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Joint Preservation & Management of Ameloblastoma- A Case Report

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Abstract
Ameloblastoma is a locally invasive benign epithelial odontogenic tumour with incidence of 1% of all tumours of jaws. It is commonly found in the middle age group in the molar and ramus region of the mandible. Multicystic ameloblastoma is believed to be locally aggressive lesion that has higher recurrence rate amongst all types of ameloblastoma. In this report we present a large multicystic ameloblastoma in the right body and ramus region of mandible in a 19-years-old girl. This large lesion was diagnosed with the help of thorough patient's history, CT-Scan and Radiograph which was successfully managed by hemimandibulectomy with condyle head preservation and simultaneous reconstruction with reconstruction plates[1].
Keywords: *Ameloblastoma, Mandible, Odontogenic.*

Introduction

Ameloblastoma is the most common benign odontogenic tumour of the jaws that constitutes about 1% of all cysts and tumours of the jaws. Generally it is painless, slow growing, locally aggressive tumour resulting into cortical bone expansion, perforation of the lingual or the buccal cortical plate and infiltration of the soft tissues. It has peak incidence in third and fourth decade of life but can be found in any age group with equal gender predilection (1:1).[1–5] The relative frequency of mandible to maxilla is reported to be varying from 80–20% to 99–1%. In the mandible majority of ameloblastomas are found in the molar ramus region.[1,6]

This report gives a comprehensive knowledge regarding the epidemiology, occurrence, behaviour, diagnosis, treatment and outcome of ameloblastoma along with the presentation of the case.

Conventional radiograph is sufficient for small mandibular lesions but maxillary lesions and extensive lesions require CT and MRI to establish the extent of the lesion. The challenge in managing ameloblastoma is in achieving complete excision and reconstruction of the defect when the tumour is large. Ameloblastoma is treated by enucleation, curettage or surgical excision depending on size and type of the lesion. The rate of recurrence ranges from 17.7% for enbloc resection to 34.7% for conservative therapy. Wide

resections with a safety margin of healthy bone to prevent local recurrence were preferred[2,4].

Case Report

A 19 years old female patient reported to department of Oral and Maxillofacial surgery in Mahatma Gandhi Dental College, Jaipur with the complaint of pain and swelling in right side of face since 2 and half months. There was history large lesion in same region 3 months which was diagnosed as odontogenic keratocyst and patient underwent surgery for that, but the swelling get increased in size after 3 months. The patient was experiencing pain while chewing hard food and altered sensation over the right cheek region.

On examination, there was a solitary ill defined diffuse swelling on the right side of face (figure 1,2 & 3) measuring about 4X5 cm extending superioinferiorly from outer canthus of right eye to angle of mandible and mediolaterally 1 cm from the right corner of the mouth to tragus of right ear. The surface was smooth and the skin overlying the swelling was stretched, having normal colour, with no discharge and was non-tender and hard on palpation. An incisional biopsy was made and the specimen was subjected to histopathological examination. Other investigation including Orthopantamo gram and CT-Scan were also done for better and confirmatory diagnosis. (Figure. 4&5)

Orthopantamogram

OPG reveals multilocular radiolucency extending anteriorly from roots of right mandibular 1st molar to angle of mandible posteriorly. Superiorly it is extending from lower 1/3rd of ramus and lower border of mandible inferiorly with resorption of roots of 2nd molar (Figure 4).

Computed Tomography

CT-Scan reported presence of expensile uni-locular osteolytic lesion located in body and ramus of right hemi-mandible and lies along the length of mandible which was extending upto coronoid process, measure 74x24mm in size and absence of matrix calcification. The 3rd molar lying obliquely along the anterior aspect of lesion with mild resorption of roots of 2nd molar (Figure 5).

Histopathology

The histopathological examination of the biopsy specimen revealed the presence of follicles that consist of a core of loosely arranged angular cells resembling the stellate reticulum of an enamel organ. A single layer of tall columnar ameloblast-like cells had been found surrounding the central core. The nuclei of these cells were located at the opposite pole to the basement membrane (reversed polarity) with few follicles revealing, microcyst formation. These findings were strongly suggestive of follicular ameloblastoma.

Treatment

For reporting ameloblastomas, it seems acceptable to group the treatment regimens into three modalities being conservative that includes enucleation and curettage, marsupalisation and radical surgery which includes resection with or without continuity defect[7]. For solid-multicystic ameloblastoma of the mandible, a resection of the jaw should be approximately 1.5–2 cm beyond the radiological limit, in order to ensure that all the ‘microcysts’ and ‘daughter cysts’ are removed. In our case also marginal clearance of 2 cm was achieved as histopathology of specimen revealed it to be follicular variety. There are different methods of mandibular reconstruction of large defect with microvascular surgery using donor site from fibula, iliac crest, scapula and radial forearm[8]. In our case tumour was treated with hemimandibulectomy followed by reconstruction plate as it was quite an extensive lesion involving body as well as the ramus of the mandible.

