

A Radiographic Assessment of the Prevalence of Pulp Stones in Premolars According to the Sex

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Abstract: *Introduction:* Pulp stones or denticles are frequently found in the dental pulp. Denticles more often occur in molars than in premolars and incisive. *Materials and Methods:* The study was conducted at the University Dental Clinic Centre in Skopje "St. Panteleimon". Were included random samples 150 patients aged between 20-60 years, or 3108 teeth, meanwhile using an appropriately designed survey questionnaire. The X-ray assessment of the jaws was being made by subjecting the suspected teeth to the Panoramix and retroalveolar X-ray according to Dick. Statistically computer analysis was confirmed to the 172 teeth – premolars. *Results:* From 150 patients or 3108 teeth, 623 teeth (20.04%) has pulp stones. From 623 teeth with pulp stones 425 (68.2%) – molars; 172 (27.6%) – premolars and 26 teeth (3.2%) - incisives. The results obtained from the carried out examinations showed that: 172 teeth – premolars: 111 (64.5%) in the males and 61 (35.4%) in females. The variation is significant i.e. $Z = 5.289$; $P = 0.000$. *Conclusion:* The analyses we carried out by making advantage of the radiography showed that greater attention should be paid to the analysis of the X-rays, especially to the Panoramix X-rays, because they enable detection of the dental calcifications in the asymptomatic teeth regarding the jaws as a whole.

Keywords: teeth, pulp stones, prevalence, premolars, the sex, the significant.

1. Introduction

With respect to the so-far made analyses and literature findings, which mainly refer to, and considering the presence of the continuous expansion of techniques and ways of monitoring certain pathological conditions of the dental pulp, this study paper provides a relevant evidence about the frequency of calcifications in the pulp of the premolars according to the sex. Through the prism of literature findings there can be concluded that dental calcifications are not prevalent only at certain group of teeth. They are identified to appear in both the dentitions (deciduous and permanent), but also in impact teeth, these findings were supported by Nitzan and his associates in year 1986 [1]. According to Moss Salentijn and Hendricks - Klyvert, diffused calcifications are usually located in the radicular part of the dental pulp, starting in the perivascular adventitia and the vascular wall [2,3]. Kannan S., Kannepady SK., Muthu K., Jeevan MB., Thapasum A., came to a conclusion that pulp stones is found significantly more in molars. There was no significant correlation with sex, increasing age, dental arches, and ethnic races [4]. Molars had statistically more pulp stones than premolars. Pulp stones were significantly more common in the maxilla compared with mandible [5].

2. Materials and Methods

The study was conducted at the University Dental Clinic Centre in Skopje "St. Panteleimon". Were included random samples 150 patients aged between 20-60 years, or 3108 teeth, meanwhile using an appropriately designed survey questionnaire. The X-ray assessment of the jaws was being made by subjecting the suspected teeth to the panoramix and retroalveolar X-ray according to Dick, to carry out programmed Rtg analysis and evaluation of suspected cases with the purpose of making temporary and correct functional assessment of teeth, which represents an assumption for

making further prognostic evaluation. From 150 random samples patients or 3108 teeth, 623 teeth has denticles. From 623 teeth with denticles - 425 – molars, 172 – premolars, and 26 – incisives. Statistically computer analysis was confirmed to the 172 teeth – premolars.

3. Results

Below are the results obtained by application of the abovementioned methods, shown graphically (Table 1,2), roentgenologically (Figure 1,2,3) and statistically.

Table 1: Prevalence of pulp stones in total teeth of 150 patients, aged 20-60 years

Total teeth	molars		premolars		incisive	
	N	n (%)	N	n (%)	N	n (%)
623	425	68.2%	172	27.6%	26	3.2%

Table 1 its presentation of the prevalence of dental calcifications according to the type of teeth.

- Prevalence of dental calcifications in molars is 68.2 per cent
- Prevalence of dental calcifications in premolars is 27.6 per cent and
- Prevalence of dental calcifications in incisive teeth 3.2 per cent

Out of 3108 analyzed teeth with denticles, 172 teeth (27.6%) were premolars.

Table 2: Prevalence of pulp stones in premolars of 172 teeth, in both the sexes, aged 20-60 years

Premolars		The males		The females	
Teeth	Per cent	Teeth	Per cent	Teeth	Per cent
172	100%	111	64.5%	61	35.4%

--- Comparison of two proportions ---

Group 1 n = 172 p = 0.645
Group 2 n = 172 p = 0.354
The variation is: 0.291
Standard deviation of the variation: 0.05392
95% secure interval in the variation: - 0.1853 to 0.3967
Z = .5,289; P = 0.000
The variation is significant i.e. Z = 2.470; P = 0.014.
The variation is significant i.e., the denticles in premolars are prevalent in the males according in the females.

