



NON - SURGICAL PERIODONTAL THERAPY (NSPT) CASE SERIES

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ABSTRACT

Background: The current therapy for periodontitis entails periodontal debridement, which involves the removal or disruption of bacterial plaque, it's by products and retained calculus deposits from the coronal surfaces, root surfaces and the tissue walls of the periodontal pocket. Describing a management of generalized aggressive periodontitis that was managed successfully by non-surgical periodontal therapy with systemic antibiotics as an adjuvant to mechanical therapy. All of these following cases were managed by initial phase one therapy which is scaling and root planing, and performed gingival curettage in cases of deep periodontal pockets in follow up visits. **Aim and Objectives:** To describe the importance or effectiveness of non-surgical periodontal therapy and its effective application on different individuals, reported to the department of periodontology at KGMU Lucknow. **Case series:** Patients should receive a thorough, non-surgical debridement, including scaling and root planing with hand or mechanical instrumentation, to remove subgingival biofilm and calculus deposits. This instrumentation, coupled with instruction to the patient on an adequate means of oral hygiene, constitute a most important foundation for successful treatment. In specific instances, the following treatment may be complemented by antibiotic therapy. **Conclusion:** Scaling and root planing is remarkably effective at reducing clinical inflammation and pocket probing depth; hence it is considered as the gold standard and mandatory procedure for Periodontists.

KEYWORDS : Generalized Aggressive periodontitis, gingival curettage, Junctional epithelial attachment, New clinical attachment.

INTRODUCTION

The primary goal of scaling and root planing (SRP) or surgical therapy for the treatment of periodontal disease is the formation of new clinical attachment. SRP is not expected to influence new bone formation to any great degree but hopefully would lead to healing with a connective tissue (CT) attachment rather, than a long junctional epithelium¹. Predominant human histologic evidence demonstrates healing by a long junctional epithelium with no or minimal CT attachment². Periodontal diseases have achieved the status of a worldwide public health burden. Epidemiology studies report that 42% of dentate U. S. adults between the ages of 30 to 79 years have some level of periodontitis. Based on census data, this age range represents roughly 144 million people. Thus, approximately 60.5 million people suffer from periodontitis of which 7.8% ($\approx$ 4.7 million) suffer from Stage III or IV, Grade B or C periodontitis. Undiagnosed and untreated, or insufficiently treated periodontitis can have negative effects on oral health, systemic health, and quality of life. Much of the localized destructive effect and the systemic impact of periodontitis is the result of inflammation. Current theory holds that periodontal inflammation results from the interaction of the host immune system and a dysbiotic subgingival biofilm. Dysbiosis likely results from the interaction of "keystone" microbes, such as Porphyromonas gingivalis and Filifactor alocis, on an ever-expanding list of subgingival potentially pathogenic microbes³.

The choice of a treatment modality is not necessarily the most critical determinant of effective periodontal therapy⁴. Achievement of long-term success requires a combination of detailed root surface debridement, appropriate periodontal maintenance therapy and patient compliance and devotion to oral hygiene⁵.

SRP remains the Cornerstone/Gold standard of nonsurgical periodontal therapy. An often-cited goal of SRP is the removal of all subgingival calculus and biofilm. Numerous studies report a significant reduction in the subgingival bacterial burden or specific periodontal pathogenic microbes following SRP in periodontitis patients⁶.

However, there remains the issue of microbial repopulation and re-infection following SRP, particularly in those instances of inadequate instrumentation⁷.

Scaling and root planing is remarkably effective at reducing clinical inflammation and pocket probing depth⁸. Yet, multiple studies report that following SRP a significant percentage of treated teeth will exhibit residual subgingival biofilm and calculus^{9,11}. Good clinicians understand that SRP is a technically challenging procedure. A well-done SRP requires time, patience, persistence, experience, skill, and training¹⁰.

Case Presentation:**Case 1**

A 55 years old lady reported to the department of periodontology on 20/06/2019 at KGMU; with a chief complaint of mobile teeth and bleeding gums during brushing his teeth since 4-5 years. Also, presented with clinical and radiographic evidence of clinical attachment loss and pocket depth, around several teeth, and pathologically migration were also found.

She presented with a history of tobacco chewing for since lasts 10 years, but no involvement of systemic disease was found. Periodontal problems or caries prior to the swollen and bleeding gums prompted her to seek treatment. Even though routine hematological investigations were not revealed any systemic disorder. (Figure 1: A, B & C)

Gingival Presentation:

The gingiva appeared as (dark pink) or red edematous in color, due to high vascularity and decreased rate of keratinization. Consistency was soft and edematous with diffused enlargement involving the upper and lower anterior along with the left and right back region of the jaw. The gingiva showed accentuated scalloping with bulbous interdental papillae and rounded gingival margins in general.

Spontaneous bleeding was noted in the upper and lower anterior with the presence of exudation with respect to the upper and lower or left and right back region of the jaw.

