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Calcification of Pulp Tissue in Permanent Dentition – A Case Report

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Abstract: ***Pulp stones most common can be found in the pulp chamber of the teeth. They can also be found in the root canals. Radiograph methods which are used to diagnose them are bitewing and periapical radiographs. Pulp stones can be found both in primary and permanent dentition. They are usually associated with systemic or genetic diseases such as dentine dysplasia and dentinogenesis imperfecta.***

Keywords: Generalized pulp calcification, pulp stone, systemic disease, root canals, pulpectomy

1. Introduction

Calcification of pulp tissue is a very common occurrence. Although estimates of the incidence of this phenomenon vary widely, it as safe to say that one or more pulp calcifications are present in at least 50% of all teeth (1). Basically, there are two distinct types of pulpal calcifications: formed structures commonly known as pulp stones (denticles) and tiny crystalline masses generally termed diffuse (linear) calcifications (2). Free pulp stones are found coronally within the pulp tissue and are most commonly seen on radiographs (3). Their presence may alter the internal anatomy and confuse the operator by obscuring, but not totally blocking, the orifice of the canal. Despite the fact that the pulp stones complicate the endodontic access and the root canal treatment it is not known if they have any other significance (4). Pulp stones can be classified on location (5). Depending on the structure they can be true and false pulp stones. A third type, 'diffuse' or 'amorphous' pulp stones, is more irregular in shape than false pulp stones, occurring in close association with blood vessels. True pulp stones are made of dentine and lined by odontoblasts, while false pulp stones are formed from degenerating cells of the pulp that mineralize (6).

The cause of the pulp stones is largely unknown (6). The etiological factors for pulp stones are usually pulp degeneration, age, orthodontic tooth movement, idiopathic factors and genetic predisposition (7, 8).

2. Case Report

We are reporting a clinical case of an unusual occurrence of generalized pulp calcification in a 34-year-old Bulgarian female reported to the Department of Conservative Dentistry and Oral Pathology, Faculty of Dental Medicine, MU – Varna, Bulgaria. The chief complaint was of decayed teeth N 22, 12, 11, 13. The intraoral clinical examination showed very deep carious lesions in teeth N 22, 12, 11, 13. Radiographic examination of the dentition with periapical radiographs revealed pulp calcifications in most of the permanent teeth (fig. 1, 2), located mostly in the pulp chamber. The patient was evaluated for any systemic, syndromic, or genetic involvement but this was non-contributory. The dental, medical and family histories were also non-contributory. We suggested that this case may be of idiopathic origin.

Pulpectomy was performed of teeth N 22, 21, 11, 12, 13. All the denticles were extracted (fig. 3). The planned treatment was to make restorations of all teeth and after that a prosthetic treatment.

