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Prevalence of Coronal Pulp Stones in Maxillary First and Second Molars

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Abstract: ***Introduction: Pulp stones or denticles can be localized coronar and/or radicular in the pulp tissue. They are frequently found in the dental pulp. More often occur in molars than in premolars and incisive. The aim of this study were to calculate the prevalence of pulp stones in maxillary first molars and maxillary second molars. 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 425 teeth – molars. Results: From 150 patients or 3108 teeth, 623 teeth (20.04%) have pulp stones. From 623 teeth with pulp stones 425 (68.2%) – molars. The results obtained from the carried out examinations showed that: 425 teeth – molars; 221 upper molars: 116 (52.4%) - upper first molars and 105 (47.5%) – upper second molars in both the sexes. The variation is no significant i.e. Z = 0.935; P = 0.350. Conclusion: The prevalence of denticles of the maxillary first and second molars enables faster and easier detection of dental calcifications, and consequently faster and easier pain provocateur diagnosis.***

Keywords: teeth, molars, pulp stones, denticles, prevalence, upper first molars, upper second molars.

1. Introduction

Pulp stones or denticles can be localized coronar and/or radicular in the pulp tissue. They are frequently found in the dental pulp. More often occur in molars than in premolars and incisive. The aim of this study were to calculate the prevalence of pulp stones in maxillary first molars and maxillary second molars.

Pulp stones is found in 100 (46.1 per cent) of the subjects and 333 (10.1 per cent) of the teeth examined. Occurrences were rare in premolars (0.4 per cent) but significantly higher in molars (19.7 per cent), [1].

The radiographically observed incidence of pulpal calcification was substantially lower than the histologically observed incidence [2].

The size may vary from a small microscopic particle to large masses that almost obliterate the pulp chamber [3].

The findings show values smaller than 1 micron, up to 1cm, measured per samples with continuous areas of calcifications which fill in almost the whole pulp, in a longitudinal direction. The transverse section is within the limits of 20 to 200 microns, whereas the longitudinal section is up to 500 microns [4].

Many prevalence studies have identified pulp stones using radiography. The true prevalence is likely to be higher because pulp stones with a diameter smaller than 200 µm cannot be seen on radiographs [5,6]. Most of the studies in the literature used paralleling technique to take the radiographs.

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 panoramic and retro alveolar 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 have denticles. From 623 teeth with denticles - 425 – molars, 221 was maxillary molars. Statistically computer analysis confirmed to the 221 maxillary molars.

3. Results and Discussion

Below are the results obtained by application of the abovementioned methods, shown graphically (Table 1,2), roentgenologically (Figure 1,2,3,4,5) and statistically.

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

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

Table 1 present 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 analyzed teeth with denticles, 425 teeth (68.2%) were molars.Out of 425 molars, 221 (52%) - upper molars.

Table 2: Prevalence of pulp stones in maxillary molars in both the sexes

Total upper molars	Upper first molars	Per cent	Upper second molars	Per cent
221	116	52.4%	105	47.5%

Table 2 present prevalens of pulp stones according to the first and second upper molars.

- 221 (52%) - upper molars
- 116 (52.4%) - upper first molars
- 105 (47.5%) - upper second molars in both the sexes.

--- Comparison of two proportions ---

Group 1 n = 221 p = 0.524
Group 2 n = 221 p = 0.475

The variation is: 0.049
Standard deviation of the variation: 0.04757
95% secure interval in the variation: - 0.04423 to 0.0350
Z = 0.935 P = 0.350

The variation is no significant i.e. Z = 0.935 P = 0.350

The variation is no significant with both the sexes.

