

**Case Report****Non-surgical Management of Periodontal Pocket with Local Drug Delivery in a Patient on Antiplatelet drugs: A Case Report**

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ABSTRACT:

The aim of this study was to evaluate the improvement in periodontal parameters in a patient taking antiplatelet drugs with the help of local drug delivery. A 65-year-old female patient taking Tab Aspirin 75mg+ Tab Clopidogrel 75mg presenting with localized periodontal pockets, contraindicated for surgery, was treated with local drug delivery agent Periodontal AB fibres. Clinical parameters were measured and radiograph was taken at start of the study as they were treated with local drug delivery. Post-procedural visits were scheduled at standard intervals to determine clinical and radiographic changes. Through non-surgical periodontal therapy accompanying local drug delivery, the patient presented with decreased probing pocket depth (PPD) and increased clinical attachment level when comparing the initial and six month follow up data. In the six-month follow-up radiographic examination after non-surgical periodontal therapy, complete healing of the bony defect was observed. Local drug delivery is a viable alternative to periodontal flap surgery for resolution of periodontal pockets for patients on antiplatelet drugs.

Keywords: *Local drug delivery, periodontal pocket, non-surgical management, antiplatelet drugs*

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INTRODUCTION

Periodontitis is a disease known for the chronicity of its inflammation associated with multiple components like dysbiotic biofilm of the plaque which causes an unbalanced destruction of the periodontium. It is characterized by features like clinical attachment loss (CAL), increased probing pocket depth (PD), bleeding on probing, and loss of alveolar bone which can be radiographically assessed.

The periodontal pocket is a pathologically deepened gingival sulcus and occurs with destruction of the supporting periodontal tissues and loosening and exfoliation of the teeth. The scaling and root planing procedure (SRP) is the mainstream in nonsurgical treatment of periodontitis and periodontal pocket ≤ 5 mm can be predictably resolved by the same. However, due to the limited visibility and access in the subgingival zone of periodontal pockets, non-surgical instrumentation alone does not eliminate all pathogens from the pocket, therefore persistence of infections and recurrences are very frequent, especially in the case of deeper pockets >5 mm. Elimination of pockets with the help of flap surgery procedure can be done three months post non-surgical therapy.

However, periodontal surgery maybe contraindicated in certain patients suffering from cardiovascular disease and under treatment for it in the form of anticoagulant drugs [1]. These drugs predispose the patient to increased bleeding tendencies, thromboembolic complications and intra and post-surgical bleeding [1,2,3].

Systemic and local antibiotic therapy has emerged as a promising adjunctive treatment to root surface instrumentation. There are many adverse effects of general antibiotic therapy on periodontal grounds [4]. Moreover, systemic antibiotics may have drug interactions with certain antiplatelet drugs like aspirin [5].

Local application decreases or eliminates most of the undesirable effects associated with systemic antibiotic therapy, especially bacterial endurance, drug interactions and allergies [4]. Likewise, localised strengths of the active substance in drug delivery systems in the area of application quite surpass minimal inhibitory concentration (MIC) and facilitate treatment of the particular area [6]. There exist many preparations in the market that release active antibiotic materials and can be applied into the pockets. Currently, preparations with tetracycline fibres, minocycline spheres in 2% concentration and doxycycline pellets in 10% concentration have been in use.

A periodontal pocket stipulates an enclosed location which is readily available for the administration of a drug delivery apparatus and offers benefits, such as: Circumscribed and secure site, predictable access for placement and the adsorption on the soft and hard tissues. This case explores the application of Periodontal Plus AB fibres for the treatment of localized periodontal pockets in patients taking Aspirin+Clopidogrel.

CASE REPORT:

A 65-year-old female, suffering from ischemic heart disease, and taking prescription drug Aspirin 75mg + Clopidogrel 75mg for the same, presented to the OPD with a chief complaint of dull pain and bleeding in gums in the upper right back region of jaw in the past 1 month.

The initial examination revealed a three-unit PFM bridge with 14, 15, 16 along with reddish blue attached gingiva.

Periodontal probing depth with the same revealed deep pockets averaging ≥ 7 mm. No other areas in the mouth had significant probing depths. Sulcus bleeding indices were not measured as the patient was on antiplatelet drug. Radiological investigation revealed interdental horizontal bone loss with 14, 15, 16. (Figure 1,2,3)

At first visit, patient's hematological parameters were assessed and physicians' consent was advised. PT-INR- 2.5, Bleeding time- 7 minutes 20 seconds and Clotting time- 10 minutes 10 seconds was noted. In second visit, nonsurgical periodontal therapy was performed, and the patient was instructed about oral hygiene to maintain plaque control.

Three weeks later, Local drug delivery in the periodontal pockets was performed with Periodontal Plus AB - Sterile Medicated Resorbable Fibres- a collagen fibril formulation containing tetracycline hydrochloride, 2 mg of tetracycline in 25 mg of collagen fibrils. The fibers were condensed in the pocket atraumatically with a periodontal probe upto the gingival margin, and the treated site was covered with a Coe Pak (periodontal dressing). (Figure 4,5)

The patient was instructed to stop brushing and eating tough, sticky and spicy food at the treated site for ten days. At postoperative day four, they were evaluated for fibre maintenance and any unfavourable reactions. The periodontal dressing was removed ten days following primary placement.

Objective examination of the treated teeth was performed for the assessment of site at the baseline, 15-day, one and a half month, 90-day and six-month follow-up. Patient reported stoppage of bleeding and discomfort 15 days after fiber placement. At the six-monthly follow-up, probing pocket depth and radiological parameters were reassessed. Probing pocket depths reduced to 3mm and radiograph showed radiographic bone fill. (Figure 6,7,8)



Fig 1: Pre-treatment Molar Probing pocket depth= 7mm



Fig 2: Pre- treatment pre-molar Probing pocket depth=7mm



Fig 3: Pre-treatment IOPA showing moderate horizontal bone loss



Fig 4 & 5: Periodontal Plus AB fibres



Fig 6 & 7: 6 months Post treatment Molar and Pre-molar, probing pocket depth averaging 3 mm



Fig 8: 6 months Post treatment radiograph showing bone fill

DISCUSSION:

Stoppage of the antiplatelet drugs in patients suffering from ischemic heart disease, even for a week, is inadvisable and can lead to thromboembolic complications (SDCEP August 2015). The observed decrease in the clinical factors validates the requirement of performance of nonsurgical treatment i.e., Root surface instrumentation and subgingival scaling, especially as it results in reducing periodontal pocket depth and improvement of location of tissue attachment. The adjunctive use of antibacterial drugs, either systemic or local, proves to be of some help [7].

Local drug delivery has the advantage of avoiding the majority of the issues linked with systemic delivery by reducing the drug to the diseased site with almost no systemic uptake. However, bleeding has a limiting effect on local drug delivery devices. Jane Eastham et al (2019) reported that if a local drug delivery device is inserted in the periodontal pocket instantly after root surface planing, the potential of the system is diminished [8]. This is because the drug forms a bond to the globulin protein in blood and the available concentration to act on the diseased site is decreased [9]. An important case is that of chlorhexidine, whose active potential reduces when organic material like food debris and blood is present [10]. Thus, the LDD in the present case was delivered after 3 weeks of scaling and root planing with minimal trauma [11].

CONCLUSION:

Non-surgical periodontal therapy with local drug delivery might be a viable minimally invasive alternative to periodontal flap surgery for the elimination of periodontal pockets in systemically compromised patients taking antiplatelet drugs. However, placement of the drug should be done with minimal trauma to the tissues.

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