Case Report

RESECTION OF AMELOBLASTOMA FOLLOWED BY RECONSTRUCTION WITH NONVASCULARISED ILIAC BONE GRAFT–A CASE REPORT

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ABSTACT

Ameloblastoma is benign but locally invasive odontogenic tumor. More than eighty percent of cases of ameloblastoma occur in mandible. A substantial number of the patients of ameloblastoma present when the tumor has significantly grown in size resulting in severe malocclusion, facial asymmetry and pathological fractures of the jaw. There are several types of amelablastomas but the correct diagnosis can be easily made with the help of plain x-rays and tissue biopsy. The standard management of amelobastoma is marginal resection but some times a large tumor requires complete resection of affected part of mandible. This results in a large defect causing significant facial disfigurement.

The case presented here involves a young lady with the chief complaint of facial asymmetry and inability to chew the food. A diagnosis of unicysticameloblastoma was made on biopsy and resection of mandible was carried out. The mandibular reconstruction was carried out in the same surgery with non-vascularized iliac bone graft. Long term prognosis showed satisfactory healing and good facial aesthetics.

Keywords: Ameloblastoma, Unicystic Ameloblastoma, Odontogenic tumor, Non-vascularized bone graft, Mandibular resection

CASE PRESENTATION

A 24-years-old girl was referred to the oral and maxillofacial surgery department with the complaint of facial asymmetry and swelling on the right side of lower jaw since last 7 years. The clinical examination revealed expansion of the buccal cortical plate on the right side of mandible from the canine to the retromolar region (Figure 1). Her medical history was noncontributory. The radiographic examination showed a radiolucent unilocularlesion extending from the right lower 1st premolar to the retro-molar region. Resorption of the roots was also revealed on OPG (Figure 2).

DIFFERENTIAL DIAGNOSIS

According to the clinical and radiographic features, a differential diagnosis of this lesion includes most of the radiolucent lesions that occur in the posterior mandibular region. The wide list of likely diagnoses included inflammatory odontogeniccysts, for example a radicular cyst; noninflammatory odontogenic cysts, like odontogenickeratocyst; mesenchymal tumors, such as Kaposi sarcoma; odontogenic tumors, such as unicystic ameloblastoma, extrafolicular adenomatoidodontogenic tumor (AOT) and intraosseous leiomyoma; intraosseoushemangioma; central schwannoma and metastatic tumors.

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Figure 1. Clinical presentation of ameloblastoma of body on

right side of mandible.

Figure 2. Orthopantomogram showing unilocular radiolucency with resorption of roots

Radicular cysts and lateral radicular cysts are inflammatory in origin. Persistent inflammatory process results in resorption of bone. Endodontic bacterial are the chief causative agent for these types of lesions.[1]Location of radiolucency adjacent or over the roots of disease tooth or teeth is suggestive of radicular cyst.[2, 3]

The odontogenickeratocyst is a benign uni- or multicysticodontogenic lesion that fairly fits the clinical and radiographic picture of the case presented here. It more frequently involves the posterior region of mandible and can appear as either a unilocular or multilocular radiolucency with sclerotic margins.[4, 5]

The unicystic ameloblastoma perfectly fits the same radiographic characteristics as seen in the present case (unilocular, well-defined area) but is somewhat less common than the cystic lesions. This case shows radiolucency in the body of the mandible that can be a site for such benign tumors. Although unicyctic ameloblastoma is usually located in posterior part of mandible.[6, 7, 8]

DIAGNOSIS:

On the basis of the clinical and radiological features, we opted for exploratory surgery. Incisional biopsy was done under local anesthesia and biopsy report suggested unicystic ameloblastoma.

MANAGEMENT

After taking proper medical history and carrying of baseline investigation the patient was operated under general anesthesia. A 5 inch long incision was given in the right buccal vestibule. Full thickness flaps were raised to access the mandible from midline to the upper extent of ramus (Figure 3). The affected part of the mandible was resected encasing the benign tumor with a safety margin of 1cm on both mesial and distal extents with the help of surgical hand piece and osteotomes (Figure 4 and 5). After achieving hemostasis, maxillomandibular fixation was carried out to secure segments of mandibular bone and to prevent trauma to temporomandibular. The length and width of resected portion of mandible are measured in vitro (Figure 6).

Figure 3-5. Step by step procedure of

resection of mandible

Figure 6. The resected portion of mandible with involved teeth

A second incision was given on the right iliac crest to expose the iliac bone. The desired length of iliac bone was obtained with the help of osteotomes and surgical hand piece and the surgical site was closed (Figure 7). The bone graft was modified and trimmed according to the size of resected mandible. Small perforations were made in this nonvacularized bone graft to ensure proper vascularization (Figure 8). A miniplate was used to fix the distal end of graft while the proximal end was secured with the condylar neck by transosseous wiring. The surgical site was closed with the help of resorbable and nonresorbable sutures.

