



NON-SURGICAL TREATMENT OF PERI-IMPLANTITIS: CASE REPORT

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ABSTRACT

Background: Dental implants are an effective, reliable and widely implemented clinical treatment option for the replacement of missing teeth. But although showing predictable successful outcomes, problems are not rare, and nowadays intensively are discussed the related biological complications. And while peri-implant diseases are becoming frequent health issues in dental offices, commonly accepted and applied treatment protocols are still missing.

Materials and methods: In this article, we present a case of acute peri-implantitis. A male patient, 50 years old, systemically healthy and non-smoker, complained of pain, oedema and bleeding in the site of an implant placed 5 years ago. The clinical evaluation revealed red and swollen mucous and the presence of a peri-implant abscess. After probing, extensive bleeding and suppuration were observed. The probing depth on the distal site of 4.5 implant was 7mm and the X-ray evaluation showed significant bone loss at this site.

The case was resolved completely with non-surgical mechanical debridement combined with systemic antibiotic therapy and subsequent regular peri-implant maintenance therapy.

Results: The case demonstrates satisfactory results with a gain of radiographic bone level as it is seen on the X ray imaging, comparing the initial bone level and the bone level 6 months after active treatment. Resolution of peri-implant soft tissue inflammation (no bleeding on probing, no suppuration) is also observed.

Conclusion: Non-surgical therapy of peri-implantitis is effective in arresting progressive bone loss and can achieve radiographic bone fill.

Keywords: dental implant, peri-implantitis, non-surgical therapy, debridement, antibiotics, radiographic bone level,

BACKGROUND

Dental implants are an effective and reliable clinical treatment option for the replacement of missing teeth. But although showing predictable successful outcomes, problems are not rare and the biological complications (peri-implant mucositis and peri-implantitis) which affect dental implants are intensively discussed nowadays. They have inflammatory nature and proven association with dental plaque but still commonly accepted and applied treat-

ment protocols are missing [1].

An important biological complication which has become an emerging challenge faced by practising dentists worldwide is peri-implantitis. It is defined as a pathological condition occurring in tissues around dental implants, characterized by inflammation in the peri-implant connective tissue and progressive loss of supporting bone [2]. In the 2017 world workshop on the classification of periodontal and periimplant diseases, it was decided that diagnosis of periimplantitis requires the presence of bleeding and/or suppuration on gentle probing, increased probing depth compared to previous examinations and the presence of bone loss beyond crestal bone level changes resulting from initial bone remodeling. In the clinical situation where previous examination data are not available, diagnosis of periimplantitis requires probing depths of ≥ 6 mm and bone levels ≥ 3 mm apical of the most coronal portion of the intraosseous part of the implant in addition to the presence of bleeding and/or suppuration on gentle probing [3].

The onset of periimplant diseases is characterized by the presence of etiological factors similar to those involved in the etiology of periodontal diseases [4]. As an infection peri-implantitis is presented with a heterogeneous mix of periodontopathic microorganisms, uncultivable asaccharolytic anaerobic G(+) rods and other cultivable G(-) rods as well as opportunistic microorganisms [5]. An important role is played by *Porphyromonas gingivalis*, a cluster of *Tannerella forsythia* and *Staphylococcus aureus*. Moreover, studies have found that titanium attracts *Staphylococcus aureus*, enteric rods, *Candida* and fungi [6]. While the periimplant pocket deepens non-surgical debridement of the infected implant surface becomes more difficult and less effective and is additionally complicated by the design of macro- and micro threads. Even so, non-surgical therapy improves the inflammatory status of the peri-implant tissue. The clinicians can assess the tissue response to antibacterial therapy and ensure that the patient's oral hygiene home care is effective. Non-surgical therapy should always precede any surgical treatment [7].

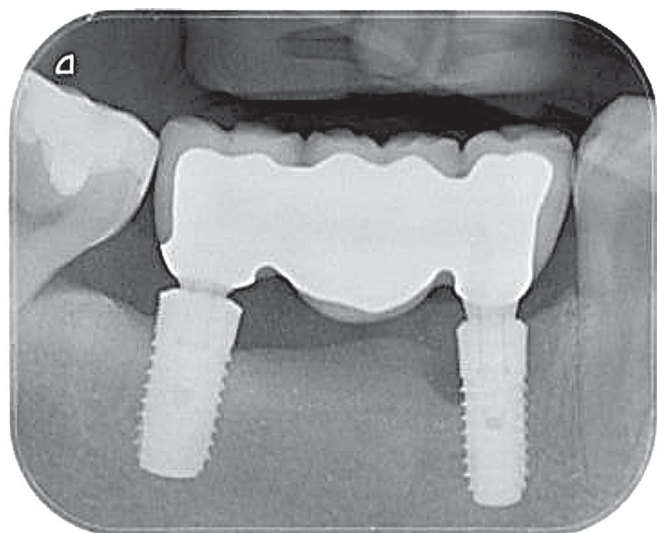
In summary, the primary goal of the treatment of peri-implantitis is to address and eliminate peri-implant mucosal inflammation, and to achieve healthy hard and soft peri-implant tissues [8]. The non-surgical treatment usually provides clinical improvements in reduced bleeding tendency and in some cases pocket reduction. However, in advanced cases, complete resolution of the disease is unlikely.

MATERIALS AND METHODS:

A male patient, 50 years old, systemically healthy, non-smoker, with no previous history of periodontitis, presented at the dental office reporting pain, oedema and bleeding at the site of 4.5 implant which was part of implant supported restoration that had been placed 5 years ago in order to replace lost teeth.

