

## Scaling And Root Planing: Still The Mainstay Of Periodontal Therapy



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**Introduction:** The differences in pt. care between the time I entered periodontal training in 1984 & now are dramatic & often are inspiring. Osseointegrated implants in the early 80's, GTR in the mid 80's, guided bone regeneration in the late 80's & the introduction of newer implant designs- each of these treatment concepts has impacted pt. care significantly. However it is crucial to realize that while the technologies involved in each of these therapeutic modalities are important, it is the conceptualization behind these advances that is of the greatest significance. The result has been a number of paradigm shifts, which impact our pts. & practices dramatically. The pace at which such conceptualization is evolving, accompanied by technical & material advances which continues to accelerate, one has to keep up with the rapid progress & update ourselves to justify & modify our approach to render our treatment more effectively. Recent advances have modified our concepts regarding the etiology of periodontal diseases. Several other aspects including genetic, host & environmental factors modulate the course of periodontal infections & this information has directed periodontal research into many basic, but complicated, mechanisms at molecular & cellular levels. As a result, we have been able to unfold many theories which explain the etiopathogenesis of periodontitis; yet there remains much to be clarified. Advances in research have also led to the development of equipment & modifications in treatment protocols. **However, the basic approach to periodontal infections has always been & remains the removal of supra & subgingival bacterial deposits by scaling & root planing.** Nonsurgical mechanical periodontal treatment is the cornerstone of periodontal therapy & the first recommended approach to the control of periodontal infections. **Although nonsurgical periodontal therapy has evolved over the years, it is still considered to be the 'gold standard' to which other treatment modalities are compared.**

**Advances In Mechanical Non Surgical Therapy:** Many clinical studies have confirmed the effectiveness of the nonsurgical approach in treating periodontal infections. Encouraged by the benefits of nonsurgical therapy, many researchers have tried to modify the approach & the instruments used for its accomplishment. Over the years, we have seen the evolution of the instruments used to perform the task of scaling & root planing.

From manual scalers to lasers, we have come a long way. Manual scalers have been modified to conform to specific requirements such as easy use with less effort & effective removal of plaque & calculus, especially in inaccessible areas such as furcations & root grooves. The introduction of sonic & ultrasonic devices for periodontal instrumentation was a major breakthrough as it made the procedure less stressful & easier for the operator & allowed subgingival irrigation with various antimicrobial solutions. The ultrasonic tips are marketed in numerous designs & dimensions for subgingival use. Various modified power-driven scaler tips, such as tiny, thin, periodontal probe type, rounded top, diamond coated & contra-angled inserts for use in deep pockets have been developed.

A new instrument designed for root debridement, **Periosonic**, which is a modified version of the endodontic system, has also been introduced. The instrument has two types of files inserted in a sonic handpiece. The Periosonic 1 file resembles a reamer with a 16-mm working tip, & is used to remove heavy supra- & subgingival calculus. The Periosonic 2 file is more flexible & less aggressive than Periosonic 1. Its one-sided working tip is 21 mm long. This file was designed for subgingival debridement, where the smooth part of the file faces the soft tissue wall in a periodontal pocket to minimize trauma.

Another major advance, which is currently receiving much attention, is the application of lasers for nonsurgical periodontal therapy. Lasers are considered adjunctive or alternative tool for mechanical periodontal therapy owing to the ablation, hemostatic, & bactericidal characteristics. The most commonly used lasers include CO<sub>2</sub>, Nd:YAG & Er:YAG. But the postoperative healing effects as compared to conventional therapy is debatable.

**Adjuncts To Mechanical Non Surgical Therapy- Local Drug Delivery:** Certain pts. do not respond favorably to conventional mechanical therapy alone, for various reasons. The use of an adjunctive antimicrobial might benefit this subset of pts.. It has been reported that combination

antibiotics such as systemic metronidazole/ amoxicillin in conjunction with mechanical debridement provides substantial benefits over mechanical debridement alone. Formulations of doxycycline & minocycline may be used as adjunctive therapy in localized non responding sites. Other locally delivered antimicrobials such as chlorhexidine & tetracycline are currently used. This treatment modality proves safe, biodegradable, & most effective in pockets 5mm or deeper especially in medically compromised pts. where use of surgical treatment will not be warranted. At present, no single therapeutic regimen has shown clinical benefits in all pts. unless combined with scaling & root planing (SRP).

**Concept Of Full Mouth Disinfection:** Conventional nonsurgical mechanical therapy (SRP) is usually performed in a quadrant-wise or sextant-wise manner. Recent data indicate that periodontal pathogens reside in intraoral sites such as tongue, mucosa, saliva, & tonsils, other than periodontal pockets, & translocation might occur between these ecologic niches as well as between individuals. If such a translocation occurs, it seems logical that during conventional mechanical therapy, an already treated pocket could be reinfected from periodontal pathogens colonizing other untreated pockets or the extradental domains. This would adversely affect the treatment outcome. Such a revelation would call for a change in our approach, if we intend to improve the effectiveness of nonsurgical mechanical therapy. A full-mouth approach to nonsurgical therapy was thus suggested recently; in which mechanical debridement is performed within 24 hrs & additional disinfection of the probable bacterial reservoirs is achieved using application of chlorhexidine.

**Re Evaluation After Nonsurgical Therapy:** Re-evaluation of the periodontal condition after nonsurgical mechanical therapy is essential to determine the treatment outcome & decide whether further treatment is necessary. Clinical parameters including plaque scores, bleeding on probing, probing pocket depth, & attachment levels are generally recorded on these occasions & compared to baseline values. Re-evaluation data help us to consider whether surgical therapy is warranted.

Studies have demonstrated that it is difficult to achieve adequate root instrumentation in a periodontal pocket of 5 millimeters or greater & that periodontal scaling & root planing is more difficult to accomplish on posterior vs. anterior teeth. In these cases, surgical periodontal therapy offers better access for eliminating root accretions & recontouring alveolar bone destroyed by periodontal disease. The decision to refer pts. to a periodontist primarily depends on the clinician's experience & skills in treating periodontal disease & the need for multidisciplinary management of the case. Patients who are referred may range from those with various forms of gingivitis to those with more complex forms of periodontal disease such as localized juvenile periodontitis, rapidly progressive periodontitis or refractory periodontitis.

**Supportive Periodontal Treatment- The Key To Success:** Whatever the treatment, following it with carefully designed supportive therapy is extremely important to maintain the results obtained & is a prerequisite for successful periodontal therapy. The chronic nature of periodontal disease calls for continuous monitoring & treatment to avoid recurrence of the disease. A standardized supportive care program cannot be recommended. It appears more appropriate to categorize the pts. according to their risk profiles to individualize the supportive care intervals & treatment procedures.

In conclusion, nonsurgical periodontal therapy still constitutes the first step in controlling periodontal infections. Changing concepts in periodontal microbiology might modify our approach to mechanical therapy & technologic advances might help us to understand the exact nature of periodontal infections & to perform the treatment more effectively & easily. An improved diagnostic armamentarium & efficient instruments would definitely improve the standards of periodontal care. We can hope for a promising future in nonsurgical periodontal therapy with continued research efforts on our part, as much remains to be unveiled.

In this task **DENTISTRY TODAY** is playing a major role. **DENTISTRY TODAY** is widely being read by most dental practitioners who are the main check post for curbing the periodontal problems. **DENTISTRY TODAY** covers a large spectrum of topics rendering a great service which continues to inspire the practitioner to change the outlook, approach to dentistry and modulate the treatment according to the changing time and patient needs.

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