Archives of Surgical Research | Case Report

Solid Ameloblastoma: A Case Report

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IMPORTANCE Ameloblastoma is a very uncommon neoplasm of odontogenic origin, which is a benign but locally aggressive tumor. It causes the expansion of the jaws' cortices with gross disfigurement and impairment in esthetics and functions. Here we present a 42 years old lady who presented to us with large solid ameloblastoma of the left side of the mandibular body and ramus. Left segmental resection with disarticulation of condyle and 1cm linear safe margins of mandibular body region was done. Stereolithic model was used to shape the reconstruction plate preoperatively and applied at the defect site to maintain the continuity of the mandible.

KEYWORDS Ameloblastoma, stereolithographic model surgery, mandibular tumor

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Case Report

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Ameloblastoma is a very uncommon true neoplasm constituting only 1 % of all jaws' cysts and tumors. It is benign and has an odontogenic origin.[1] Ameloblastomas have a notorious reputation for their locally invasive and highly aggressive characteristic[1], causing expansion of the jaws' cortices with infiltration into soft tissue. Most of the ameloblastomas are found in the age group ranging from third to the fourth decade, with an average age of 38.9 years. It has an equal incidence rate in both genders, frequently reported in the mandible, particularly the molar ramus region.[2] In the mandible, the most common site is the molar and ascending ramus region accounting for 39%, and 16% occurred in the molar premolar region and 9% in the anterior region.[3] It has a very high recurrence rate, which is supported by the literature. [1] It has a rare tendency to transform into full-blown malignancy with metastasis.[4] Radiographically, these tumors mostly present a multilocular radiolucency and less frequently as unilocular radiolucency. When presented as multilocular radiolucency, they have a distinct soap bubble pattern; division of the bony spaces with the trabeculae. [3] They present as well-circumscribed slow-growing radiolucencies.[3] Ameloblastomas tend to associate with unerupted teeth, but that is not always the case. The status of teeth associated with ameloblastoma is vitally viable, but they may have mobility, and in some cases, there may be resorption of the roots of associated teeth.[3] Ameloblastomas have a diverse histological and clinical pattern.[5]

CASE REPORT

A 42 years female presented to the outpatient department (OPD) of oral and maxillofacial surgery, with the chief complaint of swelling over the left mandible for last two years. Extra oral examination revealed marked facial asymmetry due to a large mass, measuring approximately 9x5cm on the mandible's left side—Posterio-anteriorly, extending from the left angle of the mandible to the left corner of the mouth. Superio-inferiorly the swelling was extending from the left malar region to the hyoid bone region on the neck. The mass was well-demarcated, firm to hard in consistency with well-defined borders. The overlying skin colour, texture, and temperature were normal. All cranial nerves were intact especially facial and trigeminal nerves. There was no clinical evidence of cervical lymphadenopathy.

On intraoral evaluation, there was a buccal cortical plate expansion. The occlusion was intact. No discharge or ulceration was noted. Oral hygiene was poor, with heavy calculus and plaque deposits. Dentition on the left side of the mandible was sound except for the first molar broken down roots, which had no infection sign. Initially, an OPG was done, which revealed a large multilocular radiolucency with well-circumscribed borders extending from the alveolar ridge level to the inferior border of mandible over the mandible angle region, anteroposteriorly the lesion was extending from the left second molar to ascending ramus region, pushing the roots of the second molar mesially. Moreover, the boundaries of the inferior alveolar canal were also not appreciable. A CBCT scan with 3D reconstruction revealed a multilocular radiolucency on the left side of the mandible with the expansion and erosions of both buccal and lingual cortices.

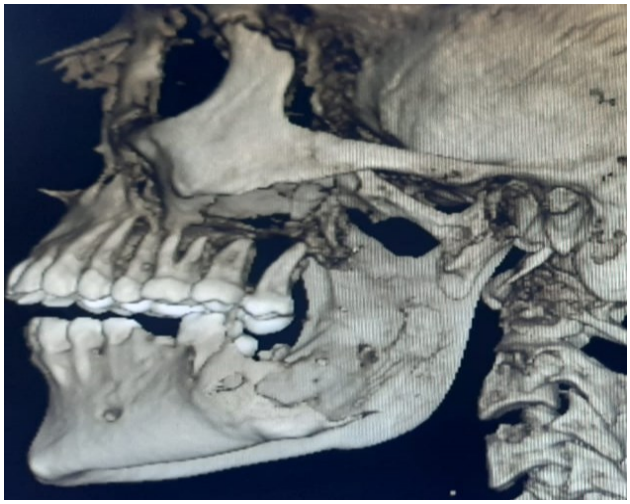

Figure 1 CBCT showing the destruction of the buccal cortex of the mandible.