The clinical evaluation revealed the presence of a periimplant abscess. The mucous was red and swollen. After probing extensive bleeding and suppuration were observed. A probing depth of 7mm was registered on the distal site of the 4.5 implant. In all other sites the probing depth was 4mm. The probing depth in all sites of 4.7 implant also was 4mm. The X-ray evaluation showed significant bone loss on the distal site of 4.5 implant. (fig. 1).

Fig. 1. Initial radiographic evaluation showing peri-implantitis lesion.



The treatment in the acute phase of peri-implant infection was full mouth scaling with attention to the peri-implant area which was instrumentated after local anesthesia with articaine 4% and adrenaline 1:200000. The implant surface was debrided with ultrasonic instrument with an implant plastic scaling tip along with titanium curette. Air powder abrasive system with sodium bicarbonate was also used. With the help of the curette the abscess was drained throughout the sulcus. Meticulous subgingival irrigation with chlorhexidine gluconate (0,12%) followed.

Systemic antibiotic therapy with Amoxicillin and Metronidazole, both at 500 mg, 3 times daily, for 10 days, was prescribed. The patient was instructed on effective self-oral hygiene, consistently with the good clinical practice. Special emphasis was made on the management of plaque accumulation around the implants. He was instructed to use soft tooth brush with non abrasive toothpaste. For the interproximal spaces interdental brushes of appropriate size were recommended with attention to their insertion: pushed carefully from the bucal side, at a right angle to the teeth/implants, sliding in and out of the space, using the full

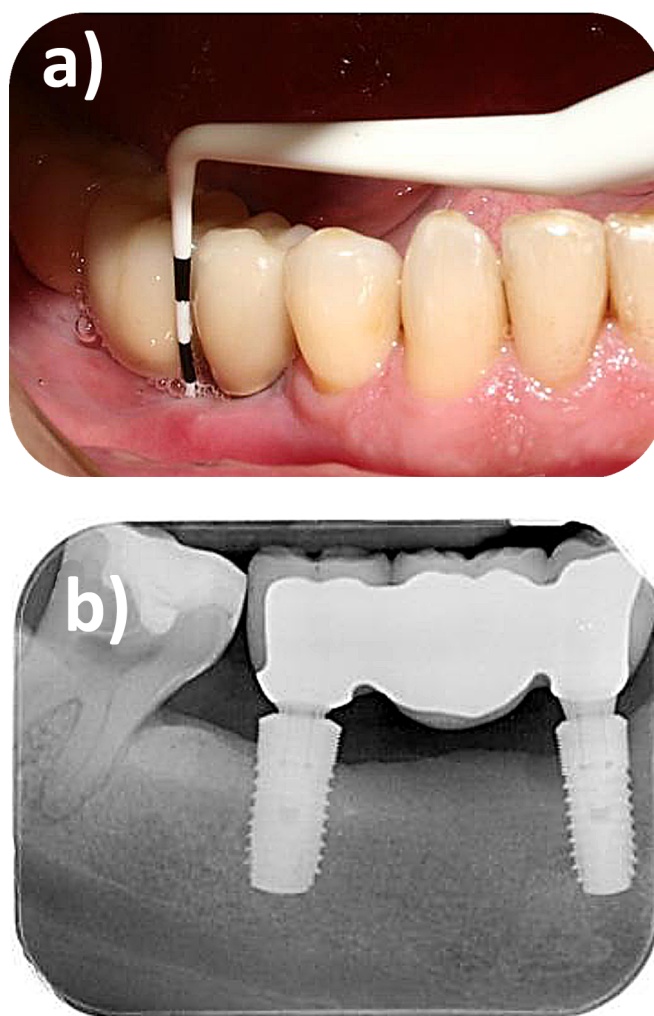
length of the bristle part of the brush. The patient was also advised to rinse with 15 ml 0,2% chlorhexidine twice a day for 7 days.

After the resolution of the acute phase, the patient was enrolled in a peri-implant maintenance therapy planned for every 2 months. At each visit, a reinforcement of oral hygiene instructions, debridement and air polishing were performed.

RESULTS

Six months after treatment, resolution of peri-implant soft tissue inflammation, characterized by no bleeding on probing and no suppuration, is observed. The registered probing depth in the distal site of 4.5 implant is 2 mm. (fig. 2a). Similarly, the probing depth in the mesial, vestibular and lingual site is also 2mm. Satisfactory results with a gain of radiographic bone level as it is seen on the X ray imaging is also demonstrated by comparing the initial bone level and the bone level 6 months after the active treatment. (fig. 2b)

Fig.2. Clinical (a) and radiographic (b) evaluation 6 months after non-surgical therapy.



DISCUSSION

Resolving the inflammation to maintain clinically healthy and stable condition is a major treatment strategy for peri-implantitis. The effectiveness of different treatment approaches has been a debatable topic in scientific literature since the modalities are often regarded as unsustainable in the long term. The non-surgical therapy as a single treatment is considered to reduce inflammation and has demonstrated successful rates and predictability in cases of periimplant mucositis. Hence, case series studies have shown that non-surgical debridement and implant supported prosthesis modification combined with antibiotic therapy in vertical defects followed by supportive peri-implant maintenance therapy is completely effective to resolve peri-implantitis in about 40% of the cases treated [9, 10].

Even though non-surgical therapy may not resolve

advanced cases, it is mandatory that a phase of preparatory non-surgical treatment should precede a surgical intervention. This preparatory phase performed before surgery allows for oral hygiene improvement and possible resolution of disease infection by itself. In cases showing signs of disease following initial non-surgical treatment, surgical treatment should be considered [11, 12].

CONCLUSION

Non-surgical therapy of peri-implantitis can be effective in arresting progressive bone loss, reducing probing depth in sites associated with vertical bone loss, eliminating suppuration and achieving radiographic bone fill. Nevertheless, early diagnosis, detection and intervention remain the key to managing peri-implantitis. The search for predictable treatment protocols is still continuing.

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