



Demographic Profile of Ameloblastoma: A Retrospective Study in North Karnataka

Authors

Dr Kavitha B^{1*}, Dr Deepak Bhorgonde²

¹Reader, Department of Oral Pathology & Microbiology, S.B. Patil Dental College & Hospital, Bidar, Karnataka

²Professor, Department of Prosthodontics, S.B. Patil Dental College & Hospital, Bidar, Karnataka

*Corresponding Author

Dr Kavitha B

Reader, Department of Oral Pathology & Microbiology, S.B. Patil Dental College & Hospital, Bidar, Karnataka

Abstract

Background: Ameloblastoma is an odontogenic tumour of epithelial origin that mainly affects the jaw, and less commonly the maxilla. It presents as an asymptomatic slow-growing tumor. Despite being a benign tumor, it has an invasive behaviour with a high rate of recurrence.

Objective: The purpose of the study was to find out the demographic profile of ameloblastomas in the region of North Karnataka.

Methods: Ours is a retrospective study, obtaining data from private clinics in North Karnataka. The details recorded were age, gender, site, histopathological variant, type of treatment, complications and recurrence.

Results: Details of 50 cases could be retrieved. Males were predominant (32 cases; 64%). The mean age was 38.40 years. All the cases were located in posterior mandible. After surgery 5 cases (10%) had history of recurrence.

Conclusion: Ameloblastoma is one of the most commonest odontogenic tumour, with recurrence potential if not treated properly.

Keywords: Ameloblastoma, Segmental resection, Odontogenic tumors, Recurrence.

Introduction

Ameloblastoma is an odontogenic tumor occurring mostly in mandible. The term ameloblastoma was suggested by Ivy and Churchill later in 1960, based on its odontogenic origin. Studies have now confirmed that the epithelial cell of origin is the ameloblast cell by targeting the protein by-product of the cell which is amelogenin. It represents about 11% of all

odontogenic tumors. It originates from epithelial remnants of intra and/or extra-osseous location. It is characterized by slow and painless swelling. Most of the cases have been diagnosed between the third and fifth decades of life.¹⁻³

It is a benign tumour but has aggressive characteristics such as persistent growth and locally invasive to surrounding structures. Ameloblastomas usually present as a painless

swelling, slow growing mass, expansion of jaw bones, perforation of mandible or maxilla cortical plates and infiltration to surrounding soft tissue or sinonasal structure. Radiographically it can appear as unilocular or multilocular radiolucent images, with bone erosion. The ameloblastoma also has a few variations in histopathological appearance, but the most common types are follicular and plexiform. The treatment of choice follows a radical surgical approach encompassing wide resection procedures of the jaw such as marginal, segmental, and composite resections.^{4,5}

The aim of this study was to determine the demographic profile of ameloblastomas in the region of North Karnataka.

Materials and Methods

A retrospective study was conducted by obtaining data from private clinics in of North Karnataka. The details recorded were age, gender, site, histopathological variant, type of treatment, complications and recurrence. The study period was between January 2018 to December 2018. Case details of all the patients were retrieved from the clinic records.

Inclusion Criteria

1. Cases of Ameloblastoma
2. Dental clinics of North Karnataka

Exclusion Criteria

1. Patients with follow-up less than 12 months were excluded
2. Odontogenic lesions other than ameloblastoma were excluded

The collected data were subjected to descriptive statistical analyses with the SPSS version 17.0 statistical software package (SPSS Inc., Chicago, USA). The critical level of significance was set at p<0.05.

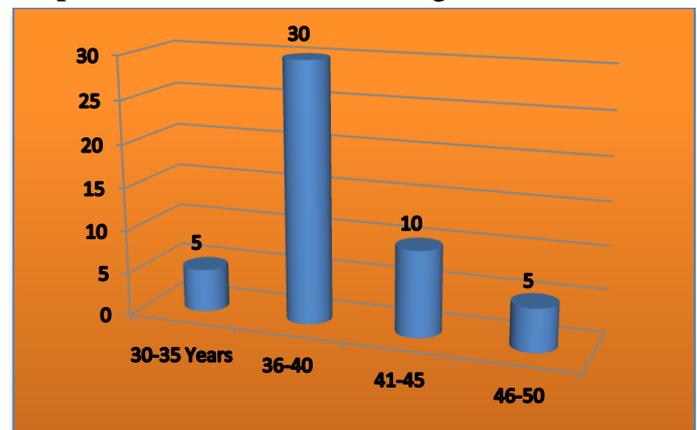
Results

A total number of 50 cases could be retrieved. Males were predominant (32 cases; 64%). The age of the patients ranged from 30 to 50 years, with a mean age of 38.40 years (Table 1 and Graph 1).

