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Review Article

Ameloblastoma: A retrospective analysis of 31 cases

Girish B. Giraddi*, Kirti Arora, Aamir Malick Saifi

Department of Oral & Maxillofacial Surgery, Government Dental College & Research Institute, Bangalore, India

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ABSTRACT

Aims and objective: To evaluate the surgical treatment given and do a regular follow up to study the recurrence rate and complications of ameloblastoma in our institution.
Materials and methods: A total of 31 cases of various subtypes of ameloblastoma, treated with different modalities, in the Department of OMFS, were recalled for a follow up & radiographs were taken along with the clinical examination for any recurrence or complications such as fracture/exposure of the reconstruction plate, loosening of the screw, infection of the graft, any draining sinus/signs of infection.
Results: Two of our patients had fractured reconstruction plate, one patient developed infection, one patient complained of screw exposure and two other patients had infection of the iliac graft.
Conclusion: We conclude that an adequate resection with a safe margin could be a treatment option and can be undertaken depending on the extent, location of the lesion and histopathologic variant.

Contents

1. Introduction

The ameloblastoma is a true neoplasm of enamel organ – type tissue which does not undergo differentiation to the point of enamel formation. It has been described by Robinson as a tumor that is "usually unicentric, nonfunctional, intermittent in growth, anatomically benign and clinically persistent."[1]

According to WHO 1992, ameloblastoma is defined as, "a benign but locally invasive polymorphic neoplasm consisting of proliferating odontogenic epithelium, which usually has a follicular or plexiform pattern, lying in a fibrous stroma".[2]

Early symptoms usually are absent and the tumors are rarely diagnosed in the initial stages. Typically, it presents as a slow-growing and painless swelling. Melisch and coworkers noted that apart from swelling, patients can also complain of pain,[3,4] draining sinuses,[3] and ulcerations.[3] Other manifestations, which are less common, include mobile teeth, ill-fitting dentures, malocclusion, and nasal obstruction.[4]

Ameloblastoma occurs four times more commonly in mandible as compared to the maxilla. Out of 1207 cases reported, around 80.8% (975) were located in the mandible and remaining 19.2% (232) in the maxilla. In both jaws, ameloblastoma occurs more commonly in the posterior region (69.8% of 336 cases).[4]

Clinically, there are three different types of ameloblastoma – the intraosseous solid or multicystic lesion, the well circumscribed unicystic type, and the rare peripheral (extraosseous) ameloblastoma. As each clinical type requires different form of treatment, it is important to distinguish between different forms of ameloblastoma.[4]

Controversy still exists with regards to the type of treatment used for a different type of ameloblastoma. In this regard, present study was designed to share the experience of the authors for the

* Corresponding author.
E-mail address: girishgiraddi@gmail.com (G.B. Giraddi).

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treatment of ameloblastoma at their institution. The purpose of this study was to evaluate the surgical treatment given, to do a regular follow up and to study the recurrence rate and complications of ameloblastoma in our institution. WHO classification was followed in the present study,[6] which classifies ameloblastoma into four variants viz, Solid/Multicystic, Unicystic, Desmoplastic and Peripheral/Extraosseous.

2. Material and method

This retrospective study was conducted on patients who have been treated for ameloblastoma in the department of maxillofacial surgery from Jan 2006 to Dec 2013. The outcome of the surgery and the recurrence rate or complications, if any were evaluated.

The patients treated for ameloblastoma were recalled. All the available cases were reviewed on an out-patient basis. Data regarding age, gender, localization, pre-operative diagnosis, histopathological (HP) subtype and type of surgery were retrieved from the case files. Routine follow up examination was carried out consisting of both radiological (OPG, PNS and CT scan, if required), and a thorough clinical examination (which included parameters like pain, swelling, draining sinus, fracture of the reconstruction plate, exposure of the reconstruction plate). Further data was analysed for site and size of the tumour, surgical technique, and for recurrence if any.

