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Craze Line Induced Periodontal Abscess from a Dental Operating Microscope Point of View - A Case Report

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Abstract

This case report emphasizes on an unusual diagnosis involving interdisciplinary involvement of the enamel, dentin and underlying periodontium in a rare clinical presentation which was diagnosed and treated under a dental operating microscope. A craze line is a discontinuity in tooth structure commonly induced by trauma or bruxism, treating such a condition commonly involves the use of restorative cements, flowable composites. However, based on the depth and extent of the craze line the underlying pulp may also require an intentional root canal treatment followed by rehabilitation with veneers or crowns. One of the main ideologies behind the current case report was to treat the condition in a conservative approach with minimal effect on tooth structure as well as adjacent periodontium. The treatment involved complete phase I periodontal therapy, followed by papilla preservation flap where glass ionomer cement was used to seal the entire extent of the craze line under the magnification of a dental operating microscope. A periodic recall and review over the course of three month was done to assess the patient's response to the current therapy which was found to be asymptomatic. Thus suggesting the present treatment plan was found to be clinically effective as well as beneficial in the conservation of existing tooth structure for the treatment of craze line induced periodontal abscess.

Introduction

Craze line induced periodontal abscess is a rare clinical presentation which has not been documented much in present literature. Periodontal abscess is one of the more acute conditions faced by clinicians but is usually treated in a more aggressive manner because of its inherent potential for rapid tissue destruction and dissemination [1]. In the current case report a periodontal abscess was seen in the anterior tooth region with clinical presentation more towards buccal aspect than the interproximal gingiva coinciding with epidemiological literature [2,3]. The initial presentation was suggestive more of a gingival abscess but closer clinical examination revealed a 5mm pocket tilting the diagnosis towards a periodontal abscess with a pre-existing periodontal bone loss. However, despite good oral hygiene maintenance the persistent presentation of Periodontal abscess at the same site two months after phase I periodontal therapy prompted the authors to attempt exploratory periodontal surgery under an operating microscope. This procedure revealed an accidental etiological finding of a craze line extend-

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ing from the incisal edge, beyond the subgingival connective tissue apparatus till the alveolar crest. Differential diagnosis is always ruled out based on the principle of exclusion and the lack of any other evident irritant clinically and radiographically led to the current diagnosis of Craze line induced periodontal abscess.

Conventional treatment for periodontal abscess includes incision and drainage of the abscess with a prophylactic antibiotic course while relieving the underlying etiology. However, in attempts to completely resolve the etiology sometimes there are few alternatives to exploratory surgery for the complete removal of offending factor [2].

Cracked tooth presentations are difficult to diagnose without transillumination or angulated radiographs as patient history only reveals sensitivity with occasional pulpal involvement which might cause pain. Pulpal involvement would require endodontic management to relieve underlying pain along with prosthetic crown in relation to the same [4]. However superficial cracks on tooth surface require only restoration to seal the cut edge preventing sensitivity as well as inhibiting deepening of craze line [5,6].

Case presentation

A 38-year-old male patient reported to the clinic with a history of pain and sensitivity in relation to the upper right front tooth region for the past 2 weeks. Clinical examination revealed a craze line involving enamel and dentin extending from incisal edge subgingivally along with localised ovoid swelling in relation to the gingiva of 11. Pocket depth of 6 mm was seen with adequate width of keratinised tissue and horizontal bone loss (assessed by an IOPA) (Figure 1).

Figure 1: Radiographic evaluation of 11.

Considering the clinical scenario and chief complaint of sensitivity alone endodontic vitality was assessed using Endo Ice, and electric pulp tester. An initial treatment plan of non surgical periodontal therapy was planned with conventional scaling and root planing using Woodpeckers scaler unit and Hufriedy gracey`s curretes under local anesthesia. Post phase I therapy, clinical examination after 1 month revealed recurrent localised swelling protruding outwards with signs of suppuration, bleeding on probing along with a 5mm pocket (Figure 2). A treatment plan of exploratory papilla preservation flap surgery was formulated to assess the underlying alveolar crest or alterations in tooth morphology such as developmental grooves.

