

# Relative Frequency of Peripheral Odontogenic Tumors and Comparison with Central Counterpart: a 20-Year Evaluation

## Original Article

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## **Abstract**

**Introduction:** Peripheral odontogenic tumors are rare and there is no valid information of the frequency of them in the literature. This study aims to obtain the frequency of these tumors.

**Materials and Methods:** The files of oral and maxillofacial pathology (microscopic reports and slides), faculty of dentistry, Shahid Beheshti University of medical sciences served as the source of the material during a 20-year-period for this retrospective, descriptive cross-sectional study. Clinical information including, patient's age, gender and location was recorded.

**Results:** Three hundred seventy nine cases of odontogenic tumors were assessed in which 16 cases (4.22%) were peripheral and 363 cases (95.77%) central. Peripheral odontogenic fibroma was the most common case of the 16 peripherals accounting for 10 cases (62.5%) followed by peripheral ameloblastoma (25%) and peripheral dentinogenic ghost cell tumor (12.5%). The peripheral type of odontogenic fibroma was more common than central counterpart (3.3:1).

**Conclusion:** In our study, similar to the previous ones, the relative frequency of the peripheral odontogenic tumors was low and peripheral odontogenic fibroma was the most common tumor among other peripheral subtypes. Unlike other types, the incidence of peripheral odontogenic fibroma was higher than the central odontogenic fibroma.

**Key words:** •Odontogenic Tumor •Jaw Neoplasm •Peripheral •Histopathology

## Introduction

Odontogenic tumors are classified into central and peripheral by location. The prevalence of odontogenic tumors varies in different geographic sites.<sup>(1)</sup> Among these tumors, peripheral variants are rare and there is no valid information of the frequency of them in the literature.<sup>(2)</sup> The best source to obtain information on the relative frequency of odontogenic tumors is from the records of a main referral oral pathology service.<sup>(2,3)</sup> In many researches, the most common peripheral odontogenic tumor was peripheral odontogenic fibroma (POF).<sup>(2,4-5)</sup>

Epidemiologic investigations may be helpful because they provide valuable details on the lesions, occurrence, histopathologic features and demographic characteristics in various countries<sup>(5)</sup> which may be misdiagnosed clinically by other common peripheral soft tissue lesions in the oral cavity like pyogenic granuloma, irritation fibroma, peripheral giant cell granuloma and peripheral ossifying fibroma.<sup>(2)</sup> The purpose of this study is to obtain the relative frequency of peripheral odontogenic tumors.

## Materials and Methods

The files of oral and maxillofacial pathology (microscopic reports and slides), faculty of dentistry, Shahid Beheshti University of medical sciences served as the source of the material during a 20-year period from 1992 to 2012 for this retrospective, descriptive cross-sectional study.

All lesions diagnosed as peripheral odontogenic tumors according to the WHO classification 2005<sup>(2)</sup> were subjected to microscopic reevaluation. Clinical information including, patient's age, gender and location for peripheral types was recorded.

The frequency of central odontogenic tumors was also reported. Based on these data, a descriptive statistical analysis was performed using SPSS software.

## Results

For the 20-year duration, 379 cases of odontogenic tumors were assessed in which 16 cases (4.22%) were peripheral and 363 cases (95.77%) central (table1). The mean age of the peripheral lesions was  $41.37 \pm 14.89$  years. Slight male predilection was detected (1.3:1). Mandible and maxilla were involved equally.

Peripheral odontogenic fibroma (POF) was the most common of the 16 peripheral cases accounting for 10 cases (62.5%) followed by peripheral ameloblastoma (PA) (n=4, 25%) and peripheral dentinogenic ghost cell tumor (PDGT) (n=2, 12.5%). The peripheral type of odontogenic fibroma was more common than the central counterpart (3.3:1). Relative frequency of the central ameloblastoma in comparison to peripheral counterpart was (24.5:1). One case of central dentinogenic ghost cell tumor was found in our archive. The individual data for peripheral tumors are categorized in table 2.

**Table 1.** Relative frequency of central odontogenic tumors according to the WHO classification 2005

Central odontogenic tumor	N
Keratocystic odontogenic tumor	150
Ameloblastoma (multicystic 68 unicystic 30)	98
Odontoma	64
Myxoma	16
Adenomatoid odontogenic tumor	10
Cementoblastoma	5
Calcifying epithelial odontogenic tumor	3
Ameloblastic fibroma	3
Ameloblastic fibro-odontoma	3
Odontogenic fibroma	3
Dentinogenic ghost cell tumor	1

**Table 2.** clinical data of 16 cases of peripheral odontogenic tumors

Tumor Type	Case	Age	Gender	Gingival location
PDF	1	68	F	Man*
	2	29	M	Man**
	3	50	F	Man
	4	25	M	Man
	5	48	F	Max
	6	52	M	Max
	7	15	F	Max
	8	52	F	Max
	9	30	F	Max
	10	45	M	Max
PA	1	41	F	Man
	2	44	M	Man
	3	42	M	Max
	4	32	M	Man
PDGT	1	62	M	Man
	2	19	M	Max