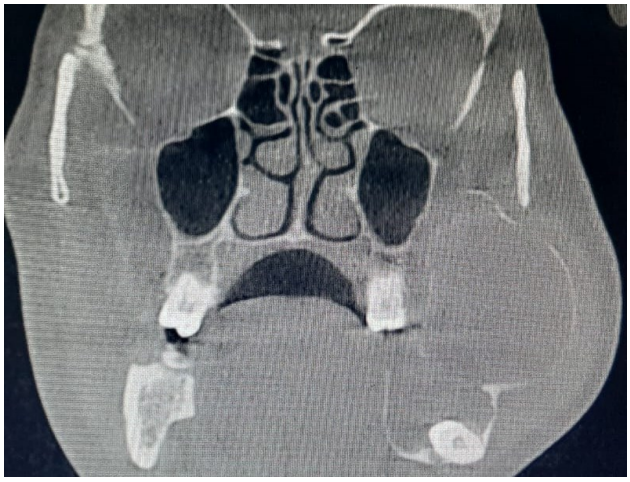

Figure 2 Coronal view showing large multicystic lesion of the mandible.

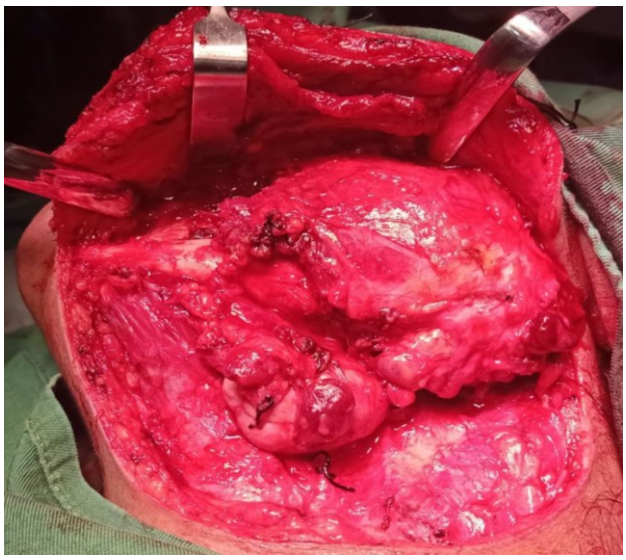

Figure 3 Per-Operative exposed tumor

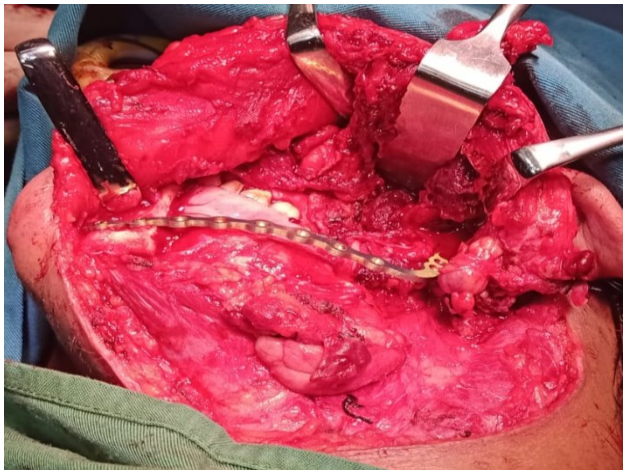

Figure 4 Reconstruction plate placed after tumor resection

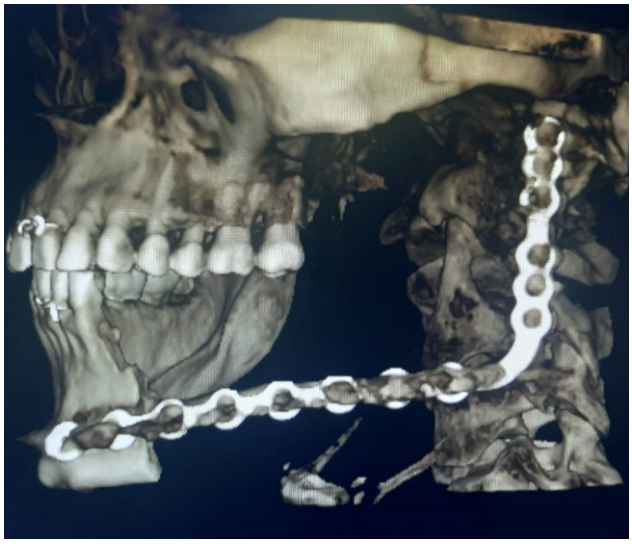

Figure 5 Postoperative CBCT scan

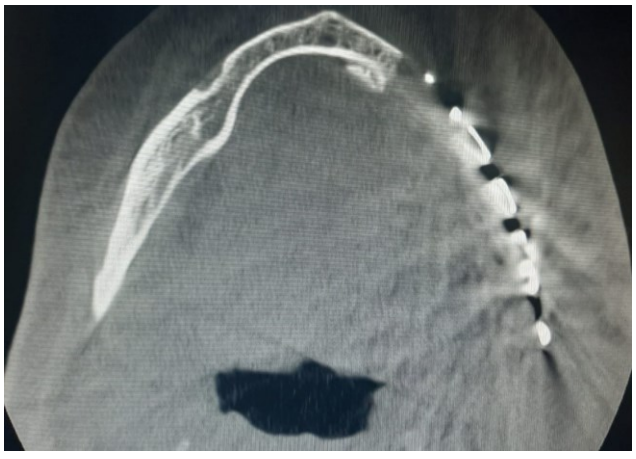

Figure 6 axial view showing the symmetry of the reconstruction plate

As per the radiographic findings, the differential diagnosis included: Multicystic Ameloblastoma, Odontogenic

Keratocyst, Odontogenic myxoma, and Central giant cell granuloma. Under local anesthesia, an incisional biopsy was carried to confirm the diagnosis; solid ameloblastoma was confirmed on initial histopathological evaluation.

A treatment plan of tumor resection with 1cm linear safe margins and reconstruction with a recon plate and locking screws was carried out under general anesthesia.

Preoperatively, a stereo-lithic model was constructed, and model surgery was done on that. Mirror imaging of the right side of the mandible was done to shape the reconstruction plate according to the mandible's symmetry, to save the time in operating room. Postoperative recovery of the patient was uneventful. The surgical drain was removed after 24 hours. The patient was discharged on the third postoperative day. Follow up was done after 1 and 3 weeks and then in the third month. The facial nerve was intact, and there was no postoperative complaint. Follow up will continue for about 7 to 10 years to observe any recurrence.

Discussion

Ameloblastomas are classified into two main divisions, i.e., extraosseous, also known as peripheral or intraosseous, also known as central ameloblastoma. Peripheral ameloblastoma, as the name implies, is a slow-growing mass that is mainly confined to gingiva or alveolar mucosa without involving the underlying bony tissue. They are either sessile or pedunculated.[5] Intraosseous ameloblastomas of the jaws are further classified into unicystic, mixed cystic and multicystic, known as the solid variant.[6] Solid forms and the mixed cystic form of ameloblastomas have a very aggressive behavior and are notorious for their ability to recur.[5] The histopathologic variant includes the acnathmatous, follicular, and plexiform types and granular cell types.[9] Uncommon variants of ameloblastoma include keratoameloblastoma, clear cell, basal cell ameloblastoma, desmoplastic and proliferous ameloblastoma.[7] Among all these variants, the plexiform pattern is less aggressive with low recurrence.