CODEN [USA]: IAJPBB ISSN : 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES
SJIF Impact Factor: 7.187
http://doi.org/10.5281/zenodo.4317329

Avalable online at: http://www.iajps.com *Research Article*

STUDY TO KNOW THE VARIOUS HISTOPATHOLOGICAL VARIANTS OF AMELOBLASTOMA AMONG THE POPULATION OF RAWALPINDI: A RETROSPECTIVE STUDY

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Article Received: October 2020 **Accepted:** November 2020 **Published:** December 2020

Abstract:
Background: *Ameloblastoma is a locally invasive odontogenic tumour arising from the remnants of dental organ and dental lamina and is a highly destructive benign tumour of odontogenic origin. Nine percent of odontogenic tumours are ameloblastomas.*
Study Design: *This was a retrospective study.*
Place and Duration of Study: *This study was conducted at the Rawal Institute of Health Sciences, Islamabad, for the duration of six months from January 2020 to July 2020.*
Methods: *The histological variants of Ameloblastomas are manifold, follicular, plexiform and acanthomatous are the most common ones among them. Ameloblastomas are classified radiologicaly into unilocular, multilocular and peripheral types. The present study is a descriptive retrospective study conducted to evaluate the histopathological variants of ameloblastoma.*
Results: *The histopathological reports of the patients were reviewed for a period of 10 years. 40 patients were included in the study. Prevalence rate of 7.4% was seen. Age range of the patients of ameloblastoma was from 20-60 years. The most common age groupwas in the 3rd decade of life with more male predilection.*
Conclusion: *The most common variant of ameloblastoma was of follicular variety. The most common site of occurrence of follicular ameloblastoma was posterior mandible.*
Keywords: *Ameloblastoma, Follicular, Odontogenic Tumour.*

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Please cite this article in press Roheen Fatima et al, ***Study To Know The Various Histopathological Variants Of Ameloblastoma Among The Population Of Rawalpindi: A Retrospective Study.,*** *Indo Am. J. P. Sci, 2020; 07(12).*

INTRODUCTION:

Ameloblastoma a locally invasive odontogenic tumour arising from the remnants of the dental lamina and dental organ or odontogenic epithelium. It is a highly destructive benign tumour of odontogenic origin and represents 9% of all odontogenic epithelium.[1] It has a strong tendency of recurrence in patients who undergo conservative surgical removal. Ameloblastoma has a rather contradictory histological and clinical behavior.[2] There has been a lot of work done using different immunehistochemical and biochemical methods to find out the proliferative activity and to find out the expres¬sion of metalloproteinase and growth factor receptors.[3] The histopathological grading of ameloblastoma can be done on the different variants of histological types of ameloblastomas among which the follicular and the plexiform type of ameloblastoma are more common frequently encountered types.[4] Ameloblastomas are classified radiologically as unicystic, multicystic and peripheral types. While they are classified according to the histopathological variants as follicular, plexiform, acanthomatous and granular cell types, followed by basal cell ameloblastoma, desmo¬plastic and clear cell variants, which are the uncommon forms of ameloblastoma according to its histological picture.[5] These categories of ameloblastoma are put into different categories on the basis of age when pre¬sented site, clinical behaviour and radiographic features and prognosis.[6] Peripheral ameloblastoma are formed outside the bone and are slow growing pedunculated or sessile mass with no involvement of the underlying bone and appears on the gingiva and alveolar mucosa and intraosseous ameloblastoma arise in the jaw bone.[7] The present study is aimed at the various histo¬pathological variants of ameloblastoma presenting to pathology unit of Govt. medical college & hospital Srinagar. The study will help the clinicians to determine the most com¬mon histopathological variant of this very aggressive locally invasive odontogenic tumour.

MATERIALS AND METHODS:

This retrospective study was conducted in the This study was conducted at the Rawal Institute of Health Sciences, Islamabad, for the duration of six months from January 2020 to July 2020. A total of 540 cases with odontogenic tumors were reviewed from the department of general pathology for the period mentioned. The histopathological reports of ameloblastoma were categorized as follicular, plexiform, acanthoma¬tous, basal cell, desmoplastic and granular cell types. The different genders, age groups of the patient, along with the histopathological variants and anatomic site were recorded from the department records. The data was entered in SPSS version 20 and analysed using descriptive statistics and later presented in the form of tables and figures.

RESULTS:

Table 1: Histopathological distribution of ameloblastoma according to age.

