

**Surgical management of peri implantitis assisted with photo ablative and photo biomodulation laser therapy - A case report with 9 months follow up**

<sup>1</sup>Dr. Roohparavar khan, pg student H.K. E's S. Nijalingappa institute of dental science and research Kalaburagi Karnataka department of periodontology.

<sup>2</sup>Dr. Humera hamreen, pg student, H.K. E's S. Nijalingappa institute of dental science and research Kalaburagi Karnataka department of periodontology.

<sup>3</sup>Dr. Veena a. Patil, professor H.K. E's S. Nijalingappa institute of dental science and research Kalaburagi Karnataka department of periodontology.

<sup>4</sup>Dr. Shrikhar Desai, professor H.K. E's S. Nijalingappa institute of dental science and research Kalaburagi Karnataka department of periodontology.

<sup>5</sup>Dr. Jayashree a. Mudda, professor and hod H.K. E's S. Nijalingappa institute of dental science and research Kalaburagi Karnataka department of periodontology.

<sup>6</sup>Dr. Bindu s. Patil, professor H.K. E's S. Nijalingappa institute of dental science and research Kalaburagi Karnataka department of periodontology.

**Corresponding Author:** Dr. Humera hamreen, pg student, H.K. E's S. Nijalingappa institute of dental science and research Kalaburagi Karnataka department of periodontology.

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**Type of Publication:** Case Report

**Conflicts of Interest:** Nil

**Abstract**

**Aim:** The aim of the present case report was to describe the management of peri-implantitis with a regenerative approach.

**Materials and method:** A 44-year-old male patient complains of tooth mobility in mandibular left posterior region of jaw since 2-3 months. Clinical examination has shown Grade II mobility with radiographic evidence

of saucer shaped bone loss extending up to middle third of the length of the implant. Treatment started with local debridement, surface decontamination of implant, surface bio modification, bone graft, PRF and GTR placement. Patient was evaluated at one month, 3 and 9 months follow up.

**Result:** After 9 months of follow up, significant improvement seen in the clinical parameters with radiographic evidence of bone formation.

**Conclusion:** The treatment described in the present case report seemed to show improved clinical results up to a relevant follow-up period.

### Introduction

Surface structure of the implant contributes to the difficulties to remove hard and soft deposits from the implant surface without surgical intervention. If the implant threads are exposed after healing following a surgical intervention, plaque retention will be facilitated (Teughels et al. 2006) and challenge the patient's oral hygiene performance. Exposure and microbial colonization of the implant threads result in a clinically difficult situation to treat using non-surgical treatment options (Kreisler et al. 2005, Schwarz et al. 2006b) The use of respective surgical approaches and smoothing of the implant surface as a treatment option has therefore been proposed, and was reported to affect the long-term survival of implants positively (Romeo et al. 2005). It would however, be an advantage, especially in areas of aesthetic importance, if the bone defects occurring around the implants could be regenerated.

The aim of the present study was to treat peri-implantitis by surgical techniques using a bone substitute, diode laser therapy and tetracycline. The main outcome variable for this study was PD reduction, attachment gain, mucosal recession (MR) and defect fill.

### Material and methods

➤ A 44 years old male patient presented with the chief complaint of mobility of tooth in his left mandibular molar region. On intra oral examination grade II mobile is seen #36 with deepest probing pocket depth of 7mm. On intra oral peri apical radiographic examination

showed saucer shaped bone loss with 8 threads of implant exposure.

The patient was informed about the therapy and informed consent was taken. Initial therapy consisted of oral hygiene instructions followed by non-surgical periodontal therapy.

Probing depth (PD) measured at four sites (mesial, buccal, distal and lingual) of implant.

Probing attachment level (PAL) measured in millimeter from the abutment connection of the suprastructure at four sites (mesial, buccal, distal and lingual).

Mucosal recession (MR) calculated as the difference between the PAL and PD at four sites (mesial, buccal, distal and lingual)

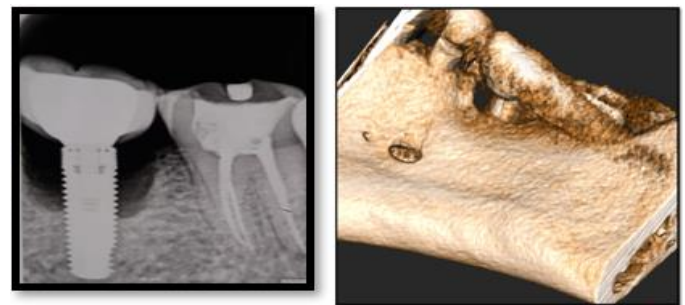


Fig.1: pre operative IOPA and CBCT showing bone loss  
Bleeding index measured at the implants after probing at four sites (mesial, buccal, distal and lingual), and graded (0-3): 0,5 no bleeding, 1 5 spot bleeding, 2 5-line bleeding and 3 5 profound bleeding.

BOP (bleeding on probing) measured at implants and teeth at four sites (mesial, buccal, distal and lingual).

### Surgical treatment

The patient was prescribed systemic antibiotics, Amoxicillin (375 mg – 3times a day) in combination with Metronidazole (400 mg – 2 times a day), for 10 days. The antibiotic therapy was initiated the day before surgery.

On the day of surgery, surgical area is anesthetized with 1.5 - 2ml of 1:80.000 solution of Lignocaine.

Conventional flap was opened and local debridement done with plastic scaling instrument.

➤ The peri-implant lesion was surgically exposed. Following anesthesia, a sulcular incision was made around the neck of the implant abutments, and full-thickness flaps were raised at the buccal and lingual surfaces to access the peri-implant defects. All granulomatous tissue was carefully removed in the bone defect with titanium instruments. The threads were carefully cleaned from mineralized calculus and the implant surface was cleansed using hydrogen peroxide (3%), followed by profuse rinsing with saline. Surface decontamination done with EDTA, Photo biomodulation using LASER with 0.8W, pulse mode, for time of 240 seconds.

➤ Anti-infective therapy done with tetracycline for decontamination of implant surface for 10 - 15 minutes.

➤ PRF and bone graft placed with GTR membrane, 5-0 resorbable simple interrupted suture given.

➤ Following suturing, the following parameters were registered: primary flap closure or not, wound stability or not, after pulling the lip and blanching of the flap in the sutured area.



Fig 2: Elevation of full thickness flap and implant exposure, application of EDTA.



Fig 3: Application of tetracycline and LASER light



Fig 4: Placement of PRF, Bone Graft and GTR.

### Results

The mean PD at baseline was around 7 mm. There was no significant difference between PAL.

- a. PPD reduced from 7mm to 3 mm
- b. reduction in BOP
- c. Significant reduction in modified plaque index was observed
- d. improvement of the bone level [gain of 4 threads in bone level]

### Results



Fig 5:

### Conclusion

Prevention is the most important instrument based on appropriate treatment planning, an atraumatic approach for implant insertion and continuous check-up intervals with professional teeth and implant cleaning. Above all, attention should be paid to risk factors such as smoking and active or previous periodontitis. In non-surgical therapy, combinations of mechanical cleaning with curettes and air polishing systems are recommendable. Adjuvant antiseptic rinses and local or systemic antibiotics are effective for short-term bacteria eradication; laser and photodynamic therapy are additional treatment options.

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