Figure 1: Pulp stone in upper second molar

Figure 2: Pulp stone in upper first molar

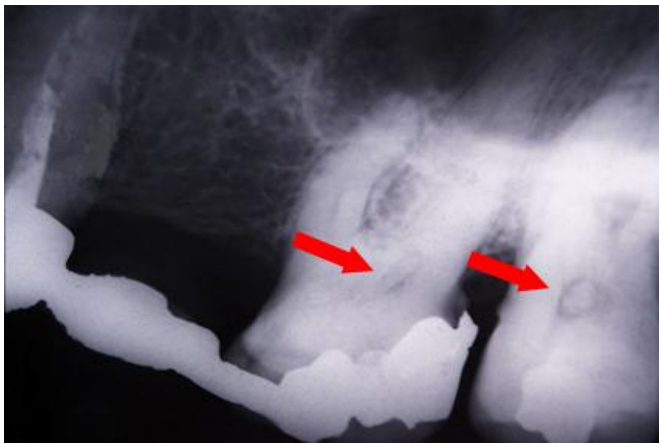

Figure 3: Pulp stones in upper first and second molars

Figure 4: Pulp stone in upper second molar

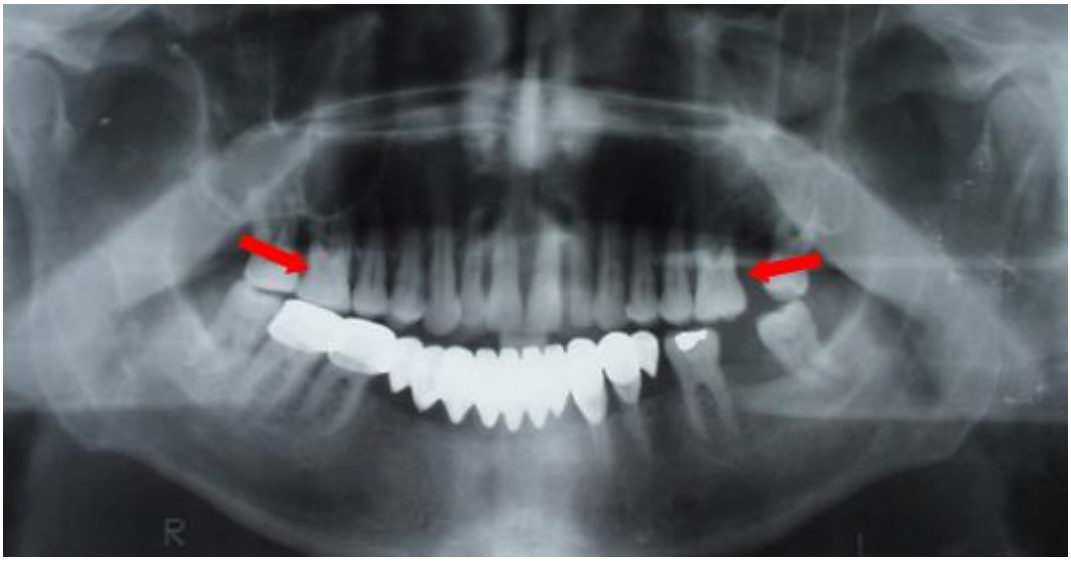

Figure 5: Pulp stones in upper fist molars

The formation of pulp stones is still something of an enigma, leading to existence of some epidemiological gaps.

Pulp stones were significantly more common in first molars than in second molars, and in maxillary first molars than in mandibular first molars [7].

Al-Hadi Hamasha and Darwazeh examined patient records of 814 Jordanian adults and found that pulp stones were present on radiographs in 51% of the patients and 22% of the teeth studied [8].

Tamse et al. evaluated full mouth radiograph of 300 patients and reported that 21% had pulp stones [9].

Baghdady VS et al. assessed 515 iraqi subjects and recorded that 19% of the teeth had pulp stones [10].

The presence of pulpal calcification is often determined from bitewing projections due to compared to panoramic radiographs, these radiographs are normally accurate images of the object without major distortion or magnification. Beside these disadvantages, panoramic radiographs show the entire mouth area—all teeth on both upper and lower jaws—on a single X-ray. It would seem apparent that panoramic images would be excellent for screening for pulpal calcifications as all the teeth can be evaluated using the same image [11].

4. 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. Occurrence in maxillary first and second molars is no significant. The prevalence of denticles of the maxillary first and second molars enables faster and easier detection of dental calcifications, and consequently faster and easier pain provocateur diagnosis.

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