Table 1: Distribution of Cases Age-wise

S No	Age Group	Number Of Cases	Percentage Of Cases
1	30-35	5	10%
2	36-40	30	60 %
3	41-45	10	20%
4	46-50	5	10%
5	Total	50	100%

Graph1: Distribution of Cases Age-wise



All the cases were located in posterior mandible. 5 cases (10%) crossed the midline. 20 cases (40%) had involvement of the mandible body and angle or angle and ramus; in 25 (50%) cases the lesion advanced to the body, angle, ramus and condyle. Facial asymmetry was the foremost complaint in 70% (35 cases). The commonest histopathological variant was follicular (60%) (Fig 1), followed by plexiform (20%) and 20% cases were of unicystic variant (Fig 2 and 3) (Table 2 and Graph 2).

Fig 1: Follicular Ameloblastoma

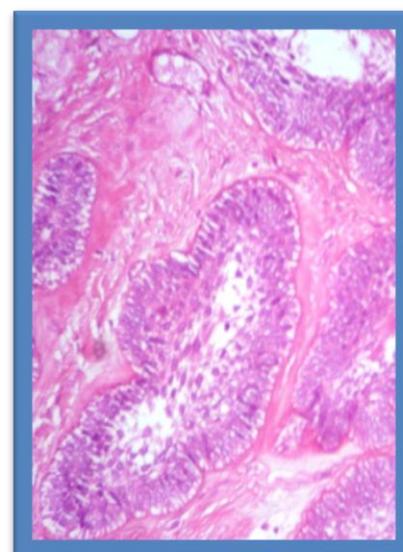


Fig 2: Unicystic Ameloblastoma

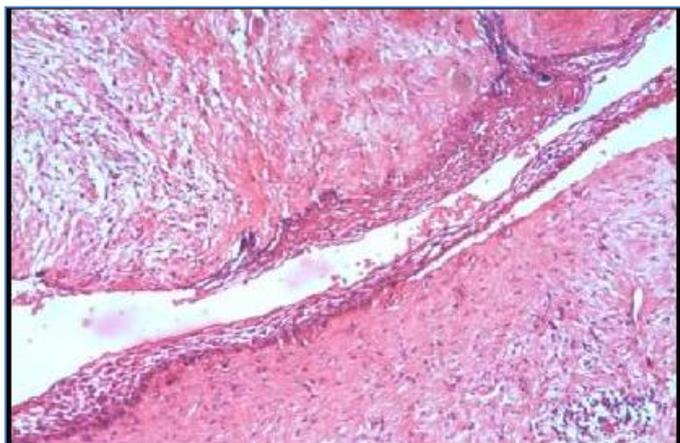


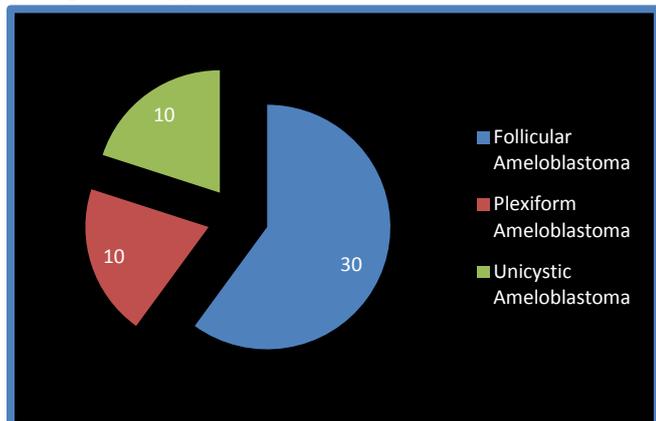
Fig 3: OPG -Unicystic Ameloblastoma crossing Midline



Table 2: Distribution of Cases according to Histopathology

SNO	VARIANT		NUMBER OF CASES	PERCENT AGE OF CASES
1	Solid/ Multicystic	Follicular Variant	30	60%
		Plexiform Variant	10	20%
2	Unicystic		10	20%
3	TOTAL		50	100%

