Periodontal treatment

Moderator: Carlo Marinello

Introduction

Periodontitis is an inflammatory disease of the teeth, supporting tissues caused by a biofilm. If left untreated, it leads to a progressive destruction of the periodontal ligament and alveolar bone, with either pocket formation or gingival recession, or both. The aim of periodontitis therapy is to stop the inflammation by eliminating the subgingival biofilm and by establishing a local environment, including the microflora, which is compatible with periodontal health. The reduction of clinical probing pocket depths, the maintenance or improvement of the clinical attachment level, as well as the reduction of bleeding on probing, are the most important biologic outcome measures used to determine whether treatment is successful. In restorative dentistry, esthetic aspects also decide upon success, aiming at an optimal form ("positive architecture") and function ("accessibility") of the periodontal tissues. Periodontal treatment opportunities are either nonsurgical or surgical.

Based on oral health education and prevention, the epidemiological picture of periodontal diseases in the industrialized part of the world has changed. The higher preventive awareness for earlier diagnosis through efficient screening by oral health care providers are responsible for these changes, as well as the increased interest for "teeth for life" by oral health consumers. However, there is still a long way to go: there is a need for early and precise identification of high-risk patients; there is a need to change life style habits in these patients; there is also a need for not only offering high quality nonsurgical and surgical periodontal therapy, but also for offering well-organized lifelong maintenance – the cornerstone for long-term success in periodontal therapy.

Although the technically highly demanding closed mechanical instrumentation of the root surface (sometimes in combination with an antimicrobial therapy) has led to an impressive reduction for the need of flap surgery, in specific cases in restorative dentistry (ie, (deep) residual pockets, furcation, tissue morphology, esthetics), there are still several indications for open flap procedures.

Research shows that if probing pocket depth reduction is the main aim, surgical periodontal therapy is the treatment of choice partially for moderate pockets (4–6 mm) and especially for deep pockets (> 6 mm). If, however, the aim is to increase the clinical attachment level, nonsurgical therapy seems to be of greater benefit for shallow (1–3 mm), sulci and moderate pockets. The clinical challenge in the decision-making process relies in the fact that the patient mostly has a combination of shallow, moderate, and deep pockets. Furthermore, the biologic and esthetic predictability of treatment outcomes for sites with angular bony defects still remains unde-

fined. Which therapy is chosen depends not only on outcome, such as probing pocket depth reduction and clinical attachment level gain, but also on clinical parameters, such as pain, gingival recession, root sensitivity and especially in restorative dentistry on esthetic aspects. The selection of surgical or nonsurgical periodontal therapy is, therefore, mainly based on the benefits and disadvantages that the selected procedure may have on the specific single patient.

Today, prognostically questionable teeth may be extracted more often due to the seemingly faster and more efficient implant therapy, compared to a technically more complex, demanding and long-lasting periodontal therapy. Despite this trend, the health provider has to be perfectly aware that by providing either nonsurgical or surgical periodontal therapy, a long-term preservation of attachment level and – especially in restorative dentistry – esthetic corrections of soft and hard tissue are successfully possible.

Whenever we are faced with the question to maintain and periodontally treat a tooth/teeth as abutments and non-abutments, many questions arrive, such as:

- What positive and negative effects does mechanical nonsurgical periodontal treatment have in a shallow sulcus (1–3 mm), in moderate (4–6 mm) and deep (> 6 mm) pockets?
- What means success in mechanical nonsurgical periodontal treatment (immediate = quality control and long-term = attachment level and pocket depth)?
- What therapeutical means of nonsurgical periodontal treatments are at our disposal and how is their clinical efficiency rated?
- What clinical concepts of nonsurgical periodontal treatments are at our disposal and how is their clinical success rated?
- What are the indications for surgical periodontal therapy? What types of side effects (recession, creeping attachment, bone loss, etc) have to be expected?
- What impact does this have on restorative procedures, such as tooth preparation/provisionalization/final restoration?
- Is there a minimal bony reattachment threshold to perform osseous surgery?
- What impact is esthetics having on nonsurgical and surgical therapy?

The aim of the following essays is to try to answer some clinically relevant conceptual questions and to give some clinical guidelines regarding nonsurgical and surgical periodontal therapy, based on scientific evidence and great clinical expertise.