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RESEARCH ARTICLE

THE SHADOW'S THREAT IN THE JAW: A CASE OF AMELOBLASTOMA

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ABSTRACT

Ameloblastoma is a rare, slow-growing, but locally aggressive odontogenic tumour that most commonly affects the mandible. This case report discusses the diagnosis and management of a 27-year-old male patient who presented with a swelling and pain in the lower right posterior region of the jaw. Clinical examination revealed a firm, painless mass, while radiographic findings demonstrated a multilocular radiolucent lesion in the mandibular molar area. A biopsy confirmed the diagnosis of ameloblastoma. Surgical resection of the tumour was performed, followed by a comprehensive reconstruction of the defect. The patient was monitored for recurrence and functional rehabilitation.

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INTRODUCTION

The ameloblastoma is a true neoplasm of enamel organ type tissue which does not undergo differentiation to the point of enamel formation. Robinson described the tumour as 'usually unicentric, nonfunctional, intermittent in growth, anatomically benign and clinically persistent'.(1) In 1827 it was first recognized by Cusack and was named as adamantinoma by the French physician Louis-Charles Malassez in in 1885, additionally it was renamed as ameloblastoma in 1930 by Ivey and Churchill.(2) First detailed description of ameloblastoma was given by 'Falkson' in 1879. It is an aggressive tumour that appears to be arising from remnants of dental lamina or dental organs. It represents 1% of all oral tumours and 11% of odontogenic tumours. It is the most common epithelial tumour producing minimal inductive changes.(3) A wide age range of occurrence of the tumour from 10 years through 90 years has been reported. Most cases cluster between the ages of 20 and 60 years with 30-39 years being the average age at diagnosis.

This case report describes a 27-year-old male patient presented to the department with a chief complaint of swelling and pain in lower right back region of jaw after proper diagnosis and investigations final diagnosis of ameloblastoma was made.(4)

CASE DISCRIPTION

A 27-year-old male patient reported to the department of oral and medicine and radiology with a chief complaint of pain and swelling in lower right back region of jaw since 5 months. Initially swelling was small in size, then it gradually increased to attain its present size. It was associated with pain since last 2 months. Pain was mild, intermittent which aggravated during mastication. On extraoral examination facial asymmetry was seen. A large swelling seen on right side of face of size approximately 4 X 4 cm. extending mediolaterally from corner of mouth to angle of mandible and superoinferiorly from 2 cm below zygomatic process to 2 cm below lower border of mandible [Figure 1].

Skin over swelling appears to be normal without any secondary changes. On palpation it was hard in consistency and non- tender, afebrile. On intraoral examination obliteration of buccal vestibule seen extending anteroposteriorly from distal of 44 to retromolar area. A reddish pink overgrowth is seen distal to 47 till retromolar region. It was of irregular shape of size approx. 1 X 1.5 cm. overlying mucosa shows indentations of opposite tooth. [Figure 2] On palpation hard, tender without any secondary changes. Expansion of buccal and lingual cortical plates noticed in relation to 44 to 47 till retromolar area. Provisional diagnosis of dentigerous cyst was made with differential diagnosis of ameloblastoma and odontogenic keratocyst was considered.

