

## Original Research

### Evaluation of histopathologic variants of Ameloblastoma in a known population

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#### ABSTRACT:

**Background:** Ameloblastoma is one of the most commonly occurring odontogenic tumors of jaws. The present study was conducted for evaluating the histopathologic variants of Ameloblastoma in a known population. **Materials & methods:** 33 cases of ameloblastoma were extracted for detailed analysis. Haematoxylin and eosin stained sections of the ameloblastomas were retrieved and reviewed in order to reconfirm the diagnosis and where necessary, revise the diagnosis in light of available clinical and histological details and the WHO histological typing of odontogenic tumours. After review, 30 of the 33 cases were confirmed as ameloblastomas and were categorised into different histological types based on the presenting histological features. **Results:** Among histopathological types, solid/multicystic was most common with 20 (66.67%) cases. 10 (33.33) cases were of unicystic variety. Among solid/multicystic, plexiform pattern was most frequent with 10 cases followed by follicular with 8 cases. **Conclusion:** These data may serve as baseline information on occurrence of various histopathological types of ameloblastoma and helps comparing it with other similar studies conducted in different geographic population.

**Key words:** Ameloblastoma, Histologic

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#### INTRODUCTION

Ameloblastoma is one of the most commonly occurring odontogenic tumors of jaws. It represents one percent of all tumors of head and neck region. Robinson defined ameloblastoma as "unicystic, nonfunctional, intermittent in growth, anatomically benign and clinically persistent tumor." It may arise from residual epithelium of tooth germ, odontogenic cysts or enamel organ. The theory of an odontogenic origin for ameloblastoma is supported by the occurrence of tumor in the tooth-bearing areas. WHO (2005) classified ameloblastoma into (a) solid/multicystic, (b) unicystic, (c) extraosseous/peripheral and (d) desmoplastic. There are two basic histopathologic patterns in solid/multicystic ameloblastoma: (1) follicular and (2) plexiform. Other microscopic patterns of ameloblastoma include acanthomatous, basal cell-like and granular cell. These patterns can be uniform or

mixed. In different parts of the world, the distribution of ameloblastoma varies to a certain extent.<sup>1-4</sup>

Amongst the ameloblastomas, there is now more detailed reference to the unicystic variety because both the surgical management and prognosis of these lesions are significantly different from that of other ameloblastomas. Also of note are the desmoplastic ameloblastoma and the keratoameloblastoma. The squamous odontogenic tumour has become accepted as a distinctive lesion rather than a variant of ameloblastoma. Although it has an infiltrative pattern of growth, most cases respond to curettage, and recurrence is rare.<sup>5-7</sup> Hence; the present study was conducted for evaluating the histopathologic variants of Ameloblastoma in a known population.

## MATERIALS & METHODS

The present study was conducted for assessing the histopathologic variants of Ameloblastoma in a known population. Biopsy reports of all histologically diagnosed cases of ameloblastoma were retrieved. 33 cases of ameloblastoma were extracted for detailed analysis. Haematoxylin and eosin stained sections of the ameloblastomas were retrieved and reviewed in order to reconfirm the diagnosis and where necessary, revise the diagnosis in light of available clinical and histological details and the WHO histological typing of odontogenic tumours. After review, 30 of the 33 cases were confirmed as ameloblastomas and were categorised into different histological types based on the presenting histological features. Data on incidence, age, sex and site of lesions were analysed descriptively for the various variants of ameloblastoma.

## RESULTS

A total of 30 cases of ameloblastoma of the oral cavity and the jaws were considered. Of the 30 cases, 21 patients were males and 9 were females. The age of occurrence for ameloblastoma of both jaws ranged from 10 to 72 years with a mean age of 38.6 years. Of 30 cases, 3 (10%) cases of ameloblastoma crossed the midline. 90 percent of the cases occurred in mandible. Among histopathological types, solid/multicystic was most common with 20 (66.67%) cases. 10 (33.33) cases were of unicystic variety. Among solid/multicystic, plexiform pattern was most frequent with 10 cases followed by follicular with 8 cases.

**Table 1:** Histopathologic variant of Ameloblastoma

Type	Number	Percentage	
Solid	Plexiform	10	33.33
	Follicular	8	26.67
	Acanthomatous	2	6.67
Unicystic	10	33.33	

## DISCUSSION

Ameloblastoma is a neoplasm of odontogenic epithelium, principally of enamel organ-type tissue that has not undergone differentiation to the point of hard tissue formation. It accounts for about 1% of all oral tumors and about 9-11% of odontogenic tumors. It is generally a slow-growing but locally invasive tumor. Its peak incidence is in the third to fourth decades of life and the male: Female ratio is 1:1.<sup>6-8</sup> Hence; the present study was conducted for evaluating the histopathologic variants of Ameloblastoma in a known population.

A total of 30 cases of ameloblastoma of the oral cavity and the jaws were considered. Of the 30 cases, 21 patients were males and 9 were females. The age of occurrence for ameloblastoma of both jaws ranged from 10 to 72 years with a mean age of 38.6 years. Of 30 cases, 3 (10%) cases of ameloblastoma crossed the midline. 90 percent of the cases occurred in mandible. Hertog D et al examined all cases of intraosseous

benign ameloblastomas. Of the 28 patients treated by enucleation, in 17 patients one or more recurrences occurred, with no significant predilection for any histopathological (sub)type, including the unicystic type. There were no significant differences in the recurrence rate after enucleation in patients below and above the age of 20 years either. In six out of 17 patients with a recurrence, the recurrent lesion showed a different histopathological subtype than was encountered in the primary. In two cases a change from solid/multicystic to desmoplastic ameloblastomas was noticed.<sup>9</sup>

Among histopathological types, solid/multicystic was most common with 20 (66.67%) cases. 10 (33.33) cases were of unicystic variety. Among solid/multicystic, plexiform pattern was most frequent with 10 cases followed by follicular with 8 cases. Patsa S et al determined the demographic and histopathological variations of ameloblastoma in Eastern Indian population by retrospectively comparing and evaluating diagnosed cases of ameloblastoma using different parameters. Among 148 patients, 88 (59.45%) were male and 60 (40.55%) were female. A maximum number of cases (101 of 148) of ameloblastoma were found in the second to fourth decades of life. Mandibular posterior region was commonly involved (48.6%). Solid/multicystic variety was found in 63.1% followed by unicystic with 21.5%. We found one case each of extrasosseous and desmoplastic ameloblastoma. It was difficult for panel of experienced oral pathologists to pinpoint the exact type in 15 (10%) cases, this was due to mixture of follicular and plexiform variety with equal presence of both types of architecture, without predominance of any variety in particular.<sup>10</sup> Mahmoud SAM conducted a population-based study of malignant ameloblastoma to determine its incidence rate and absolute survival. They looked at 293 patients across the United States and found that the overall incidence rate of malignant ameloblastoma was 1.79 per 10 million persons/year. The rate of incidence was higher in males than females and also higher in the black versus white population. They also found that malignant ameloblastoma, comprising the two types, metastasizing ameloblastoma, and ameloblastic carcinoma, represents 1.6 to 2.2% of all odontogenic tumors. Their findings confirmed previous epidemiologic research, which showed the male to female ratio to be between 2.3 and 5.<sup>11</sup>

## CONCLUSION

These data may serve as baseline information on occurrence of various histopathological types of ameloblastoma and helps comparing it with other similar studies conducted in different geographic population.

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