As the lesion was extensive with the history of recurrence, hemimandibulectomy was performed along with reconstruction plate(Figure. 6-13). And the patient is kept on follow up (Figure 14-18)

Figure1

Figure2

Pre-operative

Figure3

Figure4- OPG

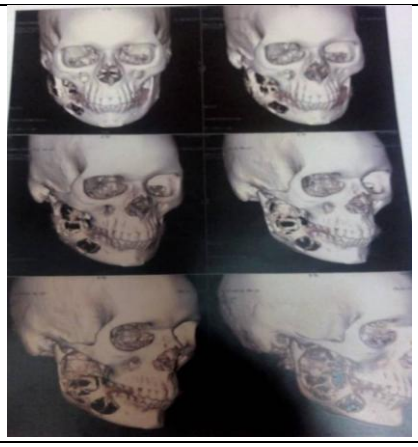

Figure5-CT Scan

Figure6- Marking of Incision

Figure7-IMF screws

Figure8- Submandibular incision

Figure9- Flap is reflected and tumor site is exposed

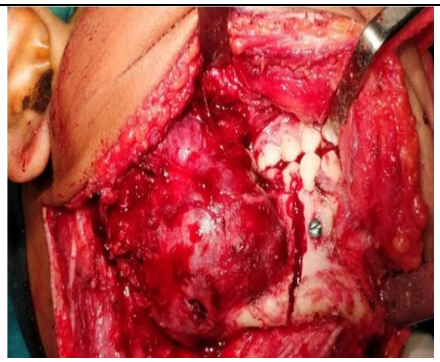

Figure10- Body of Mandible is cut

Figure11- Excised tumor with affected segment of Mandible

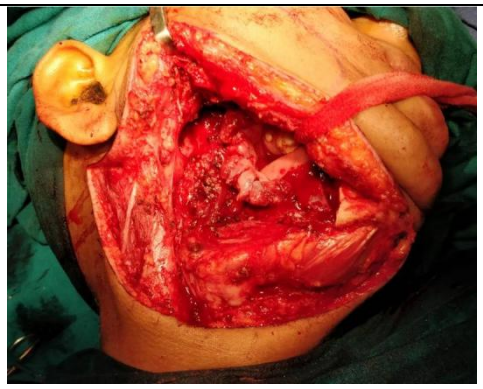

Figure12- Complete excision of tumor

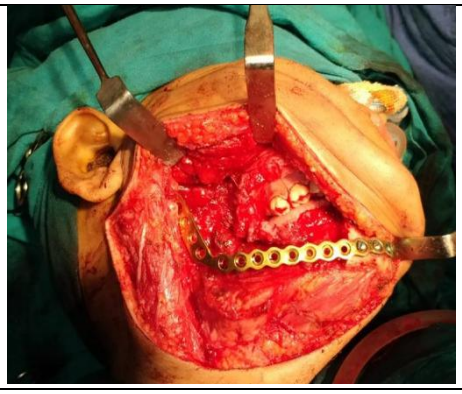

Figure13- Reconstruction plate

Figure14-6th day follow up

Figure15- 3rd month follow up

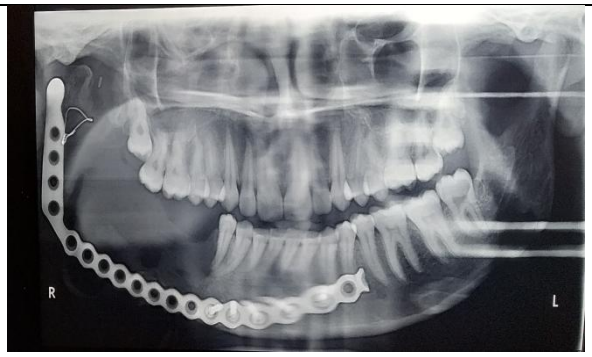

Figure16- 6th month follow up OPG

Figure 17- 6th month follow up

Figure 18- 6th month Post Op Healing

Discussion

Ameloblastoma is a benign epithelial odontogenic tumour often aggressive and destructive with the capacity to erode bone and invade adjacent structures[4]. Ameloblastoma of the lower jaw can progress to variable sizes (1–16 cm) and cause facial asymmetry, displacement of teeth, malocclusion and pathological fractures[5,]. In the present case also the patient's clinical examination revealed a large hard swelling in the ascending ramus and molar region of the mandible which had caused the facial asymmetry, loose teeth and expansion of the buccal as well as the lingual cortical plate [6].

Aetiology -Ameloblastoma arises from epithelial cellular elements and dental tissues in their various phases of development[5,7,8].

Epidemiology and prevalence-Although ameloblastomas occur with equal frequency in both genders they are found slightly in higher frequency in women than men4 as seen in our case. In the ameloblastoma of the mandible, the majority (70%) are located in the molar ramus region and 10–15% are found in association with an un erupted tooth[5,9].

Outcome and recurrence-The chance of recurrence seems to be more dependent on the method of surgical treatment.11 In general, annual follow-up for at least 10 years is recommended. Few authors have recommended annual follow-up for 5 years and thereafter once in every 2 years till 25 years[6].

Our patient is also under follow-up with no evidence of recurrence.

Conclusion

The management of ameloblastoma still poses a big challenge in spite of being the most common odontogenic tumor as ameloblastoma is usually of late diagnosis because of its poor symptoms and low prevalence. Its treatment preferably includes the resection with safety margins and immediate reconstruction whenever possible. Routine

histological classification of the ameloblastoma is mandatory for its morphological characterization and, thus, a better treatment definition. The main success factor associated with the treatment is the early diagnosis and to correlate the histopathologic findings with clinical and radiographic features to achieve at a correct definitive diagnosis as all such lesions might have prognostically different biologic behaviors and the final diagnosis may alter the therapeutic decision significantly.

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