Clinical Photographs:

Figure 1: (A) Patient's First visit



(B) Second visit of patient after one week for follow up



C. Third visit of patient after two weeks follow up

Case 2

A 26 year old female patient, systematically healthy, non-smoker patient with generalized severe chronic periodontitis was reported to the department of periodontology in our patient department (OPD) on 23/11/2019, at king George's medical university lucknow. (Figure 2: A,B,C)

The periodontal family history of the patient, did not revealed any severe periodontal destruction or early tooth loss. The patient did not received any periodontal treatment previously.

On intraoral examination of patient revealed severe gingival inflammation, suppuration, multiple periodontal abscess; halitosis, generalized teeth mobility, pathologically severe malaligned teeth and radiographically established widespread Horizontal, Vertical bone loss. Furthermore, radiographic examination revealed perio-endo lesions on teeth 36 & 47.



Figure 2: (A) First visit of patient



(B) Second visit of patient after one week



(C) Third visit of patient after two weeks

Case 3

A 44-year-old patient reported to the department of our institute on dated 14/10/2019 at king George's medical university, complaining of pain and swelling gums also had bad breath problems and an inability to chew food. The patient was also concerned about the progressively increased spacing between his lower front teeth.

The medical history revealed that the patient's gums was progressively receding and bleeding since lasts 6 to 7 years and that the patient had pain during mastication and increased tooth mobility but patient never visited to his nearby dentists regarding the treatment for the same.

Nothing in the patient's medical and family history seemed, related to the condition and no associated chronological abnormality would be detected. The patient was not receiving any anti-epileptic, antihypertensive or immunosuppressive medications that could contribute to gingival enlargement and generalized chronic periodontitis.

However, the patient had smoked up to 20 cigarettes a day for the past 4-5 years and drank alcohol about 2-3 times a week. Intraoral examinations revealed moderate to severe gingival swelling of a firm, dense and fibrotic consistency that involved both the maxillary and mandibular arches. The patient had generalized tooth mobility with a severe pathologic migration, especially in the lower anterior front teeth. (Figure 3: A, B, C)

Full mouth periodontal charting, including assessment of probing depth and clinical attachment level, revealed deep

pockets throughout the mouth, and scanty plaque and calculus deposits. The radiographic findings, which corroborated those of the clinical examinations, revealed severe generalized alveolar bone loss. The peripheral blood results were normal and correlated with an absence of any history of systemic disease.

Based on all these findings, a provisional diagnosis of generalized chronic periodontitis was made.



Figure 3: (A) Pre-operative view Before Prophylaxis



(B) Post-operative view after Oral Prophylaxis



C. Follow up visit after two weeks

Case 4

A 22-year-old male patient was referred by a general practitioner to the department of periodontology 5th-floor new dental building KGMU Lucknow on 07/01/2020, for the treatment of GAgP (generalized aggressive periodontitis). (Figure 4: A, B)

The initial examination revealed deep probing pocket depth (PD) with sulcus bleeding index (SBI). Suppuration was registered at the maxillary right first molar and the left mandibular second molar. Gingival inflammation was observed. The patient was in good general health had never smoked, and did not take any medications. Familial aggregation of GAgP was denied. PD, tooth mobility, SBI, and the presence of suppuration were recorded.

A panoramic Radiograph was obtained deep infrabony defects were evidence of progressing periodontal destruction.



Figure 4: (A) Pre-operative view before Prophylaxis



(B) Post-operative view after prophylaxis

DISCUSSION:

Non-surgical periodontal therapy is the first stage of therapy in a series of procedures that define periodontal treatment. The removal of biofilms and mineral deposits from the tooth surface is a basic and defining aspect of periodontal therapy.¹² Current therapy for periodontitis involved periodontal debridement, which involves the removal of bacterial plaque and its products, and calculus deposits that are severed from the coronal surfaces, root surfaces, and the tissue walls of periodontal pockets.¹³ Mechanical root debridement is the basic of periodontal therapy aimed at removal of subgingival biofilm and calculus, which together with the maintenance patient's oral hygiene will prevent bacterial recolonization and supragingival biofilms.¹⁴ For many years, gingival curettage a popular periodontal-treatment modality. As originally described, gingival curettage was designed to induce new connective tissue attachment to root surfaces by removing the pocket lining and junctional epithelium with a curette.¹⁵ This debridement is usually used with hand instruments (curettes and scalers). This conventional protocol is gold standard of periodontal therapy for most patients with chronic periodontitis. Gingival curettage is well documented in many reviews showed of gains in clinical attachment levels (CAL), reductions in probing pocket depths (PPD), and in the frequency of bleeding on probing (BOP).¹⁶ The chronic nature of periodontal disease requires continuous monitoring and treatment. A "one size fits all" periodontal maintenance interval and/or protocol of treatment is inappropriate. Instead, the interval between maintenance appointments should be based on severity of disease and patient risk for recurrence of disease. In this regard, Lu et al.¹⁷ have reported that periodontitis patients that were treated and considered well-maintained still exhibit a subgingival dysbiotic microbial population than do healthy non-periodontitis patients. Thus, emphasizing the need for close monitoring and an individualized periodontal maintenance schedule.