After adequate anesthesia, an intracrevicular incision was given extending from disto-buccal aspect #21 till #11, followed by a semilunar incision on the palatal aspect of 11 to raise a papilla preservation flap (Figure 3). A full thickness flap was elevated to expose 3mm of healthy alveolar crest revealing no

Figure 2: Clinical presentation of 11 with pocket depth of 5mm and gingival abscess presentation.

Figure 3: Crevicular incision and palatal semilunar incision to raise Papilla preservation flap.

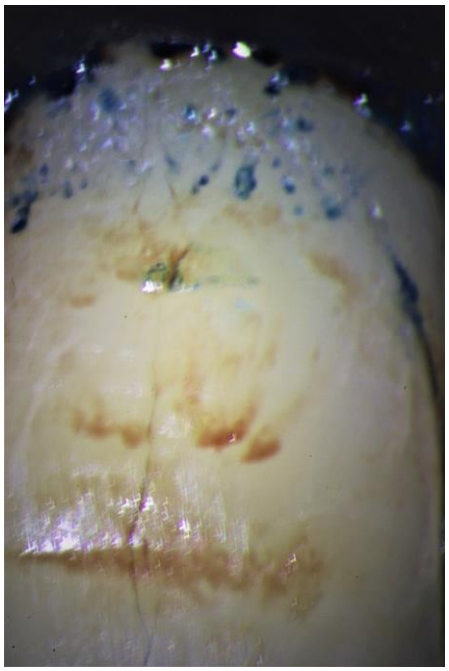

Figure 4: After staining Craze line on 11 with Methylene blue.

subgingival calculus or alterations in tooth morphology in 11. In an attempt to completely assess the depth and extent of the craze line the case was transferred under operating microscope using methylene blue as a dye. (Carl Zeiss OPMI surgical f-340) Under 2x and 5x magnification the craze line was seen extending from the incisal edge till the alveolar crest with thinning out the width of the crack in apical direction (Figure 4). Debridement of inner epithelial lining and thinning of flap around the inner aspect of sinus opening of the periodontal abscess was done under copious saline irrigation. Type -II glass ionomer ce-

ment was used to seal the craze line following which the flap margin was positioned and stabilized at the root bone junction using simple interrupted sutures of black braided silk (Figure 5). After adequate hemostasis periodontal dressing was given along with post-operative instruction and medication while a review appointment was scheduled 1 week postoperatively for suture removal.

Figure 5: Sealing Craze line with type II Glass Ionomer cement.

Figure 6: Postoperative healing of surgical site after 3 month.

Postoperative Medications and Instructions

Patient was prescribed 500mg Ciprofloxacin twice daily for five days along with 400mg of Metronidazole thrice daily for 5 days and 100 mg of Diclofenac Sodium twice daily for 3-5 days based on perception of pain.

Review

In the first recall visit, suture removal was done and the patient was reinformed about oral hygiene maintenance. The 3rd month review showed complete healing and maturation of the gingiva with mild recession due to pre-existing horizontal bone loss for flap elevation (Figure 6).

Conclusion

The current clinical report is an unusual presentation where all conventional rationale for periodontal abscess such as apical displacement of dislodged calculus, alterations of the root morphology were not present with a complaint of dentinal sensitivity alone [6]. An Emphasis is made on conservative management of the tooth where root canal therapy should only be performed when adequate radiographic evidence coincides with clinical features, instead GIC restoration was placed along the craze line. It can be concluded that this surgical modality of treatment for a recurrent periodontal abscess might be considered aggressive, however it did treat the chief complaint of the patient while retaining the vitality of the tooth.

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Conflict of Interest

All authors involved in the present study declared No conflict of interest.

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