CASE REPORT

Cemento-ossifying fibroma of the mandible — A case report

V. Nagalaxmi, Mithare Sangmesh, Faisal Taiyebali Zardi

ABSTRACT

Cemento-ossifying fibroma is a non-odontogenic tumour derived from the mesenchymal blast cells of the periodontal ligament which has the potential to form fibrous tissue, cement and bone or a combination of such elements. This paper reports a case of cement-ossifying fibroma in a 40 year old male patient.

Keywords: Cemento-ossifying fibroma; fibrous tissue; cemental dysplasia; mandible; radiology; histology.

Introduction

Cemento-ossifying fibroma is a benign fibro-osseous tumour classified under the same category as fibrous dysplasia, cement-ossifying dysplasia.1 It is the most commonly seen between the third and forth decade of life and is more frequent in women than in men. The ratio is 4:1.2 It is believed to be arising from the periodontal ligament cells, with majority of them occurring in the mandibular premolar region. These tumours manifest as a slow growing intra-osseous mass usually asymptomatic, though it may cause gross asymmetry of the face over a period of time. Cemento-ossifying fibroma is a benign lesion characterised by well circumscribed, unilocular or multilocular radiolucency mixed with radio opacities. This lesion has been referred to osteofibroma, fibro-osteoma and cement-ossifying fibroma.3

According to the second WHO classification, benign fibro-osseous lesions in the oral and maxillo facial regions were divided into two categories, osteogenic neoplasm and non-neoplastic bone lesions. However, the term cement-ossifying fibroma has been reduced to ossifying fibroma in the new WHO classification in 2005.1 This report describes a case of multilocular cemento-ossifying fibroma in a 47 year old male patient.

Case Report

A 40 year male patient reported to the department of oral medicine and radiology with a chief complaint of swelling in the lower right back tooth region for the last 2 years. The swelling was gradually increased in size and was not associated with pain. There were no significant medical and dental history and the patient reported no toxic habits. On extraoral examination, it was a solitary diffuse swelling seen on the right side of the mandible measuring about 7x5 cms approximately extending antero-posteriorly from the mandible to 48 and medio-laterally 2.5 cm on either side of the buccal vestibule (Figure 2). Displacement of 43, 43, 45, 45 was seen along with indentations of 15 seen on the lesion. On palpation the swelling was bony hard, non-tender with bucco-lingual expansion of the underlying alveolar bone being well appreciated. Based on the patient history and clinical examination a provisional diagnosis of odontogenic tumour was given and a differential diagnosis of ossifying fibroma was given. Central giant cell granuloma and central epithelial odontogenic tumour were also listed down.

Laboratory investigations like routine blood test, serum calcium levels, and alkaline phosphate levels were advised and the reports were found to be normal. Radiographs like OPG (orthopantomograph), IOPA (intra oral periapical radiograph), mandibular occlusal lateral view and CT (computed tomography) scan were taken (Figure 3-5).

The orthopantomograph shows a well defined multilocular radiolucency seen in the mandible in 41 to the mesial of 48 measuring approximately 7x8cm in size and oral in shape, displacing 44, 45, and 46. The radiolucency is surrounded by sclerotic border. Floating teeth appearance is seen 44, 45, 46. The Occlusal radiograph disclosed reduced thickness of the buccal cortical plates with definite expansion (Figure 3).

The CT scan reveals obliteration on the right side of the mandible, a lytic lesion is seen extending from 41 to 46 with expansion and thinning of buccal cortical plates (Figure 5, 6). An incisural biopsy of the specimen lesion was carried out and the histopathology report revealed highly dense and cellular connective tissue showed dense collagen fibre bundles arranged haphazardly with both plump fibroblasts and fibrocytes. Connective tissue also showed numerous basophilic calcifications of varying size and shape. Numerous osteoid like tissue were also evident showing osteocytes in lacunae in some places and the overall picture suggested a cemento-ossifying fibroma. Surgical resection of the tumour was carried out under general anaesthesia along with reconstruction of the mandible. No post-operative complications were observed.

Discussion

Cement-ossifying fibroma is a distinct form of benign fibro-osseous lesions of the mandible and maxilla. The origin of cement-ossifying fibroma is supposed to be from the peri-
odontal ligament. Cement-ossifying fibroma has a female pre-
dominance over men and is more common in the age group
between 20 to 40 year. Most of the cases of cement-ossifying
fibroma are asymptomatic but however the growth of the tu-
mour over time may lead to facial asymmetry, with the appear-
ance of a mass causing discomfort or mandibular expansion
and the possibility of displacement of the teeth. Mandible is
more affected than the maxilla and the lesion usually occurs in
the tooth bearing area. Clinically the tumours present as slow
growing intra bony mass most of them located in the region of
the mandibular premolar and molar.s Growth will usually
occur in a centrifugal manner.

Radiologically cement-ossifying fibroma present in various
patterns depending on their degree of mineralisation. Two
patterns have been reported in literature. One characterised
by the presence of a unilocular or multilocular radio trans-
parent image and another showing mixed density due to a
variable internal amount of radiopaque material. In some
cases when the lesion is continuously enlarging, there may
be associated root resorption and displacement of the roots of
the neighbouring teeth. When they arise in children they
are called juvenile aggressive cement-ossifying fibroma which
presents at an earlier age and is more vascular on histopatho-
logical examinations. In the early stages the lesion is radio-
luent with no evidence of internal radio opacities but as it
matures the internal calcification increases and the radiolu-
cency become flecked with opacities and ultimately appear
as a uniform radiopaque mass. The clinical presentation of fi-
brous dysplasia and cement-ossifying fibroma are very similar
since the morphology is very similar in both cases. However a
definite diagnosis can thus be established upon considering
the clinical and radiological findings. Ossifying fibroma always
presents well defined margins and the lesions are always well
circumscribed and demarcated from the surrounding bone in
contrast to fibrous dysplasia.

Histopathology features of the connective tissue is charac-
terised by many small foci of irregular bony trabaculae which
resemble the Chinese letter shape of trabaculae in fibrous dys-
plasia and thus can lead to a possible diagnostic error. As the
lesion is well circumscribed they can be easily removed from
the surrounding tissue by surgical removal and curettage.
Surgical contouring of the affected bone and bone grafting is
done. The prognosis is known to be fair for these lesions and recurrences are not frequent.

Conclusion
Cement-ossifying fibroma is a fibro osseous lesion arising from
the periodontal ligament and is seen usually in the tooth bear-
ing area more commonly in the mandible and in women. They
are well circumscribed solitary radiolucencies with scattered
radio opaque foci. They maintain a spherical to ovoid shape and
expand the cortical bone with cortical perforation and may
cause tooth divergence. Fibro-osseous lesions are rare and a
sound knowledge of these lesions is essential to diagnose and
differentiate the condition. Accurate diagnosis depends on
the careful interpretation of radiographs and a wide range of
investigations which will help in the successful management
of the cement-ossifying fibroma.

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