



Research Article

ODONTOGENIC MYXOMA – A REPORT OF A RARE CASE

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ABSTRACT

Odontogenic myxomas are rare benign, locally aggressive and slow-growing neoplasm, is considered to be derived from the mesenchymal portion of the tooth germ with the potential for extensive bone destruction, cortical expansion and high rate of recurrence. Radiographically, it often present as a multilocular radiolucency, with well-developed locules, consisting of fine trabeculae, arranged at right angles, known as the ‘Tennis-racquet’ or ‘Step-ladder’ pattern. Histologically they show a bland appearance as they are hypocellular & myxoid areas due to overproduction of glycosaminoglycans. Here we present a typical case of odontogenic myxoma in a 22-year-old female, which grew to involve quite a large portion of the mandible, within a short span of time.

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INTRODUCTION

Myxomas are rare benign, slow-growing and locally aggressive mesenchymal neoplasms with the potential for extensive bone destruction, cortical expansion and high rate of recurrence after surgical removal. Odontogenic myxoma (OM), first described by Thoma and Goldman in 1947, comprise of 3–11% of all odontogenic tumours. It has both central and peripheral variants¹. In 2003 WHO classified OM as a benign neoplasm arising from odontogenic ectomesenchyme with or without odontogenic epithelium². Odontogenic myxoma/fibromyxoma has been updated and continues in the 2017 classification as benign mesenchymal odontogenic tumour³. Histopathology shows myxoid and hypocellular areas due to overproduction of glycosaminoglycans. Central odontogenic myxomas are generally non encapsulated tumours with infiltrative capacity into the adjacent medullary bone, compared to the peripheral lesions which are less aggressive and encapsulated².

OM occurs only in the teeth bearing regions of the jaws, occasionally associated with missing and unerupted teeth. Mostly occurs in second or third decade of life, has a slight female predilection and more commonly involves the mandible than the maxilla. Clinically, it is a slow-growing, painless tumour, which may cause root resorption, tooth mobility, bone expansion, cortical destruction and facial

distortion. Radiographically, the classic presentation is that of a multilocular radiolucency, with well-developed locules, consisting of fine trabeculae, arranged at right angles, known as the ‘Tennis-racquet’ or ‘Step-ladder’ pattern. On gross examination, the surgical specimen is characteristically loose, slippery or gelatinous in nature. Histopathologically, the lesion consists of loosely arranged spindle, stellate-shaped or round cells, in an abundant myxoid stroma with few odontogenic islands.¹

We report this case in order to put forth a typical case of a rare benign tumour, odontogenic myxoma in a 22-year-old female, which grew to involve quite a large portion of the mandible, within a short span of time.

Case report

A 22-year-old female reported to our institution with a complaint of swelling in the lower right back tooth region for 2 months. On palpation, a diffuse non tender hard swelling on the right buccal vestibule extending from 44 to 48 region measuring approximately 3-4 cm in size was noted. Right submandibular lymph nodes were palpable mobile and nontender. No associated pain, erythema, ulceration or pus discharge in the overlying mucosa. No local rise in temperature. The patient was moderately built and nourished. No relevant past dental or medical history.

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Figure 1 Intra oral examination revealed a well-defined non tender hard swelling on the right buccal vestibular region

Radiograph, CT of mandible showed an expansile cystic lesion in angle and body of right mandible, thinned out cortex with few septation in the periphery of the lesion was noted. No evidence of unerupted tooth or erosion of tooth roots within the lesion. Provisional diagnosis of odontogenic keratocyst was given. Other differential diagnosis considered were ameloblastoma, odontogenic myxoma, central giant cell granuloma.



Figure 2 OPG revealing radiolucent lesion on the right mandible extending from 44 to 48



Figure 3 IOPA revealing fine trabeculae, some intersecting at right angles in relation to 47 & 48

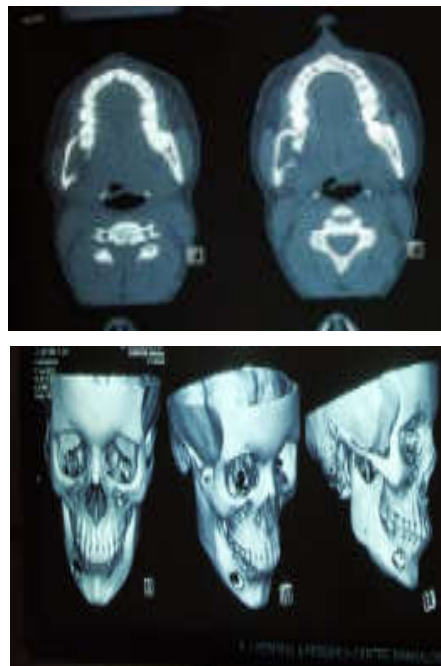


Figure 4 and 5 CT & CBCT showing expansile osteolytic lesion with a few straight internal septa and focal destruction of inner and outer cortices

Conservative surgical removal of the lesion was done. The grossed excised tissue was soft, whitish brown in colour with mucoid or mucinous gel like material in and around, measuring 2.5x2 cm in diameter.