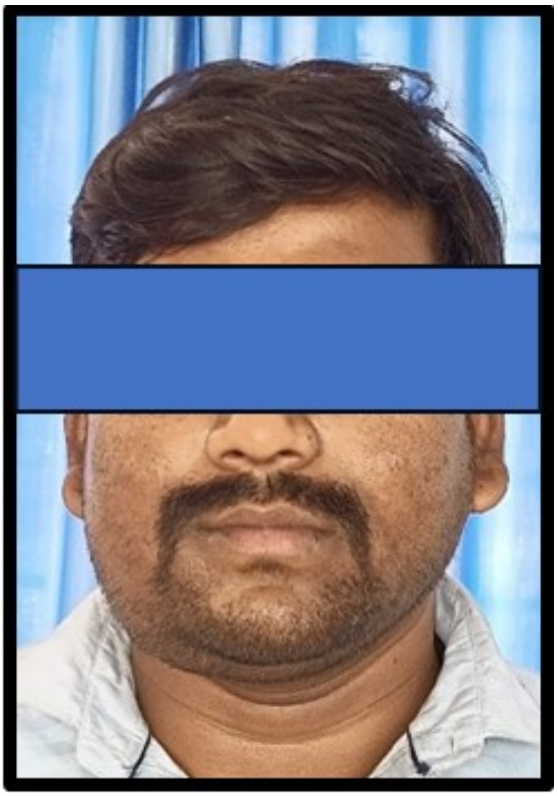

Figure 1

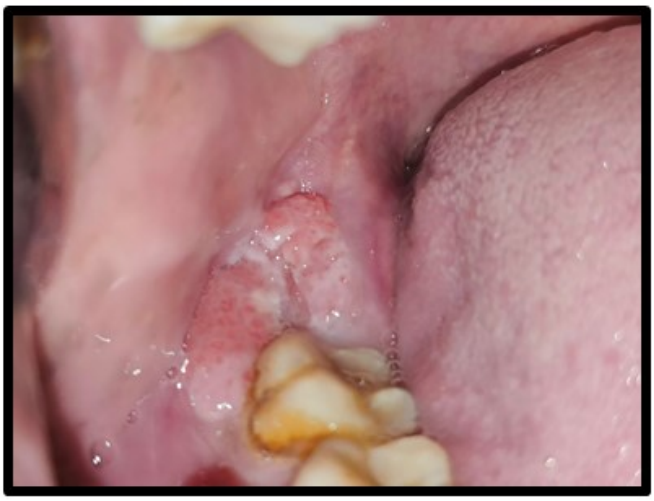

Figure 2

OPG signifies a large multilocular radiolucency extending anteroposteriorly from mesial of 44 till angle of mandible causing the displacement of 48 into the ramus. Associated with partial destruction of lower border of mandible [Figure 3].

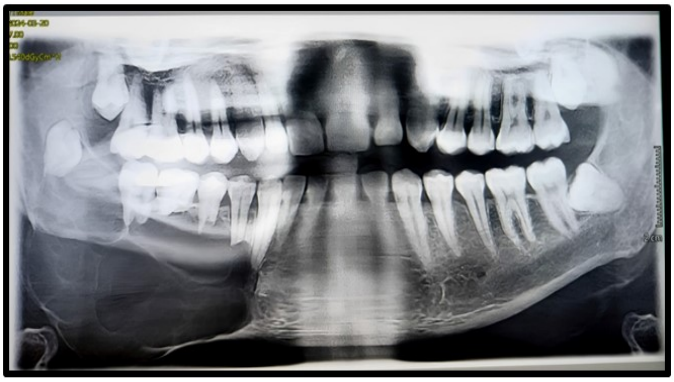

Figure 3

CBCT reports revealed single large expansile multilocular well defined radiolucent lesion [Figure 4] seen w.r.t. mandibular right posterior body and ramus region. The lesion is roughly oval in shape and size is around 72.3 X 70.7 X 42.6 mm. it extends anteroposteriorly from distal of 43 till posterior border of ramus causing hallowing out of entire ramus. Superoinferiorly from alveolar crest to inferior border of mandible. Mediolaterally it involves complete alveolar bone sparing few mm of outer cortical plate. Border of lesion is well defined and thin-corticated. Its internal structure is completely radiolucent with presence of thin septa. The lesion is causing expansion, thinning and perforation of buccal and lingual cortical plates and inferior border of mandible. Root resorption is evident w.r.t. 44, 45,46,47. And there is posterior displacement of 48 near ascending border of mandible.

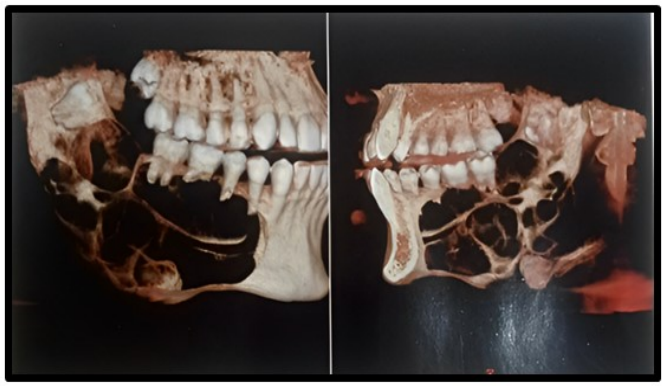

Figure 4

On the basis of radiographical investigations radiographical diagnosis of ameloblastoma is made. Later Right segmental mandibulectomy was done and bone grafting was done [Figure 5].