Graph 2: Distribution of Cases according to Histopathology

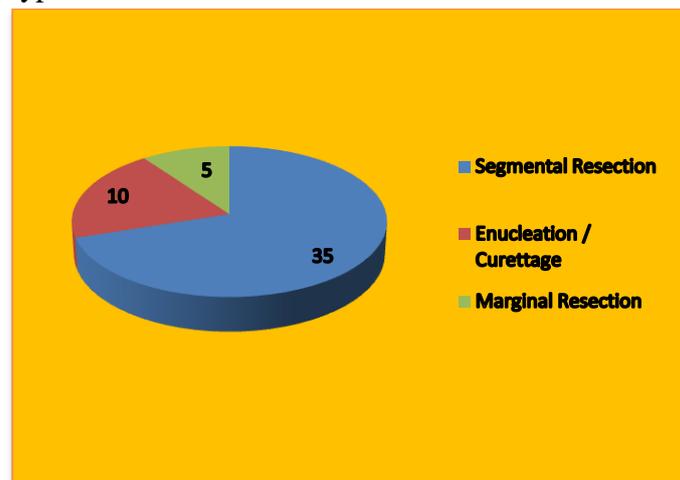


Of 50 cases, 35 (70%) were treated by segment resection of the mandible; 10 (20%) by enucleation or curettage, 5 (10%) by marginal resection of the mandible. The mandibular reconstruction, when indicated, was carried out with the miniplate for mandibular reconstruction and/or iliac crest bone graft (Table 3).

Table 3: Distribution of Cases according to the Type of Treatment

Sno	Treatment Type	Number of Cases	Percentage of Cases
1	Segmental Resection	35	70%
2	Enucleation / Curettage	10	20 %
3	Marginal Resection	5	10%
5	Total	50	100%

Graph 3: Distribution of Cases according to the Type of Treatment



After surgery, wound infections was observed in 10 cases (20%) patients. Tumor recurrence was seen in 5 cases (10%) after curettage.

Discussion

Ameloblastomas are an enigmatic group of oral tumors. They are usually benign in growth pattern, but frequently invade locally and occasionally metastasize.⁴

Few studies showed equal gender distribution, but we found a male predominance.^{1, 6} The age of the patients ranged between 30 to 50 years, with a mean age of 38.40 years, similar to previous studies.^{1, 2} The diagnosis of ameloblastoma can be obtained by means of a panoramic x-rays and

histopathology. Radiographically it can appear as unilocular or multilocular radiolucent (most of the cases), with bone erosion.^{3,4}

It may be associated with impacted teeth and cause radicular resorption. Facial asymmetry was the most common complaint in many studies, as was in our study.¹ As far as location is concerned, the mandible was the most frequent site.¹⁻³ Our findings also are in accordance with other studies, but we noticed 100% cases in mandible. There is no standardization in the literature as to mandible regions affected. A pattern of predominance of solid/multicystic ameloblastoma over unicystic variant of ameloblastoma have been established by some studies, which was seen in our case also.^{3,4} The commonest histopathological variant was follicular (60%) followed by plexiform (20%). This finding is similar to Rusdiana et al.²⁻⁴ There are numerous methods for treatment, including enucleation and/or curettage, marginal en-block resection or hemiressection (hemimaxillectomy or hemimandibulectomy). However surgery is the most indicated treatment approach, because of its resistance to radiotherapy. The choice of treatment depends on lesion size, type, location and general patient condition. After segment resection, it is essential to rebuild it, with bone graft and/or a titanium plate and screws. 5 cases had recurrence, whereas Luciano et al¹ found recurrence in 4 cases (12.12%), three (9.09%) after curettage and one (3.03%) after maxillectomy. For the plexiform and follicular types, radical surgery is the best procedure, with a safety margin of 1.5 and 3.0 cm and, for the unicystic type, bone curettage is indicated.⁷ Nakamura *et al.* compared the long-term results of 78 cases of ameloblastoma, obtained a recurrence rate of 7.1% after radical surgery and 33.3% after conservative treatment. They recommended wide jaw resection as the best treatment for ameloblastoma.⁸ Sassi *et al* found a recurrence rate of 13% of cases. Lower recurrence rate was observed with radical surgical treatment.⁹ According to Doenja Hertog *et al* in the 28 patients who were treated by enucleation, the

recurrence rate reached about 60% over a mean follow-up of 8.3 years.¹⁰ It is believed that the recurrence rate is related to many factors such as tumor subtype, methods of treatment and tumor behavior. It is recommended that a long period of clinical and radiographic follow-up, because recurrence may occur after a long period after treatment.¹¹⁻¹⁴

Conclusion

The ameloblastoma is usually of late diagnosis because of its poor symptomatology and low prevalence. There is a need for a routine histological classification of the ameloblastoma for its morphological characterization and, thus, a better treatment definition. Nonetheless, the main success factor associated with the treatment is the early diagnosis and treatment.

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