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Resection and Reconstruction in Extensive Ameloblastoma: A Case Report

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I. INTRODUCTION

Ameloblastoma (earlier Adamantinoma) is the second most common odontogenic neoplasm after Odontoma. It is the most common(61.5%) odontogenic neoplasm in India. It is a tumour originating from the odontogenic epithelium without any effect on the mesenchyme leading to excessive growth and destruction of the underlying bone. Most authorities consider Ameloblastoma to be of a varied origin, although the stimulus initiating the process is unknown. This tumour has a wide age range of occurrence ranging from 10 years – 90 years but the majority of the cases cluster around 20-60years of age, making it one of the leading causes of morbidity and mortality in the world.

Here, we present a case report of a 65year old female diagnosed with Ameloblastoma of the right side of mandible causing extensive destruction of the underlying bone and reconstruction with a Reconstruction plate to maintain the continuity of the bone.

II. CASE REPORT

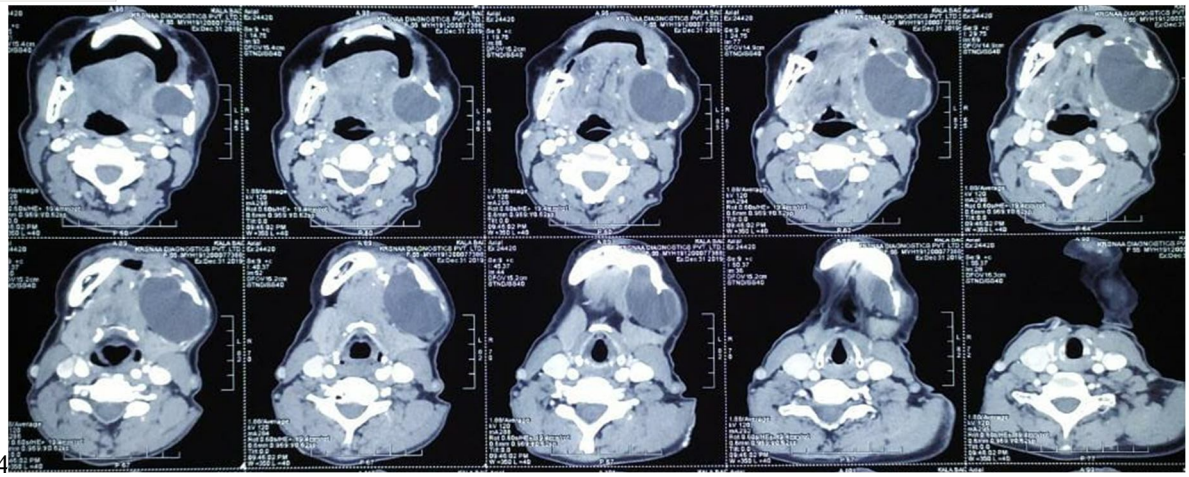
A 65 year old edentulous female patient presented to the department of Oral and Maxillofacial Surgery with a chief complaint of painful swelling in the left side of the mandible since 1 year(fig1). The swelling started to enlarge since the last 2 months and was associated with inability to wear her partial denture. Extraoral examination revealed a firm swelling present near the angle of mandible extending towards the neck(fig2). Intraorally, the swelling infiltrates the lower vestibule and the floor of the mouth, pushing the tongue backwards(fig3). The swelling was mildly tender on palpation and was not associated with any findings of fever or lymphadenopathy. Based on the nature of the swelling and patient's preference, a CT Mandible was ordered which revealed a large polycystic mass with extensive bone lysis along the body of the mandible, which came into contact with the soft tissue without infiltration (Fig. 4).

Fig 1 

fig2 

Fig 3 

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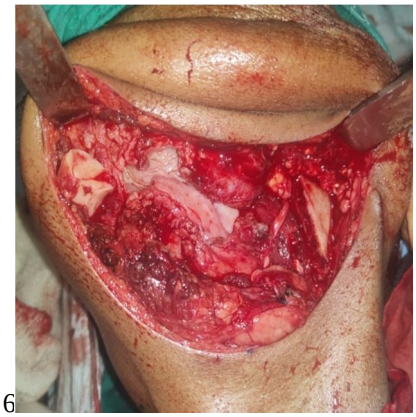

Fig4

III. SURGICAL TECHNIQUE

Based on the above mentioned clinical and radiological findings, a complete surgical excision of the lesion alongwith the affected mandible was planned. The continuity defect was planned to be reconstructed with an angled 2.7mm Reconstruction plate.

