

True Pulp Stones in Compound Odontome: An Unusual Finding

¹Gargi S Sarode, ²Sachin C Sarode, ³Rahul Anand, ⁴Pushkar Waknis

ABSTRACT

Calcifications within dental pulp are not a rare phenomenon. Rarely, they can be seen in association with dentin dysplasia type II, pulpal dysplasia, tumoral calcinosis, Ehlers-Danlos syndrome type I, Saethre-Chotzen syndrome, Elfin-Facies syndrome, familial expansile osteolysis, osteogenesis imperfecta type I and otodontal syndrome. We came across a case of compound odontome in the maxillary posterior region with multiple true pulp stone formation at the microscopic level. Such an unusual association has not been reported in the English medical literature till date.

Keywords: Compound odontome, Denticle, Pulp calcification, Pulp stone.

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INTRODUCTION

Developmental anomalies resulting from the growth of completely differentiated epithelial and mesenchymal cells give rise to functional ameloblast and odontoblast which develops into what is known as odontome.¹ Odontomes have been grouped as benign odontogenic tumors and are morphologically subdivided into complex or compound odontomes.² Compound odontomes are predominant in the anterior maxilla and complex odontomes are frequently found in the posterior region of both the jaws. Radiographically, the compound odontome appears as a collection of tooth like structures of varying sizes and shapes, and is seldom confused with any other lesion, whereas complex odontome appears as a calcified mass with a radiodensity of tooth structure and may be confused with an osteoma or some highly calcified

bone lesion. These lesions are more often observed in the permanent dentition than in primary dentition.³

On the other hand, pulp calcifications are a frequent finding on the bitewing and periapical radiographs in older age group but their occurrence in young healthy individuals is unusual and its association with an odontome has not been reported till date. We report such an unfamiliar occurrence in an otherwise healthy 25 years old Indian male.

CASE REPORT

A 25-year-old male patient reported to the Department of Oral and Maxillofacial Surgery, Dr DY Patil Dental College and Hospital, Pune, with a chief complaint of a diffuse swelling in the right upper back region of the jaw since a month. He was apparently asymptomatic 1 month ago when he first noticed a small swelling on the right side of his face, which has grown gradually to its present size. There were intermittent episodes of pain in the same region which got relieved on consuming medication. No other associated signs or symptoms. His medical, dental, and family history was not contributory.

Extraoral examination showed mild facial asymmetry with distinct diffuse swelling on the right middle facial region with normal overlying skin. The swelling measured approximately 1 × 3 cm in size.

Intraoral examination revealed no abnormality with the mucosa. However, on palpation, mild buccal cortical plate expansion in the maxillary third molar area was seen. A provisional diagnosis of odontome was made.

Radiological examination cone-beam computed tomography (CBCT) showed well circumscribed mixed lesion with radiopacities resembling miniature teeth. With a diagnosis of odontome, the lesion was excised under local anesthesia. Histopathological examination revealed typical features of compound odontome with multiple free pulp stones of variable sizes and shapes. These denticles were eosinophilic and showed evidences of dentinal tubule formation at focal areas, hence confirming their true nature. They were free and mainly seen in the vicinity of blood vessels (Fig. 1).

DISCUSSION

Calcification within the dental pulp is not a rare phenomenon. Increased number of calcifications are seen in older teeth and teeth which have been exposed

¹Associate Professor, ²Professor, ³Postgraduate Student
⁴Professor and Consultant

¹⁻³Department of Oral Pathology and Microbiology, Dr DY Patil Dental College and Hospital, Pune, Maharashtra, India

⁴Department of Oral and Maxillofacial Surgery, Dr DY Patil Dental College and Hospital, Dr DY Patil Vidyapeeth, Rubi Hall Clinic, Pune, Maharashtra, India

Corresponding Author: Sachin C Sarode, Professor, Department of Oral Pathology and Microbiology, Dr DY Patil Dental College and Hospital, Pune, Maharashtra, India, Phone: +919922491465 e-mail: drsachinsarode@gmail.com

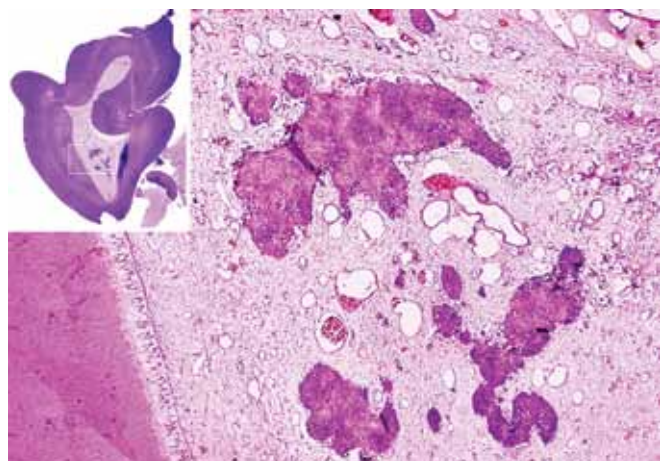


Fig. 1: Photomicrograph showing compound odontome (inset picture) with multiple free pulp stones (H&E stain, original magnification 400x)

to trauma and caries. Case reports exist in the literature where prominent pulp calcifications have been noted in association with some diseases like dentin dysplasia type II, pulpal dysplasia, tumoral calcinosis, Ehlers-Danlos syndrome type I, Saethre-Chotzen syndrome, Elfin-Facies syndrome, familial expansile osteolysis, osteogenesis imperfecta type I and otodental syndrome.⁴ Unusual cases of idiopathic generalized pulp stone formation have been reported,⁵ although sometimes a genetic predisposition is also noted.⁶ A pilot study of correlation of pulp stones with cardiovascular disease demonstrated that patients with cardiovascular disease have an increased incidence of pulp stones.⁷

In contrast, odontomes are relatively common odontogenic lesions, generally asymptomatic and are rarely diagnosed before the second decade of life.^{8,9} They manifest as painless swellings and are discovered on routine radiographic examinations. In our case, radiographs revealed presence of a tooth like structure surrounded by a radiolucent zone which was suggestive of compound odontome. Histologic examination

uncovered the presence of numerous pulp calcifications associated to the odontome.

As there was no history of trauma or infection in the present case, the pathogenesis could be attributed to the entrapment of cell rests of Hertwig's epithelial root sheath in the pulp, which led to differentiation of undifferentiated mesenchymal cells into odontoblasts, and thus subsequent pulp stone formation.

Although association of pulp stone formation has been reported in many diseases, its association with an odontome has not been reported till date in the English medical literature. To find out the incidence of pulp stones in odontome, we recommend retrospective study on histopathological analysis of odontome.

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