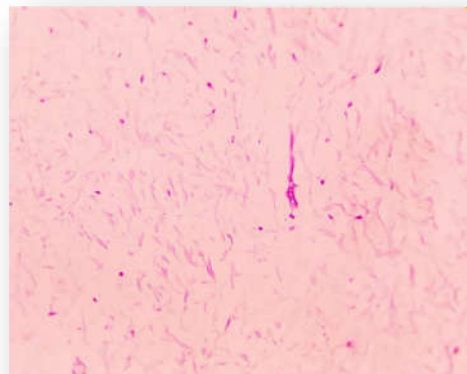


Figure 6 Histopathological sections showing several spindle shaped cells distributed evenly in loose and abundant mucoid matrix and focal Odontogenic islands (H&E X10)

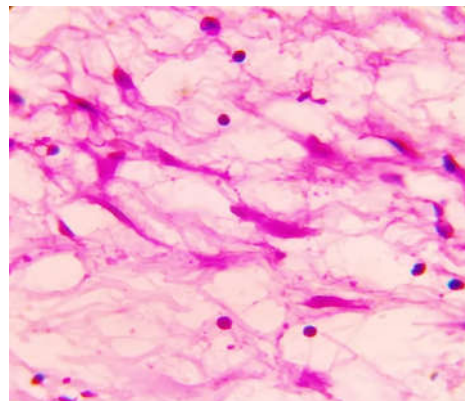


Figure 7: Histopathological sections showing spindle shaped cells with long cytoplasmic processes (H&E X40)

Histological examination of H and E stained sections showed several spindle shaped cells with long cytoplasmic process

distributed evenly in loose and abundant mucoid matrix. Collagen fibres were loosely arranged with inflammatory cells. Focal areas showed few odontogenic islands. Co-relating the clinical, radiographical and histological findings, a final diagnosis of Odontogenic fibromyxoma was done.

DISCUSSION

Odontogenic myxoma (OM) is derived from embryonic mesenchymal elements of a developing tooth including the dental follicle, dental papilla, or periodontal ligament. The cause and histogenesis of the tumour remain controversial, but the tissue of origin is considered to be ectomesenchymal^{4,5}. Two theories of origin have been proposed. Firstly, the tumour results from myxomatous degeneration of fibrous stroma. Secondly, it is derived from the ectomesenchymal portion of the tooth germ i.e., the dental papilla, follicle or periodontal ligament⁶. Majority of the investigators found that this lesion occurs in second or third decade of life and most of the reports suggest that there is a slight female preponderance, mandibular predilection, and the lesion has a silent locally destructive nature. All these features were evident in our case⁷.

In the present case the gross appearance was an infiltrative mass of mucoid or gelatinous material with well-defined margins. Microscopically, the tumour was composed of loosely arranged, spindle-shaped and stellate cells many of which had long tapering cytoplasmic processes. The intercellular background was mucoid and features such as cellular pleomorphism, mitotic figures, and multinucleation were not evident. Moderate amount of fibrous components were observed, collagen fibrils were prominent, so the tumour was designated as Myxofibroma. Residual bony trabeculae are also one of the characteristic microscopic features of odontogenic myxomas, it is believed that the mixed radiolucent-radiopaque appearance on radiography may be due to these residual bone structures within the tumour. Presence of any bony trabeculae wasn't noticed in our case. The histological differential diagnosis mainly is dental follicles or papillae, normal developmental structures of odontogenesis that are occasionally removed in conjunction with unerupted or impacted teeth. It can be misinterpreted as a myxoma. Dental follicles usually contain odontogenic epithelial rests in the majority of cases, in a fibrous background showing a variable degree of myxoid change, and are often partially lined by reduced enamel epithelium, in contrast to myxomas. Dental papillae consist of well-circumscribed elliptical pieces of immature mesenchymal tissue with 1.5 cm or less in diameter, which may be rimmed by odontoblasts. The deposition of eosinophilic dentinoid tissue along the periphery of this myxoid tissue is considered to be another helpful differential point in support of dental papilla. Other lesions which should be considered are myxoid neurofibroma, myxoid lipoma and chondromyxoid fibroma^{8,9}.

Radiographically, the appearance of an odontogenic myxoma may vary from a unilocular radiolucency to a multilocular lesion, with a well-defined to diffuse margin. The classical radiographic features of the odontogenic myxoma, is the bony trabeculae of a multilocular radiolucency intersect at right angles and the lesion causes root resorption, resulting in tooth mobility¹⁰. Our case, though a benign tumour, was an aggressive lesion, involving almost half of the mandible within a short span. Another interesting finding was that it did not cause much of a cortical expansion or facial deformity and

appeared to be invading the bone antero-posteriorly, as well as displayed scalloping between the roots of the involved teeth, in much the same manner as an odontogenic keratocyst. Ameloblastoma, odontogenic fibroma, ameloblastic fibroma, and odontogenic keratocyst were some lesions considered for differential diagnosis.

The recommended treatment of choice for odontogenic myxomas is radical surgery or conservative excision depending on tumour size. Based on all the clinical and histological consideration, conservative excision of the lesion was done and follow up has not shown any recurrent lesion¹¹.

CONCLUSION

Odontogenic myxoma shares similar clinical and radiographic features with various odontogenic and other jaw tumors. To arrive at a proper diagnosis and appropriate treatment plan, histopathological diagnosis is of utmost importance. Proper treatment & long term follow up is mandatory in cases treated with conservative surgical approach.

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