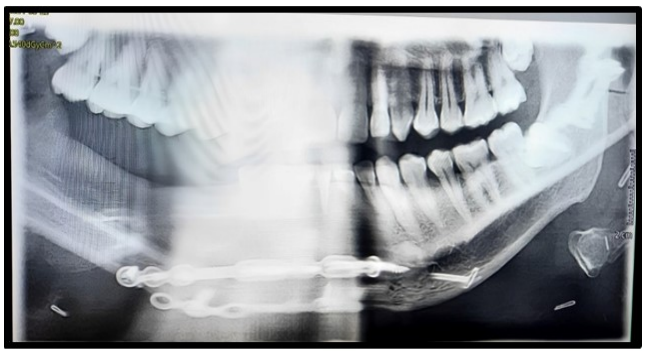

Figure 5

The excised specimen was also subjected to histopathological analysis, maximum tumor dimension was 6cm. It was limited to mandible. Both bony margins and mucosal margins were free of tumor. On histopathological impression of tumor specimen, it was tissue composed of solid and few cystic islands, cords and sheets of columnar cells with hyperchromatic nuclei with peripheral pallisading and subnuclear vacuolization noted. Suprabasal cells with a loose, network-like arrangement with stellate reticulum formation seen. Areas of squamous metaplasia and variable keratinization of stellate reticulum-like cells noted. Stroma is fibrovascular with mild mononuclear cell infiltration. Ulcerated gingival mucosa show focal surface tumor extension of ameloblastoma [Figure 6]. The patient is under follow-up and no recurrence has been reported so far.

DISCUSSION

Ameloblastomas are by far the most common odontogenic neoplasm. This neoplasm arises from odontogenic epithelium derived from remnants of the dental lamina and the enamel organ. Although a number of different subtypes have been described, all involve the localized or generalized proliferation of these cell remnants.[5] According to the 5th edition of World Health Organization (WHO) Classification of Head and Neck Tumors, there are five types of Ameloblastoma: ameloblastoma; unicystic ameloblastoma; extraosseous/peripheral ameloblastoma; and metastasizing ameloblastoma and adenoid ameloblastoma. Histologically, it is characterized by tumor nests that resemble the epithelial component of the enamel organ, columnar to cuboidal cells with hyperchromatic nuclei arranged in a palisading pattern with reverse polarity, and the central core is reminiscent of stellate reticulum.[6] Ameloblastoma is a benign epithelial tumor that constitutes about 14% of all jaw tumors and cysts. It has aggressive, destructive and unlimited growth potential, having the capacity for recurrence, malignant transformation and metastasis (in approximately 1% of cases). There is no differentiation according to sex. The global incidence of ameloblastoma is 0.5 cases/million people, with 10–15% of cases occurring in the pediatric population, reaching up to 25% in Africa and Asia.[7] Most cases of ameloblastoma (80%) occur in the mandible, predominantly in the posterior mandibular region. Maxillary ameloblastoma also mostly occurs in the posterior molar region.[8] An un-erupted third molar teeth can also be associated with ameloblastoma.[9] The multilocular cyst is the most frequently encountered pathologic multilocular radiolucency in the jaws. It is always of the soap-bubble variety, occurs most frequently in the mandible (usually in the premolar and molar region), and varies greatly in size. The majority (83.5%2\ to 88%22) occur in the mandible, where 61 % of total tumors involve the third molar region and ascending ramus.[10]

Worth, in his 1963 text, describes four patterns of ameloblastoma: a unilocular radiolucent cavity, a unilocular radiolucent cavity with partial division by coarse septa, multilocular radiolucent cavities separated by curved septa of variable lengths, and a honeycomb pattern consisting of many radiolucent compartments separated by small curved septa.[5]
The goal of surgical treatment of ameloblastomas is to minimize recurrences and restore good function and aesthetics with minimum morbidity in the donor area. The currently recommended surgery for classic ameloblastoma (solid/multicystic type) is complete en bloc resection (radical surgery) with an adequate margin of safety, which is classified as segmental or marginal osteotomy for the mandible and partial or total maxillectomy for the maxilla. Due to the high recurrence rate after conservative surgery, particularly for solid/multicystic ameloblastomas, a wide resection with a 1 to 1.5 cm bony margin is recommended.[11] The peripheral lesion differs clinically from the intraosseous lesion and is relatively innocuous, lacks the persistent invasiveness of the intraosseous lesion and has very limited tendency for recurrence. For this reason, it may be excised locally, although follow-up examination is always good practice.[1] Follow up of ameloblastoma is necessary because 50 % of all recurrences occur within 5 years postoperatively.

CONCLUSION

Ameloblastoma, though a rare odontogenic tumor, requires prompt and accurate diagnosis due to its aggressive local behavior and potential for recurrence. This case highlights the importance of early identification through clinical examination and radiographic studies, followed by histopathological confirmation. Surgical excision remains the gold standard for treatment, and long-term follow-up is essential to monitor for recurrence. While the prognosis is generally favorable with appropriate management, multidisciplinary collaboration is crucial for optimizing patient outcomes and addressing potential complications or recurrences.

CONSENT: Written consent was obtained from the patient for the agreed dental treatment and the use of his records or photographs for publication purpose.

ETHICAL APPROVAL: As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS: Authors have declared that no competing interests exist.

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