

Is Bone One Session Treatment an Ambit to a Periodontist - Review

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Abstract

Every clinician's vision was a realistic, easy and rational way to treat periodontal disease. Though, it seems to be difficult to realize the vision, it is possible with the modern techniques that are available today. In any periodontal treatment, the primary concern is control over the errant microorganisms and soft tissue inflammation resolution and restoration of lost alveolar support. In a periodontist's armoury there are several treatments available, including surgical or non-surgical therapy.

Dissatisfied with the traditional methods to defend oral microbiota and restore lost alveolar bone support, ingenious clinicians, scientists and researchers have turned to unique and sometimes extravagant approaches and explored new frontiers. Bone One Session Treatment, also known as BOST, enables practitioners to ascend up to the crest of the alveolar bone and eradicate anaerobic bacteria— vicious pathogens that not only causes degeneration of the gingiva and alveolar bone but also invades the circulation leading to systemic complications

such as coronary heart disease, osteoporosis, preterm low birth. Bone One Session Treatment (BOST) is an aerobic treatment that eliminates periodontal disease in the deepest pockets and supporting alveolar bone. Thus this review article will enhance the significance of Bone One Session Treatment which is an innovative way of treating periodontal disease.

Keywords: Periodontitis, Periodontal therapy, BOST, Aerobic Periodontics

Introduction

Over the past decade, developments in periodontal research and practice have radically changed the understanding of periodontal diseases and opened up new exciting prospects for both non-surgical and surgical therapy of periodontal diseases. Mechanical methods of sub-gingival debridement carried out by extensive scaling and root planing, followed by oral hygiene procedures, have served as the gold standard of periodontal therapy for decades.

Every clinician's vision was a realistic, easy and rational way to treat periodontal disease. Though, it seems to be difficult to realize the vision, it is possible with the modern techniques that are available today. In any periodontal treatment, the primary concern is control over the errant microorganisms and soft tissue inflammation resolution and restoration of lost alveolar support.

In a periodontist's armoury there are several treatments available, including surgical or non-surgical therapy. Dissatisfied with the traditional methods to defend oral microbiota and restore lost alveolar bone support, ingenious clinicians, scientists and researchers have turned to unique and sometimes extravagant approaches and explored new frontiers.

Dr. William Hoisington has commenced a new treatment method namely the Tri Immunophasic Periodontal Therapy (TIP) and Bone One Session treatment which is a

part of TIP method that is meant to solve periodontal disease in a new way.^[1] Bone One Session Treatment, also known as BOST, enables practitioners to ascend up to the crest of the alveolar bone and eradicate anaerobic bacteria— vicious pathogens that not only causes degeneration of the gingiva and alveolar bone but also invades the circulation leading to systemic complications such as coronary heart disease, osteoporosis, preterm low birth. Bone One Session Treatment (BOST) is an aerobic treatment that eliminates periodontal disease in the deepest pockets and supporting alveolar bone^[2].

The Goal of Aerobic Periodontics

Various species of bacteria, viruses, yeasts and parasites all have their role to play, it is the anaerobic pathogens with their virulence and intrusive nature which open the way for synergy with other organisms to break the connection of connective tissue and form pathological periodontal pockets. It is by opening the entry into the deeper tissues that bacteria and other organisms enter the circulation. In the atherosclerotic plaques of the coronary arteries, researchers have found periodontal pathogens (Fiehn et al. 2005). While the exact mechanism of how these bacteria could cause a rupture in the artery or accelerate blockage remains to be reiterated, the fact that these bacteria are capable of provoking connective tissue destruction at a distance is potentially alarming. Healing periodontal disease like how other bones in our body heal is the goal of aerobic Periodontics.

Bone One Session Treatment (Bost)

A typical full mouth BOST procedure takes 4 to 5 hours in one day. During recovery, BOST minimizes damage to the gingiva, bone, and periodontal apparatus. It uses stretch flap technique^[3]. This stretch flap procedure, without giving incision, allows access to the deepest areas of the roots and bone surface.

What Is The Procedure..?

- 1) Bacterial DNA testing
- 2) BOST treatment
- 3) Aerobic oral hygiene regime
- 4) Adequate and appropriate nutrition

1) Bacterial DNA testing

Modern periodontal treatment begins with determining which and how many bacteria are present in a periodontal disease. Using the bacterial DNA test, we can determine exactly which bacteria cause the periodontal infection.^[1]In most of the cases, the DNA test would confirm that without the use of antibiotics, the form of bacteria present in the gingiva can be targeted.^[3]In such cases it is preferable to avoid antibiotics in order to prevent a drop in the immune system. Some bacterial species are very resilient; they cannot be controlled using the traditional treatments alone. Aggregate bacter actinomycetemcomitans and Porphyromonas gingivalis are aggressive bacterial species falling within this category. If the test shows that these bacteria are present, sufficient antibiotics will be introduced to the treatment in order to produce complete healing.