\* Man:Mandible \*\* Max:Maxilla

## Discussion

In the present study, peripheral odontogenic tumors accounted for 4.22% of all the odontogenic tumors. POF was the most common of the 16 cases followed by PA and PDGT. Findings of this research were similar to those reported in other studies with regard to patient sex, age and location.<sup>(2,4)</sup> Saghravanian et al.<sup>(1)</sup> Reported that 4.3% of the odontogenic tumors were peripheral. Several large series established that POF was the most common peripheral tumor<sup>(2, 6-8)</sup> followed by PA and PDGT.<sup>(2,6)</sup> In another Iranian series, the incidence of POF was 4.73% that showed the tendency to mandibular gingiva.<sup>(5)</sup> Similar to our study, Lin et al.<sup>(4)</sup> have shown that POF had a female predilection (1.8:1) and a slight preponderance for the gingiva of maxilla. The mean age was 37 years. They also found POF more common than central odontogenic fibroma (COF) (ratio 4:1) and the tumors showed predilection for mandibular gingiva.<sup>(9)</sup>

In this study, the prevalence of POF in comparison with COF was similar to our research, but the location was different. Ritwik et al.<sup>(10)</sup> reported that the incidence

of POF was 23% of all odontogenic tumors. This high incidence rate was in contrast with that of our research and many other studies.<sup>(1,2,6)</sup>

The mean age was 37.3 and the occurrence of the lesion in the mandible was slightly greater than in maxilla. In their series, multiple lesions were also seen. The female to male ratio was 1:0.75. Despite the rarity of peripheral myxoma in the literature with less than 6 cases manifesting in the gingiva,<sup>(11,12)</sup> Saghravanian et al.<sup>(1)</sup> series composed of PA, peripheral myxoma, peripheral odontoma and POF. Recurrence rate of 50%, 38.9% and 17.6% were reported about POF<sup>(7,10,13)</sup> whereas others found lower tendency to recur.<sup>(14-16)</sup> We suggest that the discrepancies in incidence, sex, age and location of these tumors might be attributed to the differences in the sample size and the scarcity of the lesions. This study may provide additional data for further investigations and may enable better understanding of these tumors.

## Conclusion

In this study, the relative frequency of the peripheral odontogenic tumors was low and

peripheral odontogenic fibroma was the most common tumor among other peripheral subtypes. Unlike other types of odontogenic tumors, the incidence of peripheral odontogenic fibroma was higher than the central odontogenic fibroma.

## References

1. Saghraevanian N, Jafarzadeh H, Bashardoost N, et al. Odontogenic tumor in an Iranian population: a 30-year evaluation. *J Oral Sci* 2010; 52:391-6.
2. Buchner A, Merrell PW, Carpenter WM. Relative frequency of peripheral odontogenic tumors: a study of 45 new cases and comparison with studies from the literature. *J Oral Pathol Med* 2006; 35:385-91.
3. Daley TD, Wysocki GP, Pringle GA. Relative incidence of odontogenic tumors and oral and jaw cysts in a Canadian population. *Oral Surg Oral Med Oral Pathol* 1994; 77:276-80.
4. Lin CT, Chuang FH, Chen JH, et al. Peripheral odontogenic fibroma in a Taiwan chinese population: a retrospective analysis. *Kaohsiung J Med Sci* 2008; 24:415-21.
5. Alaeddini M, Salehizadeh S, Baghaii F, et al. A retrospective analysis of peripheral odontogenic fibroma in an Iranian population. *J Oral MaxillofacSurg* 2010; 68: 2099-103.
6. Ide F, Obara K, Mishima K, et al. Peripheral odontogenic tumor: a clinicopathologic study of 30 cases. General features and hamartomatous lesions. *J Oral Pathol Med* 2005; 34: 552-7.
7. Daley TD, Wysocki GP. Peripheral odontogenic fibroma. *Oral Surg Oral Med Oral Pathol* 1994; 78: 329-36.
8. Siar CH, Ng KH. Clinicopathological study of peripheral odontogenic fibromas (WHO-type) in Malaysians (1967-95). *Br J Oral MaxillofacSurg* 2000; 38:19-22.
9. Lin HP, Chen HM, Vu CH, et al. Odontogenic fibroma: a clinicopathological study of 15 cases. *J Formos Med Assoc* 2011; 110: 27-35.
10. Ritwik P, Brannon RB. Peripheral odontogenic fibroma: a clinicopathologic study of 151 cases and review of the literature with special emphasis on recurrence. *Oral Surg Oral Med Oral Pathol Oral RadiolEndod* 2010; 110: 357-63.
11. Raubenheimer EJ, Noffke CE. Peripheral odontogenicmyxoma: a review of the literature and report of two cases. *J Maxillofac Oral Surg* 2012; 11:101-4.
12. Ide F, Mishima K, Saito I, Kusama K. Rare peripheral odontogenic tumors: report of 5 cases and comprehensive review of the literature. *Oral Surg Oral Med Oral Pathol Oral RadiolEndod* 2008; 106: e22-8.
13. Garcia BG, Johann AC, da Silveira-Júnior JB, et al. Retrospective analysis of peripheral odontogenic fibroma (WHO-type) in Brazilians. *Minerva Stomatol* 2007; 56:115-9.
14. Kenney JN, Kaugars GE, Abbey LM. Comparison between the peripheral ossifying fibroma and peripheral odontogenic fibroma. *J Oral MaxillofacSurg* 1989; 47:378-82.
15. De Villiers Slabbert H, Altini M. Peripheral odontogenic fibroma: a clinicopathologic study. *Oral Surg Oral Med Oral Pathol* 1991; 72:86-90.
16. Buchner A, Ficarra G, Hansen LS. Peripheral odontogenic fibroma. *Oral Surg Oral Med Oral Pathol* 1987; 64:432-8.