

Exposure of Implant Surface to Gain Supportive Bone for Successful Implant Therapy – A Case Report

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Abstract

The use of dental implants for supporting prosthetic rehabilitations has shown highly satisfactory results regarding restoration of the patient's function and aesthetics, as well as in terms of long-term survival. However, dental implants can lose supportive bone, even in cases of successful osseointegration. The main cause of this loss of crestal bone surrounding an implant is local inflammation during the course of peri-implant diseases. These diseases are defined as inflammatory lesions of the surrounding peri-implant tissues and include two different entities: peri-implant mucositis and peri-implantitis. Both peri-implant diseases are infectious in nature and are caused by bacteria from dental biofilms. Although bacterial pathogens represent the initial step of the disease process, the ensuing local inflammatory response and the imbalance in the host–parasite interaction seem key in the pathogenesis of the tissue destruction defining these diseases. Different risk indicators that may influence the

pathogenesis in favour of tissue destruction include poor oral hygiene, a history of periodontitis and cigarette smoking. Less evidence has been demonstrated for the role of diabetes and alcohol consumption. This case report describes a regenerative treatment for restoration of bone and reduction of probing depth around peri-implantitis affected implant.

Keywords: Peri-Implantitis, Peri-Mucositis, Osseointegration, Regenerative Therapy

Introduction

The most important step in implant therapy is the diagnosis and treatment planning. Proper knowledge of the bone response, osseointegration, implant surface properties, healing around the implants and the mechanical forces on implants during function is essential before doing implant therapy. Implant failure is caused by a number of factors which include peri-implantitis, absence of osseointegration, and implant fracture. It may also be caused due to surgical trauma, micromotion, and

overloading. In analogy to gingivitis and periodontitis affecting the periodontium of natural teeth, an inflammation and destruction of soft and hard tissues surrounding dental implants is termed as mucositis and peri-implantitis¹⁻³. Thereby, transitions are often fluent and not clinically clearly separable⁴. Mucositis describes a bacteria-induced, reversible inflammatory process of the peri-implant soft tissue with reddening, swelling and bleeding on periodontal probing⁵. These are typical signs, but they are sometimes not clearly visible. Furthermore, bleeding on probing (BOP) might be an indicator for peri-implant disease, but sufficient evidence according to the predictive value of BOP is still lacking⁶. In contrast to mucositis, peri-implantitis is a progressive and irreversible disease of implant-surrounding hard and soft tissues and is accompanied with bone resorption, decreased osseointegration, increased pocket formation and purulence. Bleeding on probing, bone loss and deep probing depths may have other reasons than inflammation, e.g. too deep insertion of the implant⁷. Moreover, type and shape of the implant, connection type, abutment and suprastructure material and the type of prosthetic suprastructure affect the peri-implant soft and hard tissues⁶.

Features and Frequency of Peri-Implantitis

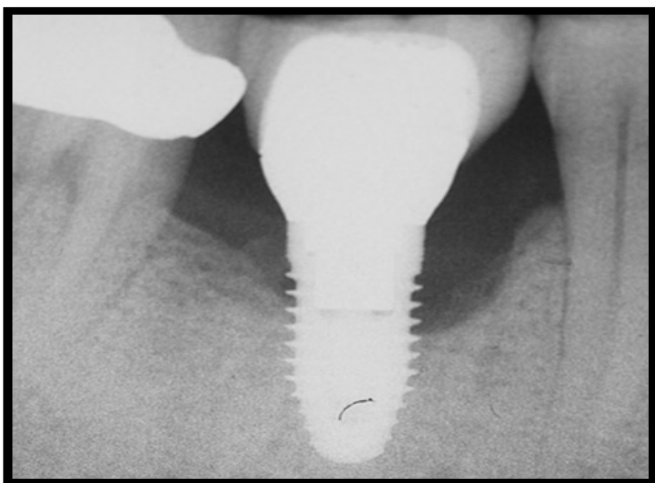


Fig.1: Peri-implant pocket



Fig. 2: Vertical destruction of the crestal bone



Fig. 3: Tissues may or may not be swollen



Fig. 4: Bleeding after gentle probing/suppuration

Treatment Options

1. **Conservative Therapy:** a) Manual treatment b) Drug therapy c) Laser therapy d) Photodynamic therapy
2. **Surgical Treatment:** a) Resective therapy b) Regenerative therapy

Surgical Therapy- Gold Standard

Case Report

- A 40 years old male patient reported to Department of periodontology, Himachal Dental College & hospital, Sundernagar
- Complaining of swelling and bleeding i.r.t lower left back teeth region
- Intraoral finding:
 - inflammation i.r.t 36
 - probing depth of 5 mm associated with bleeding on probing



