



## Dental Implant Treatment with 10-Year Follow-Up in a Patient with Severe Chronic Periodontitis: A Case Report

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**Abstract:**

Tooth loss among adults is associated with progressive periodontitis. Implant prosthetic treatment has long been utilized in periodontal patients. Even when the implants are applied, ongoing management of periodontal disease and control of inflammation is necessary to maintain a healthy oral cavity. Lack of appropriate periodontal treatment can result in recurrence of periodontal disease during a maintenance period; loss of the supportive capacity of the periodontal tissues will increase the susceptibility of residual teeth to traumatic force. For this reason, it is worthwhile to improve oral function by applying implants as a fixed device. This case report states that implant treatment in a patient with generalized severe chronic periodontitis helped maintain the periodontal and peri-implant tissue for a long term. We propose that initial periodontal treatment and ongoing supportive therapy can help maintain implants in patients with severe periodontitis

**Introduction:**

Periodontitis is an endogenous multi-bacterial infectious disease in which the periodontal tissues break down as a result of the interactions between specific anaerobic bacteria and host immune mechanisms. Additionally, it is a multifactorial disease, involving bacterial, environmental, and biological factors.<sup>1</sup> Chronic periodontitis is an infectious disease resulting in inflammation within supporting tissues of the teeth, progressive attachment loss and bone loss and is characterized by pocket formation and/or recession of the gingiva.<sup>2</sup> Chronic periodontitis is the most common form and is characterised by its slow rate of progression with short periods of rapid progression. Currently only four species have been identified as true periodontal pathogens; *Aggregatibacter actinomycetemcomitans*, *Porphyromonas gingivalis*, *Tannerella forsythia* and *Treponema denticola*. Furthermore, several additional bacterial species (known as a climax community) provide nutritional interdependencies for periodontal pathogens and are therefore often related to the progression of periodontal disease<sup>3</sup>.

Somewhat unsurprisingly peri-implantitis and periodontal disease share similar risk factors. Patients who have a history of periodontal disease have been shown to be at higher risk of developing peri-implantitis. Patients with a history of chronic periodontitis are 4 times more likely to develop peri-implant disease than patients with healthy periodontal tissues. Patients with aggressive periodontitis have been shown to have a 14 times greater risk of peri-implantitis than periodontally healthy patient<sup>4</sup>. Peri-implantitis is an infectious disease which causes an inflammatory lesion that resides in peri-implant mucosa and affects the supporting bone<sup>4</sup>.

The purpose of this case report is to show the necessity of implant treatment for severe periodontitis. The patient was maintained successfully for 10 years, suggesting that implants following periodontal treatment may contribute to maintaining good functional esthetic.

**CLINICAL REPORT**

A 33-year-old man presented to the dental office hoping to improve his oral health, function, and esthetics. On clinical examination oral hygiene status of the patient was poor due to abundance of local factors such as plaque and calculus. Generalised increase in the size of and bleeding on probing and pus discharge was seen from periodontal pockets. Generalised 7-8mm periodontal pockets were present; with Grade II furcation involvement with 36, 46, 26 region. Grade III mobility was seen 11, 21, 22, 31, 32, 33, 34, 41, and 42. 75% bone loss in the maxillary arch and the mandibular posterior teeth with class II mobility, 50% bone loss in the mandibular left and right second premolars with no mobility, and generalized bleeding upon probing. Radiographically, there was generalized bone loss.

In the initial periodontal therapy grade III mobility teeth 11, 21,22,31,32,33,34,41 and 42 are extracted. As the patient is highly concern about esthetics and appearance immediate removable partial denture was delivered to patient and post operative instructions are advised. After 1 week patient recalled for post-operative evaluation and asked any discomfort.

After thorough scaling and root planning patient is scheduled for full mouth flap surgery. Generalised Kirkland flap surgery was performed in all the four quadrants and sutures were placed. Post operative antimicrobials and anti-inflammatory were prescribed to patient.

Patient was appointed after 4 months for dental implant placement. In the maxillary arch, the implants (3.75×10 mm; 3.5x 10mm Adin implants) were placed in 11 and 21 region. In mandibular arch in 42, 32, 33 and 34 (3.3x 10, 3.3x10, 4.2x10 and 4.2x11.5) were placed. All the implants were submerged and sutures placed. Second surgery was planned after complete osseointegration.