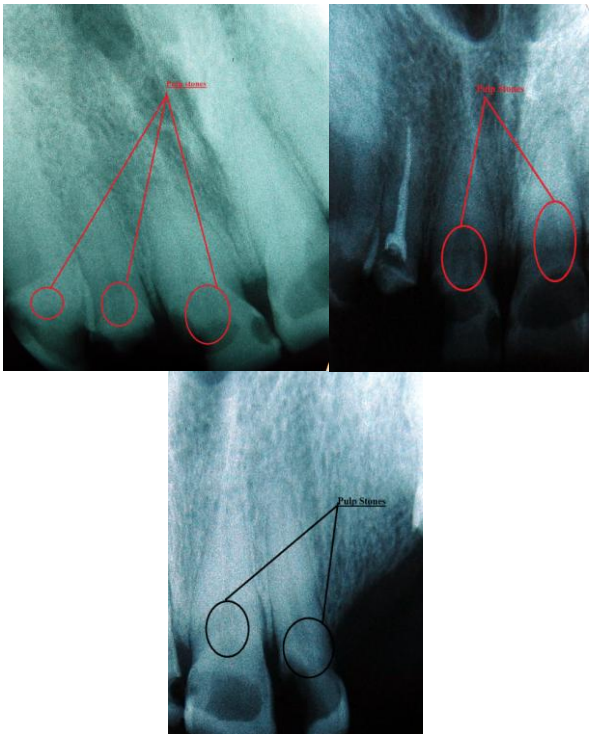

Figure 1: Multiple pulp stones in teeth N 13, 12, 11, 21, 22

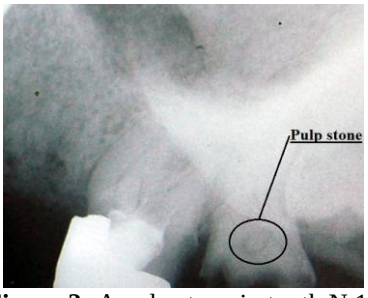

Figure 2: A pulp stone in tooth N 17

Figure 3: Extracted pulp stones from teeth N 11, 21, 13

Figure 4: Endodontic treatment of the upper incisors

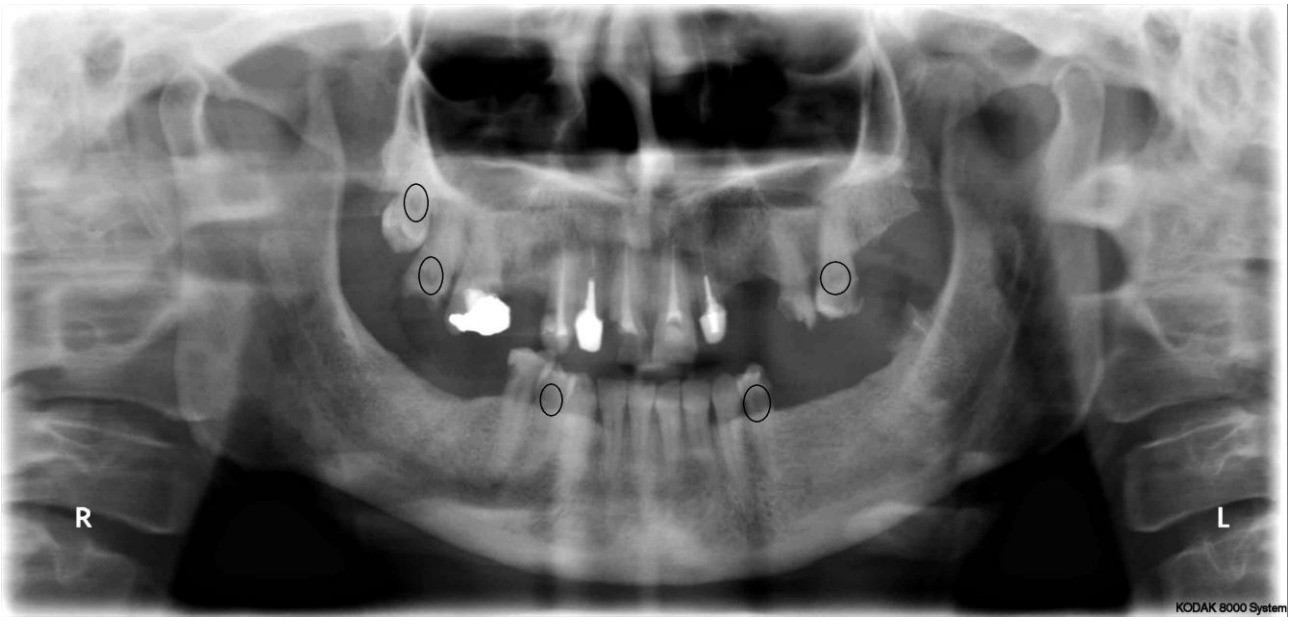

Figure 5: Panoramic radiograph revealed pulp stones in most of the permanent teeth

3. Discussion

In this paper we report generalized pulp calcification in permanent dentition of a 34-year-old. In this case although the calcification is generalized there was no evidence of any systematic, syndromic, or genetic involvement and we suggest that these pulp stones have idiopatic origin.

Kumar et al. (9) conducted a study in 120 primary maxillary and mandibular extracted teeth, evaluated them radiographically, and concluded 25% of second molars presented evidence of pulp calcifications and approximately 3% of central incisors were calcified.

Arys et al. (10) found that age did not have any influence on the occurrence of pulp calcifications. Their study consisted of 42 primary molars with less than one third of their root resorbed. They selected forty-two healthy children of both sexes, aged between 5 and 13 yrs. The teeth were examined by microradiography and light microscopy, and results revealed that pulp stones were present in 78% of the molars, with 95% of the material showing some form of pulp calcification. There was lower incidence of pulp stones in treated and carious molars. In our case the pulp calcification was found in permanent dentition which confirmed the general concept of pulp stone formation usually seen in older age group.

References

[1] Mjor I.A., Pindborg J.J., Histology of the human tooth.Copenhagen: Munksgaard, 1973, 61–62
[2] Donta C., Kavvadia K., Panopoulos P., Douzgou S., Generalized pulp stones: report of a case with 6-year follow-up, International Endodontic Journal, 2011, 44(10), 976–982

[3] White S. C., Pharoah M. J., Oral Radiology Principles&Interpretation, Mosby, St. Louis, Mo, USA, 4th edition, 2000.
[4] Ibarrola J.L., Knowles K.I., Ludlow M.O., McKinley I.B. Jr., Factors affecting the negotiability of second mesiobuccal canals in maxillary molars, Journal of Endodontics, 1997, 23, 236–238.
[5] Seltzer S., Bender I.B., The Dental Pulp, 3rd edn.Philadelphia, PA: J.B. Lippincott Company, 1984
[6] Goga R., Chandler N. P., Oginni A.O., Pulp stones: A review, Int Endod J 2008;41:457-468.
[7] Parekh S., Kyriazidou A., Bloch-Zupan A., Roberts G., Multiple pulp stones and shortened roots of unknown etiology, Oral Surg Oral Med Oral Pathol Oral Radiol Endod, 2006;101(6):139-142.
[8] Ranjitkar S., Taylor J.A., Townsend G.C., A radiographic assessment of the prevalence of pulp stones, Australian Dent J,2002;47:36-40.
[9] Kumar S., Chandra S., Jaiswal J. N., Pulp calcifications in primary teeth, Journal of Endodontics, 1990, 16(5), 218–220.
[10] Arys A., Philippart C., Dourov N., Microradiography and light microscopy of mineralization in the pulp of undemineralized human primary molars, Journal of Oral Pathology and Medicine, 1993, 22(2), 49–53.