Fig.5: Pre-Operative



Fig.6 : Incision

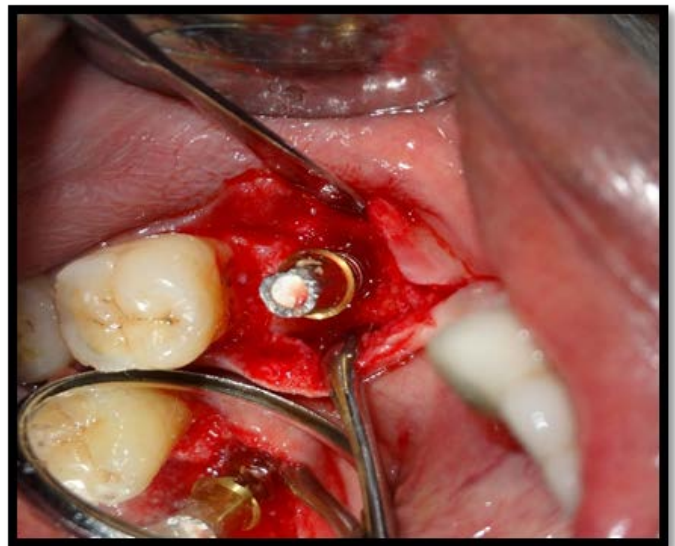


Fig. 7: Flap Reflection



Fig. 8: Membrane And Graft

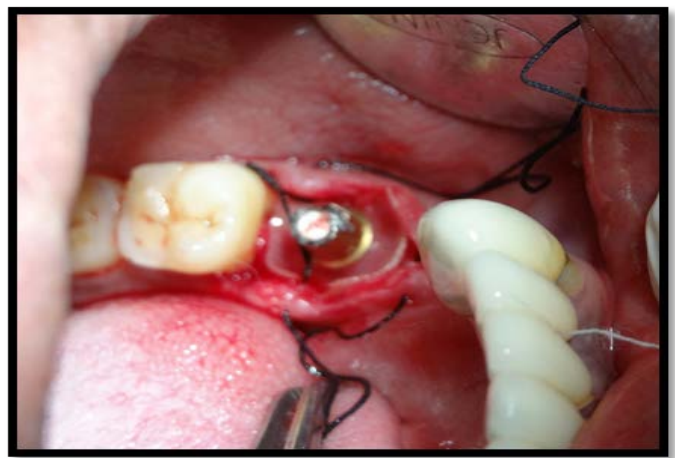


Fig.9 : Graft And Membrane Placed



Fig. 10: Suture Placed



Fig. 11: COE-Pack Placed

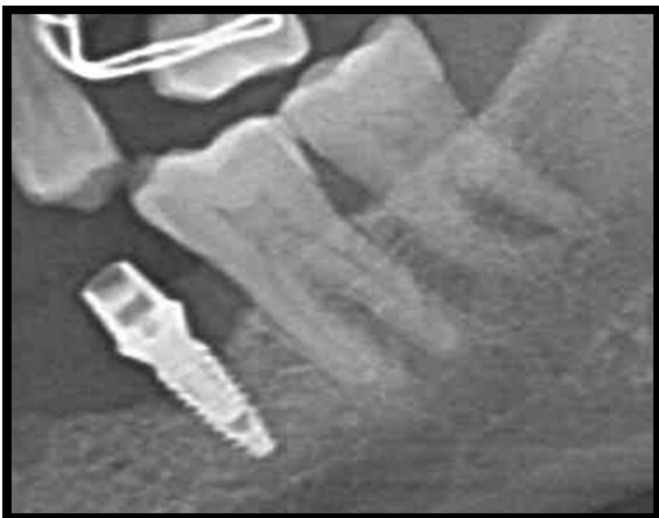


Fig.12 : Pre-Operative



Fig. 13: Post-Operative

Discussion

Peri-implantitis in this case might attribute to bacterial invasion, which could be worsened by the unfavourable implant positioning, the improper management of tissues at the implant sites, lack of oral hygiene, and irregular check-up visits. Furthermore, extensive inflammation without proper intervention was presumed to exacerbate the bony destruction surrounding the implants. Nonsurgical debridement may not be adequate for removing bacterial load from implants surfaces with peri-implant pockets ≥ 5 mm.⁸ In this case, open flap debridement and decontamination were performed to completely remove the granulation tissue and condition the affected implant surfaces, respectively. The combined surgical resective / regenerative therapy of moderate to advanced peri-implantitis defects has demonstrated more predictable clinical improvements than a regenerative approach alone.⁹ The combination of natural bone mineral and collagen membrane in GBR seemed to correlate with greater improvements in probing pocket depth and clinical attachment level.¹⁰

Conclusion

The case report present favourable resolution of peri-implantitis with stable treatment results. Complete

debridement, implantoplasty and decontamination are crucial in treating peri-implantitis. The existing tissue defects required augmentation to provide configurations for easy hygiene maintenance which in turn contributed to long-term implant stability. In addition, patient oral hygiene and a maintenance program should be strictly performed to ensure the stability after successful treatment of peri-implantitis.

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