Four months after implant placement, open-tray impressions of the maxillary and mandibular implants were made with auto-polymerizing resin to connect the implant impression copings, and an open custom tray was fabricated with acrylic and polyether adhesive. A soft polyether impression material was used. The maxillary and mandibular implants were restored by using multiple abutments after 3 months and occlusion was adjusted.

The patient was recalled every 6 months. At the 10-year recall appointment, the hard and soft tissues remained stable. Furthermore, the papillae from the maxillary right central and lateral incisors had filled in the space. The periodontal condition of the patient remained stable with no sign of inflammation or bleeding.

On 10year follow-up examination patients is asked to take CBCT for evaluation of bone loss around implant. On evaluation 2-3mm of crestal bone loss was seen in mandibular implants and 2mm bone loss was observed in maxillary implants. All the implants are stable and no sign of bleeding on probing was seen around the implant.

**Discussion:**

In recent years, there has been controversial discussion on whether the replacement of lost teeth with osseointegrated implants is indicated in periodontally diseased patients.

This report describes the successful implant treatment and long-term management of a patient with severe periodontitis. To achieve successful periodontal treatment, both the removal of inflammatory factors and the improvement of occlusal factors are needed. In this case, these goals were obtained through oral hygiene instruction, scaling and root planing, occlusal adjustment, and application of a partial denture. A supportive therapy after active periodontal therapy is effective in maintaining the health of periodontal tissues.

Leonhardt et al. (2002) studied longitudinally two-stage implants in patients who had been treated for advanced periodontitis before the start of the study. The patients had been carriers of putative periodontal pathogens and were carriers of these species at the 10-year examination. The 54 fixtures followed showed a mean bone loss of 1.7 mm (1.2 mm) and 61% of the implant sites showed bleeding on sulcus probing. The mean bone loss around the examined natural teeth during the observation period was 0.8 mm (1.5 mm) with 35% of the sites showing bleeding on probing. The survival rate for implants was 94.7%<sup>5</sup>.

In the paper by Mengel et al. (2001) a distinction was made between aggressive and chronic periodontitis. Only for the aggressive periodontitis group are 5-year data reported while the chronic group was followed for 3 years. Using a two-stage implant system the bone loss at 5-years post surgically in the aggressive periodontitis was on average 0.88 mm. Bone loss at the implants in the first 3 years after insertion of the final abutment was significantly higher in the generalised aggressive periodontitis patients as compared to patients diagnosed as having chronic periodontitis. The 5-year implant survival/ success rate was 88.8%<sup>6</sup>.

Accordingly a past history of periodontitis may represent a significant risk factor for complications around implants in patients that have been treated for advanced periodontitis. Untreated periodontal disease and refractory periodontitis patients are at risk for complications and a regular maintenance program is essential to keep the periodontal and peri-implant tissues healthy. Consequently, it has been suggested that patients should not be subjected to dental implant therapy if they present with local inflammation or inadequate oral hygiene.

#### Conclusion-

Case selection for patients receiving implants is extremely important and dental implants should not be seen as a panacea for tooth replacement. Implants can be placed in patients with a history of periodontitis, however, initial periodontal stabilisation is essential and regular maintenance therapy is paramount to minimise the risk of peri-implantitis.