The bacterial DNA test is done, by inserting a paper point under the gingiva for about 15 seconds. It is a comfortable, fast and a painless procedure. Bacteria thrive in plaque (biofilm), which covers the tooth roots at the level of attachment. Once the bacteria are collected on the paper point the sample is sent to a laboratory to identify the bacteria by comparing their DNA with DNA profiles present in lab's reference database.

2) BOST treatment

• Stretch Flap Technique^[4]

First Step: In this step universal 4R-4L curette is inserted inside the sulcus, where working end facing towards tooth surface. A slight pressure is applied on tissue to begin stretching while removing superficial plaque and calculus.

Second Step: The direction is changed to a circumferential motion starting at the corner to mobilize the tissue and avoid pulling the papilla free and in essence creating an incisional flap.

Third Step: Here the curettes are inverted to allow the rounded tip of the curettes to plasty the surface of the bone and remove any attached granulation tissue or degenerated attachment. The goal is to achieve smooth, regular bone surface and fresh bleeding to flush out bacteria and toxins from the porosities.

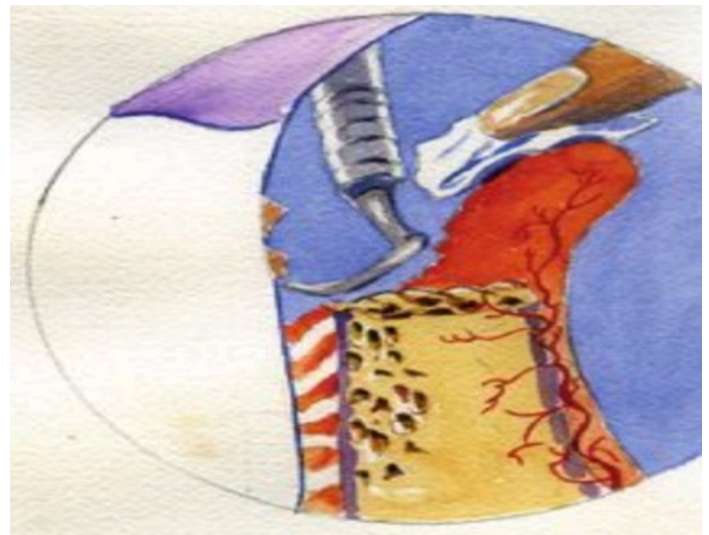


Figure 1: The gingiva is intentionally stretched using the rounded back of curettes^[6]



Figure 2: The clot that is firmly attached to the clean bone serves as a scaffold. The stem cells can move on along it and up the root surfaces at the rate of 0.5mm per day for

eight days and thicken the layer on the clot.^[6]



Figure 3: As healing time increases, the pockets gradually fill in from the bottom with very dense, partially mineralised connective tissue in about four to six weeks, and finally will become acellular.^[6]

Healing after Bost

The clot that is firmly attached to the clean bone serves as a scaffold. The stem cells can move on along it and up the root surfaces at the rate of 0.5mm per day for eight days and thicken the layer on the clot.^[4]

As healing time increases, the pockets gradually fill in from the base with very dense, partially mineralized connective tissue in about four to six weeks, and finally will become acellular. Once the new Mineralized Acellular Connective tissue (MAC) is in place in about a month, the bone naturally heals under it. Approximately in eight months, a new thick layer of cortical bone will form over the healed inner (cancellous) bone. The final healed result with the bone crest cortical layer reformed and the disappearance takes about nine months. This healing is visible on X-rays.^[5]

3) Aerobic Oral Hygiene Regime



Figure 4: Perio-aid

Brushing and flossing is not enough to reach all the way to the attachments, so Perio-Aid in addition with specifically designed and treated green tips called aeros has to be used(Figure 4). The idea is to reduce biofilm and aerate the sub gingival areas all the way to the attachment and in the grooves and furcations. The patients are instructed to listen for the squeaky clean surface appearance that no blood is on the aero tip and that the attachment also feels firm.

Advantages of Bost

- Non-invasive method.
- No incisions or sutures
- Quick reliable method.^[5]
- Healing is faster.
- Relatively comfortable for a patient.
- Less complications.
- No bone necrosis.
- Aesthetically more acceptable.
- Less sensitivity.

Conclusion

A non-invasive technique BOST can alter pathogenesis by removing etiological factors and facilitating the tissue for regeneration and new attachment. Tri immune phasic periodontal therapy has led to the rise of new variations in treating periodontal disease.

It overcomes the disadvantages of traditional treatment modalities in periodontics. BOST periodontal therapy sets up all the conditions where the body can get out of the defensive phase against bacteria and other microorganisms and into a regeneration phase to heal back a new attachment.

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