In case 1, After performing scaling and root planing, per quadrant in every visit, which was usually completed in 2 to 4 weeks. Patient recalled after 6 weeks for post-operative follow up, the healing after SRP was found to be good; facilitated by the systemic administration of antibiotics, which has been reported previously. 3 to 4 months after therapy, distinct clinical improvement was indicated. Pocket depth was also

found to be reduced, suppuration has been eliminated and no gingival inflammation were observed. Although all sites demonstrated comparable clinical improvement. In case 2, substantial and stable clinical periodontal status were shown after conventional periodontal therapy and adjunctive administration of antibiotics 6 months after initial therapy, measurement indicated distinct clinical improvements with reduction of PD and no suppuration was found. And further endo-perio treatment was also continued in relation to 36 & 47. In case 3, on first visit of the patient after completing the full mouth SRP, patient was strictly emphasized on quitting his habit of cigarette smoking and also instructed to do 2 times brushing before and after meal as well for maintaining good oral hygiene followed by warm saline rinses (3-4 times) per day along with CHLOHEX ADS mouth wash in (1:1) ratio twice daily for 15 days. Metrohex plus tropical gel was also advised to apply twice daily for 2 weeks. When patient recalled after 2 weeks the periodontal status of the patient were found to be stable and inflammation was fully subsided. further subgingival SRP were performed and asked to continue with the same protocols as explained earlier and next recalled visit after 6 months, healing after SRP was found to be excellent, halitosis and gingival inflammation was not present, pocket depth was fully reduced and mobility also decreases. In case 4, patient recalled after 1 week for follow up, we observed that his periodontal status were found to be normal and all the signs of inflammation and bad breath was also subsided.

Therefore, earlier the diagnosis, better is the prognosis. Management of generalized aggressive periodontitis (GAP) and chronic periodontitis patients essentially consists of a nonsurgical phase, surgical therapy an interdisciplinary therapy and a lifelong supportive periodontal therapy. Nonsurgical therapy remains the first line of antimicrobial therapy in GAgP. Cases with mild to moderate periodontal destruction may be managed entirely by nonsurgical therapy with systemic antibiotics as an adjuvant to mechanical therapy.¹⁸

Mechanical plaque control was successfully achieved by educating and motivating the patient to maintain good oral health by demonstration of brushing technique and use of interdental cleanings aids like interdental brush. Regular recall appointments to monitor the efficacy of the patient's plaque control measures were maintained.

Treatment Planning:

All of the above following cases treatment were initiated with phase one therapy along with the course of antibiotic regimen was also started which included the combination of, Tab: Amoxycylav 625mg TDS, Tab: Ibuprofen + Paracetamol 365mg TDS, Cap: B-complex OD on, and Cap: Pantoprazole OD; for the following five days. Along with this the patient was also instructed to do two times brushing before and after meal in morning as well as in evening also, by using soft tooth brush (i.e., STIM unique ultrasoft tooth brush). Much more emphasizes was done on patient habit of quitting of smoking and tobacco chewing and very well explained the importance of maintaining good oral hygiene by doing warm saline rinses 3-4 times per day and avoid taking sticky and carbohydrate containing foods which shows very harmful for your teeth. Also advised to use CHLOHEX ADS mouthwash in 0.12% twice daily after meal recommended for 15 days. Metrohex plus gel (Tropical gel) were also advised to apply over gums twice daily for 2 weeks.

Recalled follow up done on weekly basis and the clinical parameters were evaluated and root planning was performed for areas which showed persistent inflammation. After second follow up visit of patient after 2-4 weeks 1 more antibiotic i.e.; Tab: Doxycycline 100mg 1BD stat followed by 1OD for 14 days

was added and also patient were strictly instructed to follow the instructions as given earlier for proper oral hygiene maintenance.

By the end of non-Surgical therapy gingival status of each of patient revealed, marked improvement with respect to: colour, consistency, size, absence of tenderness to palpation, reduced soreness of mouth and bleeding. The probing depth were seen in the range of 4-5mm in (Fig1, Fig 2, Fig 3). However, recession was seen in the lower anteriors in (Fig 3) also radiographically, deep vertical bone loss was also noticed; hence flap surgery was performed respectively in case 2 and in case 3.

After the completion of periodontal therapy, the patient was referred to the department of endodontics for the root canal treatment with respect to 47 in (Fig 2).

CONCLUSION:

Periodontal disease is the multifactorial disease, which causes tissue destruction, and being an periodontists we should understand the basic norms of technically challenging procedure i.e; scaling and root planning. We must be knowing that a well done, SRP requires times, patience, persistence, experience, skills and training because the first and the initial step which is remarkably effective at reducing clinical inflammation and pocket probing depth and often sited goal was removal of subgingival calculus and biofilm. That's why SRP considered the "cornerstone" of non-surgical periodontal therapy.

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