After marking the skin and adequate local anaesthesia under Nasotracheal intubation , an extended Submandibular(Risdon's) incision(fig5) was given on Lt side. After layerwise dissection upto the inferior border of the mandible, the tumour mass was exposed. As the tumour was associated with the bone, osteotomy cuts were made in the mandible, and a segmental resection of the body-angle region of the mandible was done leaving a continuity defect(fig6). The specimen was sent for histopathological examination (fig8) which confirmed the diagnosis of Ameloblastoma. As the defect size was large, an angled reconstruction plate was fixed with the help of '6' 2.5 x 10mm screws. After thorough irrigation, complete haemostasis was achieved and wound was closed in layers and a pressure dressing was given.


Fig 5


fig 6

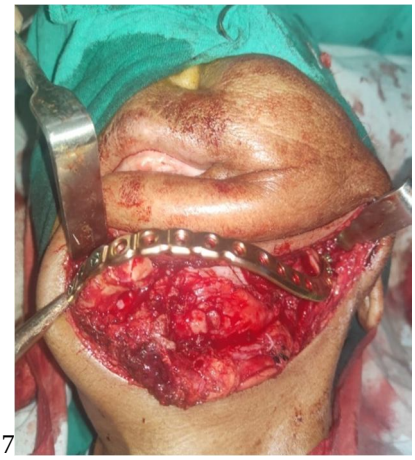

fig 7


fig 8

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IV. FOLLOW-UP

The patient reported to the department after 1 week , 6months (OPG – fig9) and has been on regular follow up since. The patient is apparently healthy and no episodes of recurrence have been recorded.

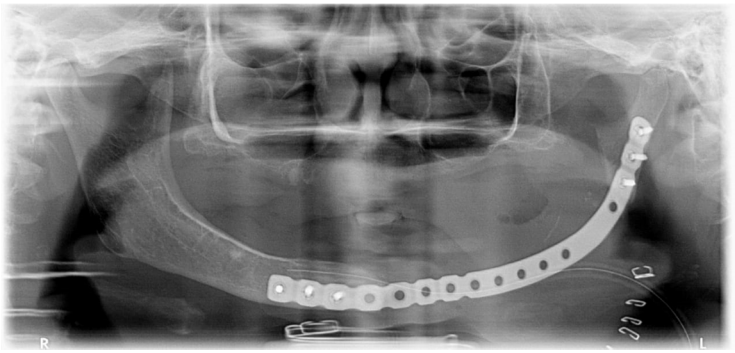


fig 9

V. DISCUSSION

Ameloblastoma is a true neoplasm of enamel organ type which does not undergo differentiation to the point of enamel formation.[1] It was earlier known by the name of Adamantinoma, a term given by Malassez in 1885 rejected as it implies hard tissue formation which is not seen in the tumour. Churchill coined the present term in 1934 to replace the earlier term. According to Robinson, Ameloblastoma is a tumour that is 'usually unicentric, nonfunctional , intermittent in growth, anatomically benign and clinically persistent'.

Majority of the authors agree that the tumour is basically derived from:

A. Cell rests of the enamel organ(cell rests of Serre/cell rests of Malassez)
B. Epithelium of the odontogenic cysts particularly dentigerous cyst and odontoma.
C. Disturbance of enamel organ.
D. Basal cells of surface epithelium of jaws
E. Heterotopic epithelium of other parts of the jaw esp. Pituitary gland.

Presently it is thought that it maybe likely the result of alterations or mutations in tooth development genetics[1] .According to the work of Stanley and Diehl, approximately 17% of the tumours were associated with an impacted tooth/ a follicular(dentigerous) cyst.

Ameloblastoma can occur in any region of the jaw, but the mandible is the most commonly affected (more than 80%) ; the molar angle-ramus region being three times affected than the anterior regions combined. Also, the tumour may sometimes be seen involving the nervous system near the Suprasellar and intersellar areas often destroying the Pituitary gland called as Craniopharyngioma or Rathke's pouch tumour.

Ameloblastoma has a general histologic structure made up of a center formed by epithelial island cells with a loose texture with frequent formation of microcysts, and a periphery consisting of an epithelium whose cells have an inverted nuclear polarity and supra nuclear vacuoles.[8] There are many histological types: follicular, plexiform, acanthomatous ,granular, desmoplastic and basal cell type.Radiographically , it commonly presents as a multilocular radiolucency of the jaw where it exhibits a compartmented appearance with septa of normal bone invading the radiolucent tumour mass but the unilocular radiographic features are also not uncommon.

Ameloblastoma recurs frequently, so a radical treatment is necessary. There are two types of treatment: conservative treatment by marsupialization, enucleation and curettage, and radical treatment which consists of resection of the bone tissue while respecting the margins of the lesion.

