Case Report

Ameloblastoma of the Mandible: A Case Series

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ABSTRACT

Ameloblastoma is a benign odontogenic neoplasm which exhibits locally aggressive behavior. It commonly affects the mandible and is seen in the third to fifth decades of life. In most cases, an ameloblastoma is usually asymptomatic and may be detected during the course of routine radiographic examination. Radiographically, it may have a unilocular or multilocular appearance, which is usually well-defined and has a corticated margin in the mandible whereas ill-defined in the case of the maxilla. In this case series, we report three cases of ameloblastoma of the mandible.

Key words: Swelling, Tumor, Odontogenic, Enucleation, Resection

INTRODUCTION

Ameloblastoma is a locally aggressive, benign tumor originating from odontogenic epithelium.[1] Its name derives from the old French word "amel," meaning enamel, and the Greek word "blastos," meaning germ or bud. The tumor was first described by Cusack in 1827[2] and was later termed "adamantinoma" by Malassez in 1885. This term is now used to describe a rare type of bone cancer identified by Fisher in 1913. In 1930, Ivey and Churchill introduced the term "ameloblastoma," which is the preferred term today. The World Health Organization defined ameloblastoma in 1991 as a benign but locally aggressive tumor with a high recurrence rate, characterized by proliferating odontogenic epithelium within a fibrous stroma.[3] This case series reports on three patients diagnosed with ameloblastoma of the mandible at our institute.

CASE REPORT

Case-1

A 39-year-old male came to the outpatient clinic of our department complaining of swelling in the mid and lower 1/3rd of the left side of his face for 12 years. Extra oral examination revealed the facial asymmetry in the mid and lower 1/3rd of the face. The swelling was extending from the left malar region crossing the lower border of the mandible superoinferiorly and from the left ala of the nose to the left mastoid region anteroposteriorly crossing the midline. The swelling was approximately 18 × 16 cm in size with a smooth surface and the colour of skin over the swelling was normal. On palpation, a firm mass was felt where it was hard and mildly tender [Figure 1].

Intraorally, the swelling was present over the floor of the mouth on the left side, extending from the alveolar ridge of 44 to the left rmt region with missing mandibular teeth from 32 to 36. Intraorally the dimension of the swelling was approximately 4.5 × 5 × 2 cm in its greatest dimensions. Buccaly swelling was firm to hard and slightly tender on palpation and lingually swelling was bony hard, non-tender, and no secondary changes were noted [Figure 1b].

The panoramic view reveals a large multilocular, mixed-type radiolucency extending from the left condyle to the right body region, behind the right mandibular second molar, and involving the mesial root of 48. The lesion demonstrates a classic soap bubble appearance as seen in ameloblastoma along with generalized root resorption of all the involved mandibular teeth. The lesion was associated with an impacted premolar which might have pathologically drifted from the left side because of the lesion. Thinning of the lower border of the mandible on the right side and complete breach on the left side can be well appreciated [Figure 2].

CT sections were taken for virtual surgical planning and dimensions of the involved bone that had to be resected were measured in all aspects. Followed by which a virtual model for the patient-specific implant (PSI) was fabricated for the replacement of the resected mandible. The height of the PSI is 25.7 mm with a gap of 12 mm for denture afterward. Implants were incorporated at canine, molar, and premolar positions for future prosthetic rehabilitation.

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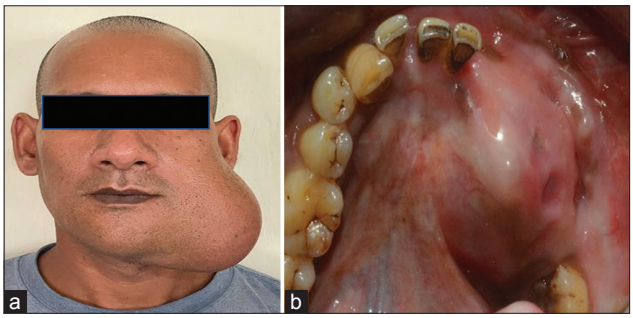

Figure 1: (a) Extraoral examination revealed the facial asymmetry in the mid and lower 1/3rd of the face, (b) Intra orally, swelling was present over the floor of the mouth on the left side, extending from the alveolar ridge of 44 to the left rmt region

