Enamel Pearl: A Factor Predisposing Localized Periodontitis- A Case Report

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Introduction

Enamel, which is normally restricted to the anatomic crowns of teeth, may be found on the root either as enamel pearl or as cervical enamel projections.[1] Enamel pearls are developmental anomalies on primary and permanent teeth, also known as enamelomas, enamel droplets, enamel globules, enamel nodules, enamel knots and enamel exostosis. They are ectopic globules of enamel on the root surface. Their prevalence is 1.1% -5.7% in permanent molars; 75% occurring in maxillary third molars, they may also affect primary teeth. They are believed to develop because of residual Hertwig epithelial root sheath. Macroscopically, they appear as small, well-defined globules of enamel, generally round, white, smooth and glass- like, that adhere to the tooth via a sessile base. The diameter can vary between 0.3-4mm.[2] Histologically, they may be true enamel pearls (formed entirely of enamel), composite enamel pearls (formed by enamel- dentin or enamel- dentin and pulpal tissue). Radiographically, they appear as well defined, radiopaque round masses. They are suggested as a cause of localized periodontitis. Connective tissue cannot form an attachment to enamel, instead the junctional epithelium is present is present in these areas and consists of hemidesmosomes and basal lamina, which is less resistant to periodontal breakdown and may predispose the area to increased probing depths in presence of gingival inflammation. Moreover, enamel pearls are plaque retentive in nature and may shield the micro- organisms from oral cleaning thus enhancing periodontal breakdown.[3] This article presents a case report of enamel pearl associated with a vertical defect, suggestive of its etiological role in localized periodontitis.

Case Report

A 61 year old man with no systemic pathologies presented with missing tooth (37) and desired replacement of the same. The patient had undergone endodontic therapy followed by metal crown in relation to 36, four years back. Clinically a localized pocket distal to 36 measuring 9 mm was present, periapical radiograph revealed a vertical bone defect in the same region. A diagnosis of chronic generalized gingivitis with localized periodontitis was made. The treatment plan entailed, scaling, root planning, curettage and open flap debridement followed by a 3 unit all- metal fixed partial denture with 36 and 38 serving as abutments. On surgical exposure of the site, a 3 mm smooth white glass like ovoid globular mass was found in the middle third of the the distal root of 36, it was identified as enamel pearl. The distal root of 36 was associated with a 3-walled osseous defect.

Odontoplasty was done to remove the enamel pearl and osseograft (decalcified freeze dried bone allograft) was used to fill the bony defect.

Discussion

Anatomical or iatrogenic factors can predispose a particular site to periodontitis, enhancing plaque retention and protecting organisms from the action of salivary enzymes and oral hygiene measures. Enamel pearl is one such anatomical factor which precludes connective tissue attachment and contributes to plaque retention.[3] Their presence on root surface may prevent regenerative procedures from achieving their maximum potential and may have a negative effect on the individual tooth prognosis. Once identified, enamel pearls must be removed by enameloplasty/ odontoplasty.[4] Removal of enamel pearl may lead to development of dentin hypersensitivity[5], however in the present case report the tooth in question was non-vital and endodontically treated, thus this possibility was ruled out.

References:

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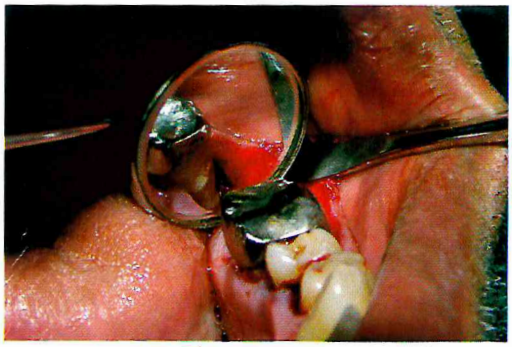
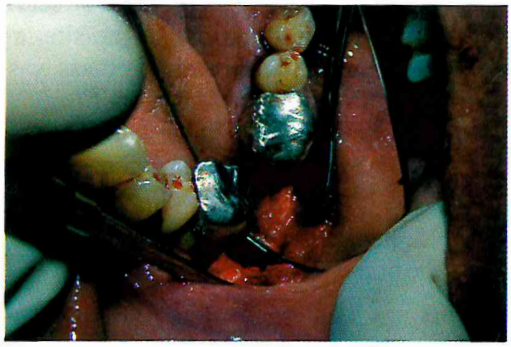
Pre Operative



Enamel Pearl on 36



Circumferential defect

Removed Pearl

Bone Graft placed

Suture Occlusal view