

Prevalence of Pulp Stones in Incisive Teeth Regarding the Dental Arches

Aleksova Pavlina

University Dental Clinical Center "St. Panteleimon"- Department of Restorative dentistry and Endodontics, Faculty of Dentistry, University "Ss. Cyril and Methodius", Skopje, R. of Macedonia.

Abstract: Introduction: Pulp stones or denticles are nodular, calcified masses appearing in either or both in coronal and root portion of the pulp in teeth. Pulp stones more often occur in molars than in premolars and incisive. Purpose: The intention of the study is to determine the prevalence of dental pulp stones occurrence in accordance with the dental arches and the sex in incisive teeth. Materials and Methods: The study was conducted at the University Dental Clinic Centre in Skopje and random samples of 150 patients aged between 20-60 years. were included 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 panoramic or 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. Random samples of 150 patients or 3108 teeth; 623 teeth (20.04%) has denticles. Of 623 teeth with denticles - 26 (3.2%) – incisive. Statistically analysis was confirmed to the 26 incisive teeth. Results: The results obtained from the carried out examinations showed that: 26 (3.2%) – incisive teeth: 12 (46.1%) - upper jaw (maxilla) and 14 (53.8%) - lower jaw (mandible) in both the sexes: 18 (50%) males and 18 (50%) females. The variation is not significant i.e. the denticles in incisive teeth are equally prevalent in the maxilla and the mandible with both the sexes: $Z = 0.278$; $P = 0.781$. Conclusion: Out of these results we are free to conclude that the incidence of dental calcifications is the biggest with the molars when compared to the premolars and the incisive teeth.

Keywords: incisive teeth, pulp stones, prevalence, the dental arches, the side, the sex.

1. Introduction

Calcifications in the dental pulp are referred to as being provocateurs of pain with different intensity makes them cause difficulties in diagnosing, and they can also be the reason for groundless extraction of a tooth or a group of teeth.

In the literature data there is no lack of presentations of separate descriptions of dental calcifications, from all actual aspects (etiological, histological, statistical examinations). The studies are not in a large number, which 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.

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 gum. Their analyses showed a smaller prevalence of calcifications in the premolars (0.4%), compared to the molars (19.7%), which is a significant difference [1].

Kumar S, Mathur RM, Chandra S, Jaiswal JN. examined and made in-depth analysis of the phenomenon and the nature of calcification in the pulp of 120 deciduous teeth extracted from the maxilla and the mandibula. In 31 teeth there were identified calcifications in the dental pulp of the following two kinds: denticles and diffuse calcifications. Calcification had identical prevalence in all teeth, except in the first deciduous molar [2].

More examinations on the dental pulp were made, showing that the denticles also occur in the pulp of deciduous teeth. Such examinations were made on behalf of Stajer Al, Kokai LE who managed to discover denticles in many teeth of a

twelve-year old girl. According to them, reason for this could be various etiological factors. However, they consider these to be pain provocateurs [3].

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 [4].

Holtgrave EA, Hopfenmuller W, Ammar S., came to a conclusion that the long-term use of fluor leads to appearance of calcifications in the pulp of deciduous teeth. These findings resulted from the examinations made on children who were subjected to fluor treatment, and those who were not subjected to any prevention therapy. Statistical indicators of these examinations showed a significant difference ($p = 0.001$) between the examined groups subjected to fluor therapy [5].

Robertson A, Lundgren T, Andreasen JO, Dietz W, Hoyer I, Noren JG., examined the prevalence of calcifications in the pulp of traumatized deciduous incisive teeth. 54 % of the cases were with a diagnosis of intrusion and luxation. In 41% of the examined teeth i.e. in 123 teeth, prevalence of denticles was discovered [6].

2. Materials and Methods

The study was conducted at the University Dental Clinic Centre "St. Pantelejmon" in Skopje. 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 26 incisive teeths. The X-ray assessment of the jaws was being made by subjecting the suspected teeth to panoramic and retroalveolar X-ray according to Dick.

3. Results and Discussion

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

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

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

Table 1 according to the type of teeth

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

There is a significant difference; denticles in molars have more frequent prevalence compared to the premolars and the incisive teeth.

Out of 3108 analzed teeth with denticles, 26 teeth (3.2%) were incisive teeth.

- 26 (3.2%) - **incisive teeth**
- 12 (46.1%) - **upper jaw (maxilla)**
- 14 (53.8%) - **lower jaw (mandible) in both the sexes**
- 18 (50%) - **male**
- 18 (50%) - **female**

To determine the prevalence of dental pulp stones occurrence in accordance with the dental arches in incisive teeth.

--- Comparison of two proportion ---

Group 1 n = 26 p = 0.461

Group 2 n = 26 p = 0.538

The variation is: - 0.077

Standard deviation of the variation: 0.1387

95% secure interval in the variation: - 0.3488 до 0.1948

z = 0.278; P = 0.781

The variation is not significant.