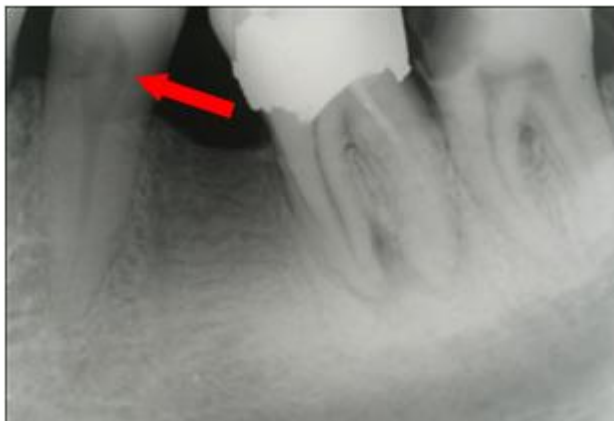


Figure 1: Pulp stones in the lower second premolar



Figure 2: Pulp stones in the lower second premolar

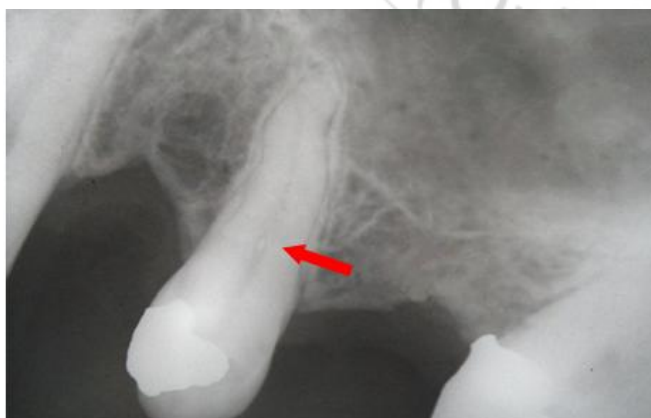


Figure 3: Pulp stone in the upper second left premolar, radicular localized

4. Discussion

Calcifications in the dental pulp, as a phenomenon with diverse occurrence and manifestation, represent a subject of constant interest not only from the perspective of being a

separate dental entity but also because of the fact that they are interesting to observe and deal with from diagnostic and therapeutic aspect. The fact that pulp stones are referred to as being provocateurs of pain with different intensity makes them cause difficulties in diagnosing. When observed from therapeutic aspect, they appear to be of greater importance because they can make the access to the dental roots difficult or in some cases completely impossible, and they can also be the reason for groundless extraction of a tooth or a group of teeth.

Long-term influences of various types such as: caries, deep restorations, chronic inflammations of the pulp, trauma injuries of the tooth as well as orthodontic interventions relate to the appearance of calcifications [6,7,8]. Ranjitkar S., Taylor JA., Townsend GC., concluded that denticles as discreet calcified bodies in the dental pulp might be related to the tooth type, as well as with the dental arches. Their analyses showed a smaller prevalence of calcifications in the premolars (0.4%), compared to the molars (19.7%), which is a significant difference [9].

Due to the fact that up to present time there have been primarily presented single studies on dental calcifications, there was imposed the need for dental calcifications from clinical and roentgenological perspective, with special aspect on the diagnosis problem, especially regarding the intact gum, most often dislocated in a wrong therapeutic direction. Such oversight at a final instance could represent an intolerable diagnostic and therapeutic mistake that can lead to a system tooth/teeth loss [10].

In the literature data there is no lack of presentations of separate descriptions of dental calcifications, from all actual aspects (etiological, histological, statistical examinations), but gives space for further tries to define and make clarifications regarding this dental entity that is prevalent in everyday casuistics, but does not appear to be always detected.

Still, small is the number of dentists who at the early diagnostic phase focus their attention to the possibility of dental calcifications, as a field of certain unclear symptomatology. Therefore, the obtained results refer to the variability of this morphological unit.

In that sense, the prevalence of denticles with 64.5% in the males compared to the females where the prevalence of denticles is 35.4% enables faster and easier detection of dental calcifications, and consequently faster and easier pain provocateur diagnosis.

Taking into consideration the obtained results, it can be pointed out that these results are primarily roentgenologically determined, regardless whether this has been done accidentally, when it has been suspected that they are possible to occur or with other detailed analysis indicated from certain pathological processes of other dental tissues.

Radiographic determination of dental calcifications according to the above mentioned findings enables relevant statistical analysis, presentation of frequency of the

distributions in various types of teeth, which largely corresponds to the findings of other authors [11].

Some investigators have reported that pulp stones were more common in females than in males [12,13]. Some showed that there is no significance. In our study, we found a slight higher prevalence in males than in females. The prevalence of pulp stones in teeth, based on radiographic examinations, has been reported to be around 20 to 25 per cent [14]. While histological examinations yield higher prevalences [15].

5. Conclusion

The variation is significant i.e., the denticles in premolars are prevalent in the males according to the females.

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