Figure 7. Graft is being taken from iliac crest

Apart from moderate local edema both the surgical sites started healing uneventfully. Patient was discharged on oral antibiotics and analgesics. Maxillomandibular fixation was relieved after a period of 4 weeks. Postoperative radiographs showed satisfactory bony healing (Figure 9).

Figure 8. Non-vascularized bone graft is ready for use

Figure 9. Post-surgical intraoral, extra oral and radiographic picture of the patient

Establishment of continuity of mandible helped in achieving acceptable facial esthetics (Figure 10 and 11).

Figure 10. Post-surgical intraoral, extra oral and

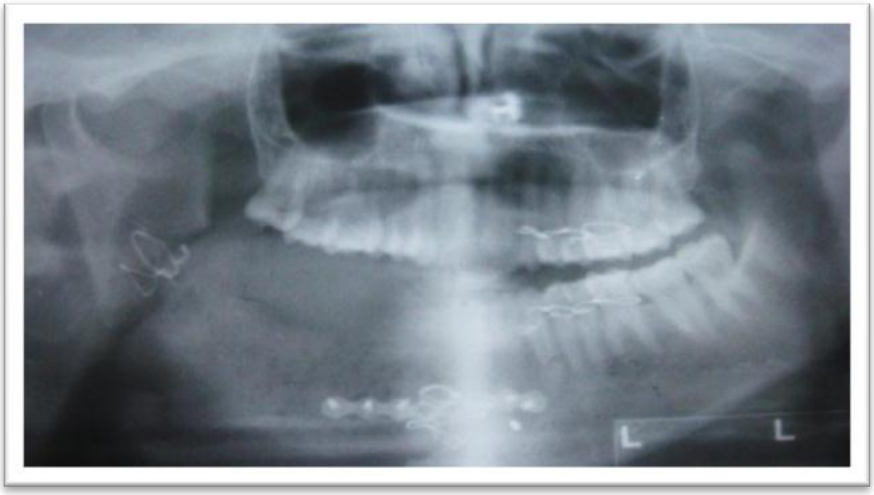

Figure 11. Post-surgical intraoral, extra oral and radiographic picture of the patient

radiographic picture of the patient

DISCUSSION

Ameloblastoma is among commonest benign odontogenic tumor second only to odontoma in prevalence. An ameloblastoma can occur at any location in both jaws but it is mandible that is involved in around 80% of cases.[9] This slow growing tumor is known for its aggressive nature and infiltrative pattern of growth. The most common age of presentation is from 3rd to 5th decade of life.[10] Rapidly growing ameloblastoma of mandible results in facial asymmetry, displacement of teeth resulting in malocclusion, loose teeth, and pathological fractures of jaw. A typical ameloblastoma presents as a painless slowly growing bony hard swelling but there can be parasthesias if a nerve is involved.[11]Similar clinical picture of 60 cases of ameloblastomas was reported by Becelli *et al*.[12]

The diagnosis of ameloblastoma can be made from orthopantomograms and tissue biopsy. An amelobastoma may have unilocular or multilocular appearance on a radiograph. CT scans can be of great help in obtaining a three dimensional picture of extents of ameloblastoma.

The high recurrence rate of ameloblastoma has made excision with wide free margins as standard treatment option. Those cases in which only a thin plate of cortical bone is spared en bloc resection or hemi mandibulectomy may be performed. Unicysticameloblastoma is less aggressive type as compared to multicyctic one. But still the treatment of choice remains en bloc resection as a study carried out byEpply showed 25-60% recurrence rate in enucleation plus curettage cases versus 0% recurrence in cases treated with enbloc resection.[13]

Reconstruction of large defects of mandible has never been easy. Good mandibular reconstruction not only results in good esthetics and structures integrity but functions like chewing, speech and swallowing are also restored to a greater extent. There are several ways of regaining continuity of lower border of mandible including use of reconstruction plates and either vascularized or non-vascularized autogenous bony grafts. The autogenous grafts can be taken from fibula, iliac crest, scapula and radial forearm but using iliac crest for mandibular reconstruction is the simplest option that also gives the liberty to take larger chunks of bone. The method of using intraoral incision and doing mandibular reconstruction in the same surgery was introduced by Shirani et al 2007.[14] Similar technique employed in this case enabled us to prevent facial deformity due to ugly scar and any trauma to the marginal mandibular nerve. In addition, the advantage of treating pathology and doing reconstruction in same surgical procedure decreased the morbidity as well as the cost of two separate surgeries.

CONCLUSION

Complete resection of mandibular tumors minimizes the chances of tumor recurrence but the large boney defect asks for timely reconstruction to restore esthetics and function. Availability of a plastic surgery reconstruction team is very desirable but use of iliac grafts for mandibular reconstruction remains a valid option for oral and maxillofacial surgeons especially those working in facilities where plastic surgeons are not available.

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