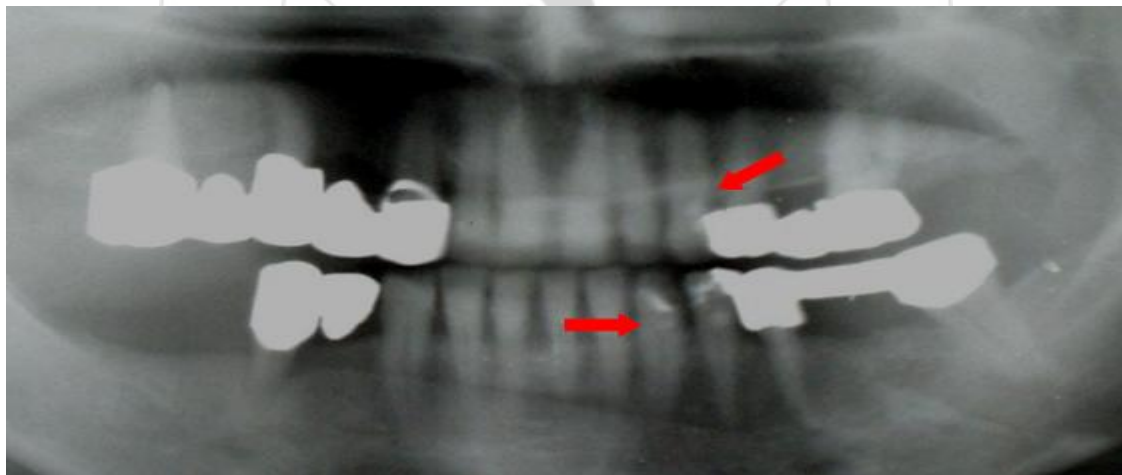


Figure 1: Pulp stones in the upper leftt cacinus, and in the lower left caninus



Figure 2: Pulp stones in the lower right caninus

With this study we made a try to use the epidemiologically processed data in the clinical assessment and prophylaxes.

The anamneses evidence that we obtained from the patients who had pains, were overlapping. All of them insisted that they had pretty intensive, random, neuralgiform pains, primarily in the molar area or with unclear location, with irradiation towards the temple. Also, there appeared to have general difficulties with intensive headaches, as well as difficulties of rheumatic, vascular and neurogene nature [7].

The prevalence of dental calcification regarding the localization of teeth the dental arches showed that dental calcifications are prevalent in incisive teeth 46.1% in the maxilla, (which is visible in Figure 1), and they are also prevalent in the mandible with 53.8% (Figures 2) with both the sexes.

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 [8,9,10].

Some investigators have reported that pulp stones were more common in females than in males [1,11,12].

Through part of the x-ray images in the material presented in this study paper, this general conclusion is clearly visible through the presented photos and statistical analyse (table 1, figure 1,2 and 3).

4. Conclusion

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 incisive teeth.

References

- [1] Ranjitkar S., Taylor JA., Townsend GC. A radiographic assessment of the prevail pulp stones in Australians. *Australians dental Journal*, 2002 Vol. Mar; 47: 36–40.
- [2] Kumar S., Mathur RM., Chandra S., Jaiswai JN. Pulp calcifications in primary teeth. *Journal Pedodontic*, 1990 Winter ; 14 : 93–96.
- [3] Kannan S., Kannepady SK., Muthu K., Jeevan MB., Thapasum A. Radiographic Assessment of the Prevalence of Pulp Stones in Malaysians. *J. Endod.* 2015; Vol. 41(3):333-7.
- [4] Nitzan WD., Michaeli Y., Windreb M., Azaz B. The effect of aged on tooth morphology : A study on impacted teeth. *Oral Surgery* 1986; Vol. 61 : 54 – 60.
- [5] Holtgrave EA., Hopfenmuller W., Ammar S. Tablet fluoridation influence the calcification of primary tooth pulp. *J. Orofac. Orthop.* 2001 Jan;62(1): 22-35.
- [6] Robertson A.,Lundgren T.,Andreasen JO.,Dietz W.,Hoyer J.,Noren JG.Pulp calcifications in traumatized primary incisors. A morphological and inductive

analysis study. *European Journal Oral Scificentic*, 1997; Vol. 105 : 196 – 206.

- [7] Aleksova P. Dental calcifications-reason for special analysis. *Master's Degree Paper (MD Paper)*, 2006; Skopje Vol. 1 : 62 -67.
- [8] Le May O., Kaqueler JC. Scanning electron microscopic study of pulp stones in human permanent teeth. *Scanning Microscopic*, 1991 ; Vol.5:257- 267.
- [9] Hamasha al – Hadi A., Darwazeh A. Prevalence of pulp stones in Jordanian adults. *Oral Radiology Endodontic*, 1998; Dec Vol; 86 : 730 – 732.
- [10] LIN C.T., Roan R.T., ROU W.J., Chen J.H., Chuang F.H., and Hsieh T.Y. A radiographic Assessment of the Prevalence of Pulp Stones in Taiwanese. *Svenska Massan*, 2003; Vol.11:12 – 15.
- [11] Tamse A., Kaffe I., Littner MM. Statistical evaluation of radiologic survey of pulp stones. *J Endod.*, 1982;8:455-8.
- [12] Gulsahi A., Cebeci Al., Ozden S. A radiographic assessment of the prevalence of pilp stones in a group of Turkish dental patients. *Int Endod J.*, 2009;42:735-9.