periodontal ligament space

2nd–3rd decade of life

Absence of cellular fibrous stroma

Single poorly delineated opaque mass

Involves entire body of mandible from inferior border, upto ramus

Usually seen in adult Caucasian men

Causes root resorption

their tissue diffusion is poor. In symptomatic cases, partial removal of lesion of lesion by curettage is carried out for symptomatic relief. Saucerisation of dead bone and cementum is the recommended treatment.³

DISCUSSION

A number of terminologies have been used to describe these lesions. It was previously called gigantiform cementoma, multiple cemento-ossifying fibroma, sclerosing osteitis, multiple enostosis and sclerotic cemental masses of jaws.⁴ It was first described by Melrose *et al* in 1976 as dysplastic lesion or developmental anomaly arising in tooth-bearing areas. The term 'florid' cemento-osseous dysplasia was proposed by Waldron because of the close resemblance of dense, sclerotic masses to cementum. In the first edition of WHO classification of odontogenic tumours 1971, florid cemento-osseous dysplasia was categorised under Neoplasms and other tumours related to odontogenic apparatus. But, the current WHO classification 2005 describes FOD as a type of fibro-osseous lesions (other two are cemento-osseous fibroma and fibrous dysplasia).⁵

It is a benign lesion confined to tooth-bearing areas frequently noticed in middle aged-older women of African origin. Melrose *et al*⁶ reported a study of 34 such lesions, of which 32 were black women with a mean age of 42 years. The aetiology of this disease still remains a mystery and there is no satisfactory explanation in support of the reported gender or racial predilection. Waldron⁷ proposed that the reactive or dysplastic changes in the periodontal ligament might be a cause for the disease. Our case report is also of a middle-aged woman.

Although the disease is usually asymptomatic, it may be associated with pain, swelling, purulent discharge and sequestrum formation. Venous obstruction in the areas of rapidly growing cancellous bone may lead to the formation of simple bone cyst. The avascular nature of the lesion usually complicates exposure to microorganisms which can lead to necrosis and chronic osteomyelitis.^{5 8}

Histopathologically, FOD consists of dense, sclerotic masses which anastomose and form layers of cementum-like calcification in a fibro cellular background.³

Radiographically, the lesions appear as dense, opaque masses, often symmetrical located in various regions of the jaws. Multiple lesions occur around the root apices of vital teeth.^{1 8}

Learning points

- ▶ The avascular nature of the lesion usually complicates exposure to microorganisms, so reinforcement of proper oral hygiene at every recall visit is mandatory.
- ▶ It is also seen in association with osteogenesis imperfect-like syndrome—'gnathodiaphyseal dysplasia' and 'hereditary gnathodiaphyseal sclerosis'. These are characterised by bone fragility and modelling defects of tubular bones along with multiple florid osseous dysplastic lesions in tooth bearing areas of the jaws.⁸

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