Histopathological variant	Age group of patient in years				
	21-30	31-40	41-50	51-60	Total
Follicular	5	6	3	3	17
Plexiform	3	3	4	0	8
Acanthomatous	4	4	2	1	13
Granular	0	1	0	1	2
Basal	0	0	0	0	0
Desmoplastic	0	0	0	0	0
Total	12	14	9	5	40

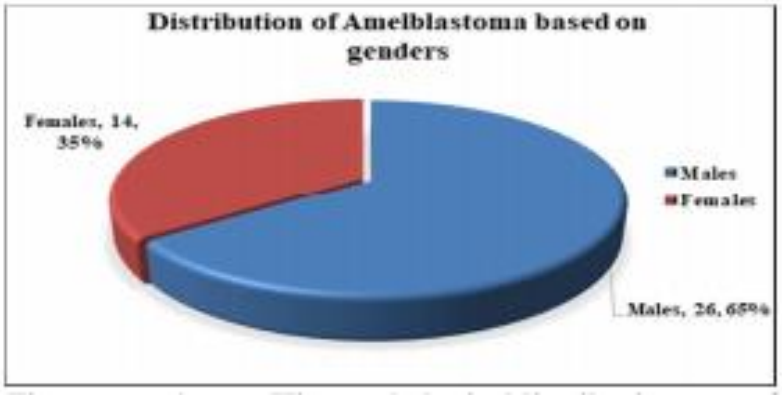

Table 2: Histopathological variants of Ameloblastoma according to the location and gender.

Histopathological variant	Mandible		Maxilla	
	Male	Female	Male	Female
Follicular	9	6	2	1
Plexiform	4	3	1	0
Acanthomatous	7	4	1	0
Granular	2	0	0	0
Basal	0	0	0	0
Desmoplastic	0	0	0	0
Total	22	13	4	1

In this study, of the total 540 odontogenic tumors, 40 patients with ameloblastomas were included with an overall prevalence rate of 7.4%. Males were predominantly affected with male:female ratio of 1.8:1 (26 males, 14 females). The age range of ameloblastoma was between 21-60 years but most of the ameloblastomas were seen in age group of 31-40 years, The most common histological variant was follicular ameloblastoma 42.5% followed by acanthomatous type (32.5%). Two of the patients reported with the most aggressive form of ameloblastoma i.e., granular cell type. The predominant anatomical distribution of ameloblastoma was in the Mandible (posterior region) (87.5%) while maxilla (posterior region) was affected in 12.5% of the cases.

DISCUSSION:

Ameloblastomas are of ectodermal origin. They arise from epithelium enriched with the potentiality of oncogenesis. There are many variants of ameloblastomas, but the cell type tends to mimic the ameloblast. There is variation in size and shape of cell from a tall columnar to a low cuboidal form, occasionally a squamous metaplasia and is pigmented. The tumour always arise as a solid tumour, which becomes cystic with age and development, except the melanoameloblastomas.8 The current concept of ameoblastoma is to define ameloblastoma into solid or multicystic types, unicystic subtypes, peripheral, and classical intraosseous types. The unicysticameloblastoma has a less aggressive behaviour as compared to solid multicystic types which are locally aggressive and recur if the excision is not complete.[9] The recurrence rate affects the histopathological grading of ameloblastoma.[10] The recurrence rate of desmoplastic, plexiform, unicystic ameloblastomas are relatively high.[11] Socioeconomic conditions have an influence on the clinical and demographic outcomes, there are genetic factors which affect the pathogenesis of the different types of ameloblastomas and their outcome.[12] The follicular and plexiform patterns of ameloblastoma have similar growth patterns and locally invasive behavior but their recurrent rates are different. In our study the prevalence rate of ameloblastoma was 7.4%. In a study conducted by Al Sheddi MA et al, ameloblastoma accounted for 25% of odontogenic tumors.[13] This is more than 11% to 18% suggested by Siar et al,[14] but still quite less than the

percentage reported for populations in China and Egypt.[15-17] In assessing the age distribution of all ameloblastomas in this study, age of incidence was in the 3rd decade of life which was similar to the studies of Ladeinde et al.[18,19] Other studies also showed age distribution during the second and third decades.[1,20] Generally no gender preference for ameloblastoma is reported in the literature,[21] however in Thai population it showed slightly male predilection.[17] which was in accordance to our study, showing male predilection with a male:female ratio of 1.8:1. In agreement with virtually all previous studies, the mandible was by far the most common location for ameloblastoma.[22,23] Our study too showed 87.5% occurrence in posterior mandible while maxilla (posterior region) was affected in 12.5% of the cases. Our observation showed that follicular ameloblastoma was the most prevalent histological variant with 42.5% in the present study and agrees with reports in the literature.[24-26] A study conducted by Muslim et al also showed similar results.[19] This was followed by acanthomatous type (32.5%). Two of the patients reported with the most aggressive form of ameloblastoma i.e., granular cell type (64.9%). It should be noted however that in some cases the assessment of predominant histological pattern is undoubtedly subject to some degree of sampling error since it is well known that large ameloblastomas often show a mixture of several histological patterns. Consequently, an accuracy of assessment with respect to the predominant histological subtype based on small biopsy specimen may be questioned.

CONCLUSION:

The present study concludes that follicular type was the most common histopathological variant of ameloblastoma followed by acanthomatous and plexiform types. The most common age range was in the 3rd decade of life with more male predilection. The most common site of occurrence of follicular ameloblastoma was in the mandible. The findings resulted in better understanding of the pattern of ameloblastoma in Kashmiri population The research on the patterns of this tumor is essential to provide information for the effective management of the tumor.

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