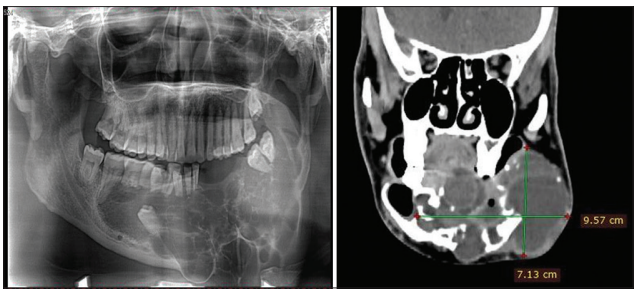

Figure 2: Radiograph reveals large multilocular, mixed-type radiolucency extending from the left condyle to the right body region, behind the right mandibular second molar, and involving the mesial root of 48. The lesion demonstrates a classic soap bubble appearance as seen in ameloblastoma along with generalized root resorption of all the involved mandibular teeth

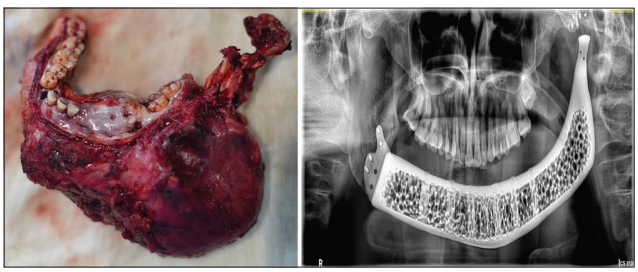

Figure 3: Mandible was resected and the glenoid fossa component of the PSI was then placed and fixed over the left zygomatic arch by titanium screws and was tied with the PSI. PSI: Patient-specific implant

The final titanium model obtained, had six implants incorporated in it for prosthetic rehabilitation, taking into concern for the patient's functional and esthetic needs. Further dissection and undermining were done. The outer capsule was dissected and this is the cystic cavity that was obtained, which contained fluid.

The glenoid fossa component of the PSI was then placed and fixed over the left zygomatic arch by titanium screws and was tied with the PSI through a 2-0 prolene suture so as to prevent sagging of the implant, followed by fixation of the phalange of implant

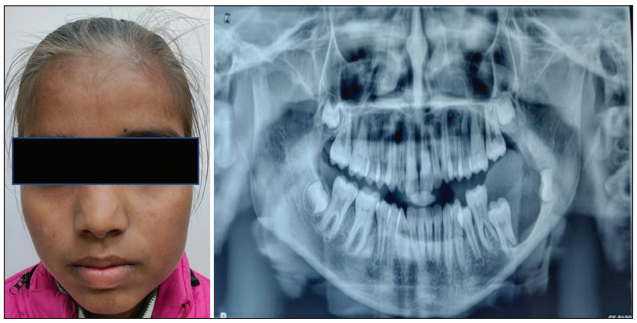

Figure 4: Extraoral examination reveals facial asymmetry on the lower 1/3rd of the face

over the right angle region, and the genial muscles were sutured to the implant through a non-resorbable 2-0 silk suture. Closure was achieved layer-by-layer extraorally and intraorally. Describing post-operative (20 days) extraoral and intraoral profile showing perfect facial symmetry and eventful intraoral healing and OPG showing the PSI attachment with housing for dental implants. The patient has been on follow-up for 2 years with no incidence of recurrence [Figure 3].

Case-2

A 19-year-old female came to the outpatient clinic of our department complaining of swelling on the lower left side of her face for 2 months. Extraoral examination reveals facial asymmetry on the lower 1/3rd of the face. The swelling extended from the left malar region till the lower border of the mandible superoinferiorly and from the body of the mandible to the middle of the ramus anteroinferiorly. The swelling was approximately 5 × 3cm in size and the color of the size over the swelling was normal. On palpation swelling was afebrile, firm, non-tender [Figure 4].

Intraorally, the swelling was present in the buccal vestibule of 37, 37 regions with missing 37, 38. Buccally swelling was firm to hard and slightly tender on palpation with no lingual extension.

The panoramic view reveals large unilocular radiolucency extending from the distal of 36 to the middle of the ascending border of ramus involving 37, 38.

Computed tomography (CT) sections reveal a thin-walled expansile lesion measuring 3.2 × 2.8 × 2.8 in the body of the mandible on the left side extending up to ascending ramus with impacted 37,38 [Figure 5].

The tumor mass was enucleated followed by curettage and chemical cauterization using Carnoy's solution. Layer-by-layer suturing was done using Vicryl 3-0 and prolene 4-0. The patient has been on follow-up for 1 year with no incidence of follow-up [Figure 6].