The treatment is surgical, it is generally mutilating especially for advanced cases. The surgical treatment can be conservative or radical, the therapeutic decision must take into consideration several factors including the age of the patient, the anatomical location of the lesion, its extension, the radiological aspect, the evolutionary potential and the probabilitý of a regular follow-up of the patient[1]. Even after apparently well-conducted surgical treatment and despite wide resections with pathologically healthy recuts, ameloblastoma is likely to recur probably because of micro tumor bone foci existing distant from the main tumor.[9]

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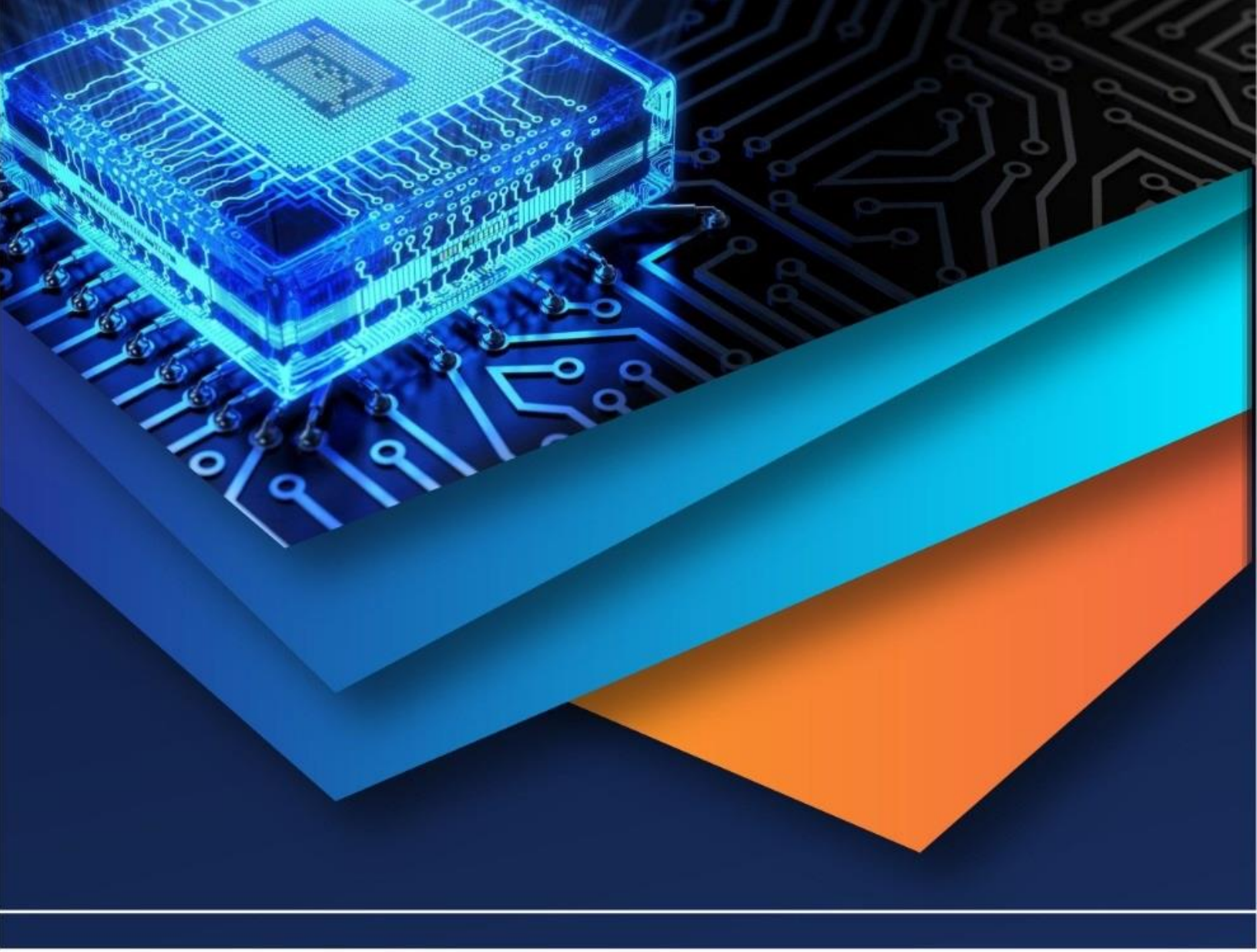
VI. CONCLUSION

Ameloblastoma is tumour which maybe innocuous at the start but may reach upto startling sizes before causing any kinds of discomfort. Hence, to prevent any kind of recurrence and morbidity associated with the lesion, many authors advocate a wide resection at the outset with a safety margin in the periphery and this case was no exception.

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