[8] Even though ameloblastoma has a very aggressive clinical course, they often present asymptomatic lesions which have a tendency to grow slowly, and there may be minimal swelling. Patients can present with symptoms such as dental malocclusion in the early stages. As the tumor grows, the patient has symptoms such as paresthesia of the affected region, pain and swelling. [10] The uniqueness of ameloblastoma is that it forms pseudopods into the marrow spaces of jaws with resorption of the trabecular bone, due to which the tumor margins are difficult to identify on pre-op and Intra –op radiographs. This is a significant reason for the recurrence of the tumor after surgical removal of the tumor. [12] Radiographically tumors may appear as being separated into portions, which represents differential resorption of the cortical plate and not actual separation of the tumor into different portions.[13] Recurrence of ameloblastoma presents after many years or even decades, owing to its tendency to grow very slowly after the primary surgery. [12] In the case of inadequate surgical removal of the primary tumor, the potential of the tumor into malignant transform increases. [11] Frequently on radiographic evaluation, ameloblastoma would have a characteristic appearance but not diagnostic radiographic appearance. [11] The neoplasm mostly appears as a unilocular radiolucency or a multilocular radiolucency with a typical honeycomb pattern because of trabecular bone presence. [11] Roots of the adjacent tooth or teeth may show resorption.[3] This tumor tends to be associated with an unerupted tooth, mostly mandibular third molar.[14] Treatment options for ameloblastoma of the mandible are controversial. Treatment can change according to its anatomic location and its clinical behavior. Treatment mostly consists of wide surgical resection, accompanied by enucleation and curettage. [12,15] Ameloblastoma has a high rate of recurrence. It can recur in 15 to 25% for resection cases, and in conservative treatment, its recurrence ranges from 75 to 90%. [15] Philipsen HP, Reichart PA, and associates in their research work mentioned that the recurrence rate was 17.7% for en-bloc resection and almost doubled for conservative therapy, i.e., 34.7%. [4]

Conclusion

Solid ameloblastoma is a benign but locally aggressive tumor of jaws that needs surgical resection. There is controversy in treatment methods of ameloblastoma. Conservative treatment has a higher recurrence rate as compared to surgical resection. Reconstruction plate adaptation on stereo-lithic model before surgery saves time in the operation room and has good esthetic results postoperatively

ARTICLE INFORMATION

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