Case-3

A 16-year-old male came to the outpatient clinic of our department complaining of swelling and pain in his left lower face region for 2 years. Extraoral examination reveals facial asymmetry on the lower left 1/3rd of the face. The swelling extended from the left

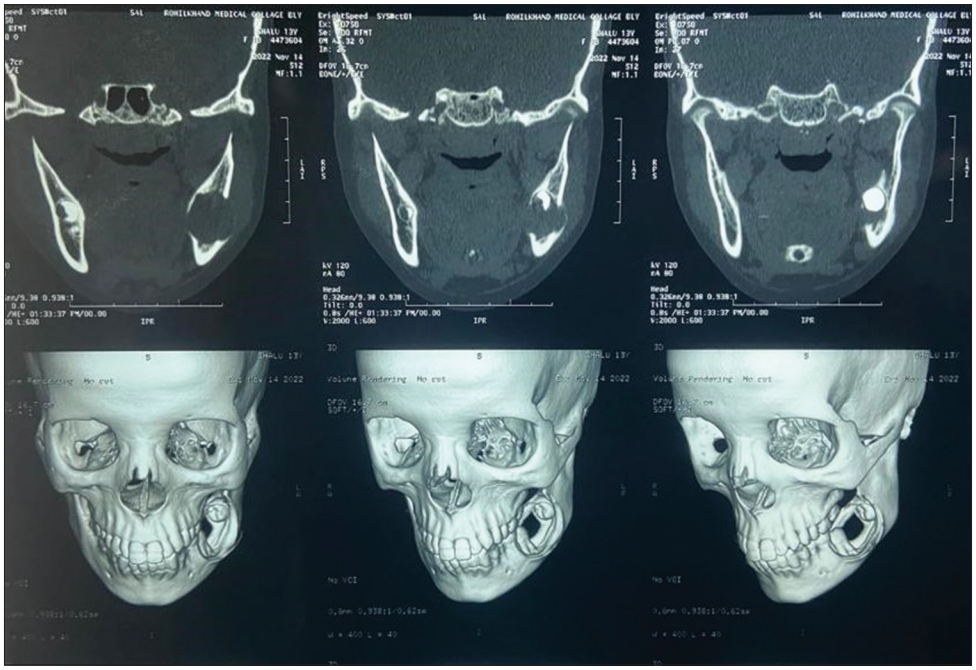

Figure 5: Computed tomography sections reveal a thin-walled expansile lesion measuring 3.2 × 2.8 × 2.8 seen in the body of the mandible on the left side extending up to ascending ramus

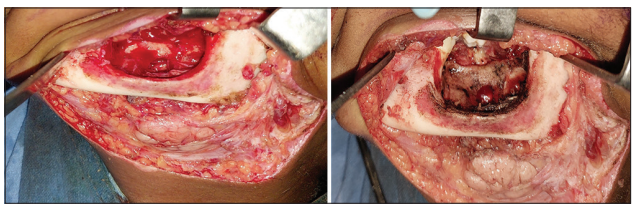

Figure 6: Tumor mass was enucleated followed by curettage and chemical cauterization using Carnoy's solution

Figure 7: Swelling extended from the left malar region till the lower border of mandible superoinferiorly and left parasymphysis to the tragus of ear anteroposteriorly

malar region till the lower border of the mandible superoinferiorly and left parasymphysis to the tragus of the ear anteroposteriorly. The swelling was approximately 4 × 4 cm in size and the color of the skin over the swelling was normal. On palpation swelling was febrile, tender, and smooth [Figure 7].

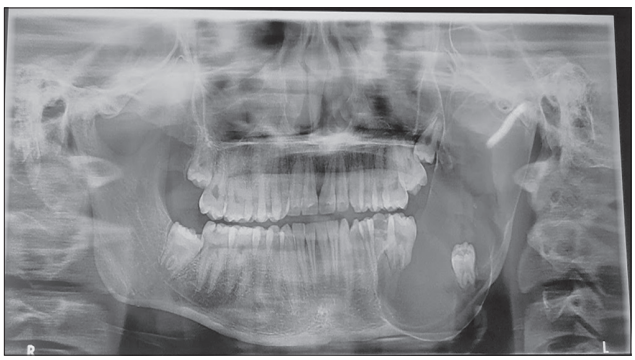

Figure 8: Panoramic radiograph reveals soap bubble appearance with multiple radiolucency involving 36 to left ramus and condyle

Intraorally, swelling extends in the labial vestibule from the 33 to 37 region with no tenderness or mobility of the tooth.

The panoramic radiograph reveals a soap bubble appearance with multiple radiolucency involving 36 to left ramus and condyle [Figure 8].