2.1. Surgical Technique

General anesthesia was induced and secured with naso-endotracheal intubation. Patient was scrubbed, painted and draped according to the standard surgical protocol. 2% lignocaine with epinephrine was given at the surgical site. In the mandible, a sub mandibular incision was given (depending on the extent of the lesion pre operatively) and layered dissection was carried out to expose the tumor mass (Fig. 1). Intra oral reflection was done to expose the lesion. In maxilla, a standard Weber- Ferguson incision was used along with vestibular incision to expose the maxilla. Osteotomy cuts were given on the proximal as well as the distal side of the lesion, keeping 1 cm of safe margin from either side. With a no. 8 round bur the osteotomy cuts were joined and with the help of a chisel and mallet, the segment of bone was removed. Depending on the size of the lesion such resection took the shape of marginal mandibulectomy, segmental resection or hemimandibulectomy with or without disarticulation in the mandible and in maxilla partial maxillectomy to total maxillectomy (Fig. 2). All the

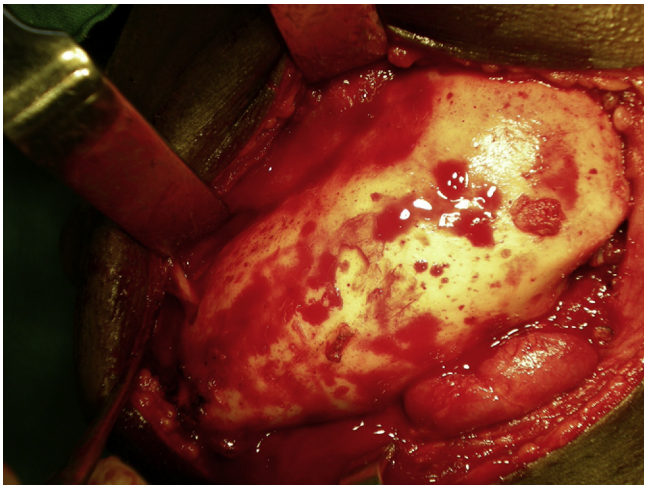

Fig. 1. Exposure of tumour mass.

Fig. 2. Resected tumour mass.

bony margins were smoothened with large round bur. Resected specimen was preserved in formalin and sent to a pathologist for further evaluation.

In the mandible, reconstruction was done using reconstruction plate. Intraoperative IMF was done to secure the occlusion. A titanium reconstruction plate was adapted and fixed using 2.5×10 mm screws on either side. A minimum of 3 screws were placed both on the proximal and distal segment. Few patients underwent iliac graft reconstruction as well. Copious irrigation with saline was done. Layered closure done using 3-0 polyglactin for oral mucosa and muscle after achieving hemostasis. 4-0 polypropylene was used for skin closure. Pressure dressing was applied to the patients.

Some patients with unicystic ameloblastoma underwent conservative procedure enucleation under general anesthesia. 2% lignocaine with epinephrine was given intraorally along the planned surgical site. An intraoral incision was placed and a mucoperiosteal flap reflected (site and length depending on the site and extent of the lesion), providing adequate access to the lesion. Enucleation of the lesion was done followed by peripheral ostectomy removing about 1 mm of bone all around the lesion resulting in removal of any lining or remaining tissue as well as all undulations to produce a smooth bony wall. This was done using large round bur. Carnoy's solution was then applied for a minimum of 5 minutes. Copious irrigation was done with saline to remove any remnants of the solution. After achieving hemostasis, closure of the site was done using 3-0 polyglactin.

Post operatively, the patients were evaluated for any bleeding, pain, swelling or any discomfort and were kept under observation. A radiograph was taken the next day and preserved for further reference. Radiographic and clinical examinations were done on every follow-up visits.

3. Results

17 females (54.83%) and 14 males (45.16%) were diagnosed with ameloblastoma. The average age of the patients was 33.61 years with a mean age for female patients 34.7 years and a mean age for males as 32.28 years. However, the average age of patients with SMA was 37.4 years, for UA was 23.8 years and for DA was 46.5 years (Table 1)

90.32% of our cases occurred in mandible while 9.67% of cases were seen in maxilla (Table 2). The posterior region was affected the most, of which 64.51% of the cases were present in the body and the angle region of the mandible. 48.38% of our cases involved

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