#### References:

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Clinical photographs –



Fig 1- Preoperative view



Fig 2- Immediate after extraction



Fig 3- removable partial denture



Fig 4- Implant placement



Fig 5- Implant placement



Fig 5- abutment placement

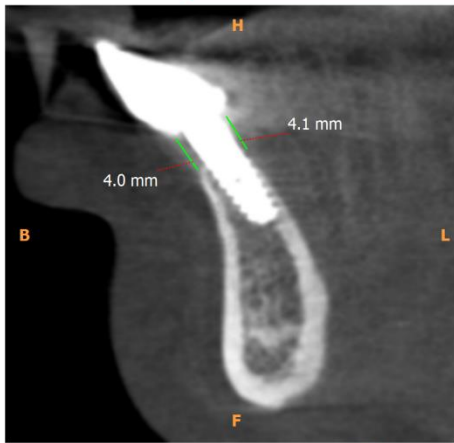


Fig 6- abutment placement

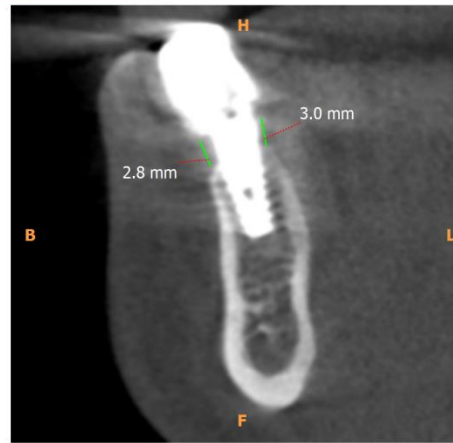


Fig 7- final prosthesis

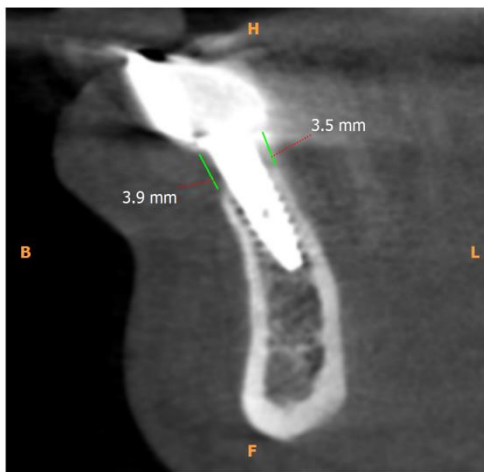
**DENTASCAN CBCT CENTRE,SANGLI.**



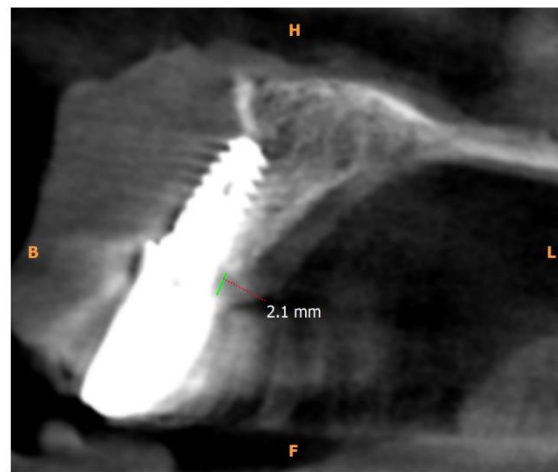
**Implant 42** 161%



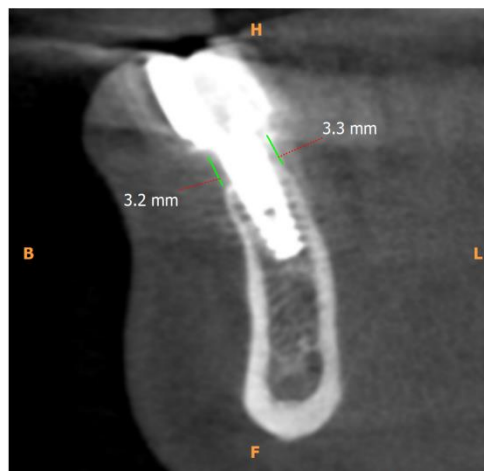
**Implant 34** 161%



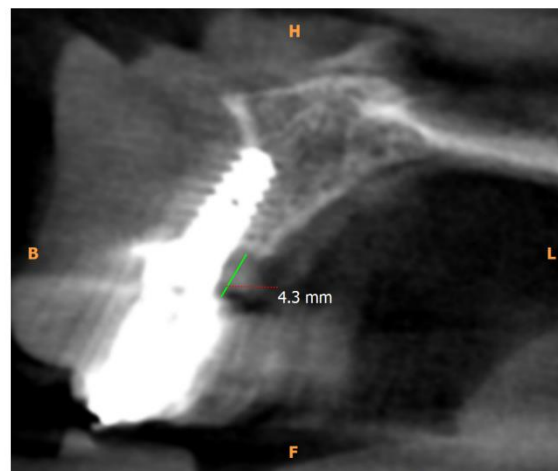
**Implant 32** 172%



**Implant 11** 198%



**Implant 33** 172%



**Implant 21** 198%

**TAKAEADE 39 MUSALI**

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