CT sections reveal a large expansile lytic lesion on the left side of the mandible involving the body and ramus causing marked thinning of the anterior and posterior cortex with imperceptible cortex at multiple places with impacted tooth [Figure 9].

Resection was done from left parasymphysis using giglisaw and muscle stripping from the mandible was done to align the left mandible and the hemimandible was removed. Recon plate with condyle was placed and secured with 3 (2.5 × 8 mm) screws. Layer-by-layer suturing was done using Vicryl 3-0 and prolene 4-0 and staples. The patient is on follow-up for 7 months with no incidence of recurrence [Figure 10].

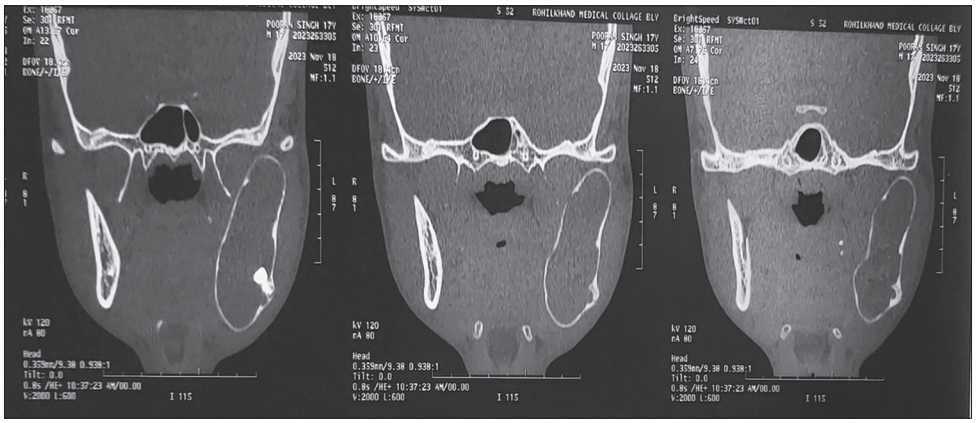

Figure 9: Coronal sections reveal a large expansile lytic lesion on the left side of the mandible involving the body and ramus

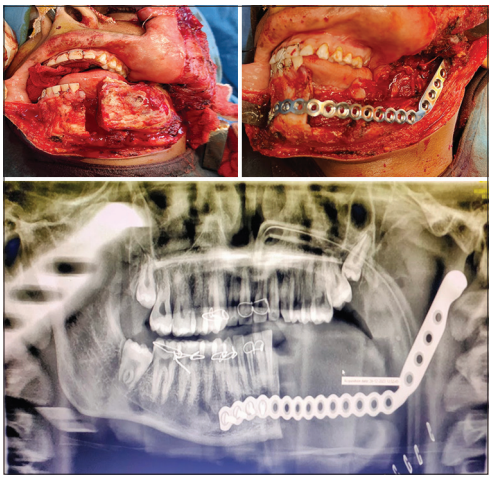

Figure 10: Resection was done from left para symphysis using giglisaw and muscle stripping from mandible was done align the left mandible and hemimandible was removed and recon plate placed

DISCUSSION

The primary objective in all oral and maxillofacial tumor surgeries should be achieving a cure, and this should be the goal from the very beginning. Proper protocol must be meticulously followed when treating patients diagnosed with ameloblastoma, with diligent follow-up to manage recurrences and prevent further complications. Ameloblastoma has a high rate of local recurrence if not thoroughly excised. Common findings associated with ameloblastoma include tooth displacement, inferior alveolar canal displacement or destruction, and displacement of the sinus membrane.[4] Ameloblastoma often recurs after treatment, with recurrence rates of 17.7% for *en bloc* resection and 34.7% for conservative therapy.[5] In our view, radical surgical resection is the preferred treatment, especially for large, expansive tumors, as it is highly effective in preventing long-term relapse.

Choosing the best therapy is crucial and should always aim to eliminate the lesion while considering the morbidity associated with the chosen method and its impact on the patient's life and rehabilitation.

CONCLUSION

Ameloblastoma of the mandible is a rare but locally aggressive odontogenic tumor that requires timely diagnosis and careful treatment planning. This case series highlights the varied clinical presentations of mandibular ameloblastomas, emphasizing the importance of individualized treatment strategies to minimize recurrence while preserving function and aesthetics. Surgical resection, with an emphasis on complete removal and appropriate margins, remains the gold standard to reduce the risk of recurrence. Long-term follow-up is essential, given the potential for late recurrences. Further research into molecular markers and targeted therapies may enhance future management options.

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