

Chronic Periodontitis to Functional Stability - A Multidisciplinary Case Report

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Abstract

The aim of this article is comprehensive periodontal rehabilitation with implant supported mandibular prosthetic planning. A 35 year old female presented with poor esthetics, loose teeth, and difficulty in chewing. Clinical examination revealed heavy calculus deposits, suppuration, gingival enlargement, and deep periodontal pockets. OPG showed generalized advanced bone loss, and all mandibular teeth except second molars exhibited grade III mobility.

Oral prophylaxis was performed, followed by extraction of hopeless teeth and removal of retained root pieces. Periodontal flap surgery was carried out in the maxillary arch to eliminate residual pockets. After three months, healing was satisfactory, and CBCT was undertaken for mandibular implant planning. Implant placement was scheduled after confirming an infection free oral environment. This report underscores how timely diagnosis combined with a coordinated multidisciplinary treatment strategy contributes to predictable functional rehabilitation.

Phased periodontal therapy with delayed implant planning offers predictable outcomes in patients with

advanced periodontitis. Establishing periodontal stability before implant placement significantly enhances long term success.

Keywords: Periodontitis, tooth mobility, mandibular implants, periodontal flap surgery, CBCT

Introduction

Severe generalized periodontitis in young adults is an uncommon but clinically significant condition characterized by rapid periodontal destruction and an increased risk of early tooth loss. Under the current classification system, such presentations are commonly categorized as Stage IV, Grade C periodontitis, reflecting both disease severity and progression rate^{1,4}.

Management of advanced periodontal disease requires a structured and sequential treatment approach rather than isolated surgical or prosthetic interventions.

Contemporary evidence emphasizes initial elimination of periodontal infection and stabilization of the remaining dentition before undertaking restorative or implant-based rehabilitation ^{2,6}. Inadequate control of periodontal inflammation prior to implant placement has been associated with compromised peri-implant tissue health and increased biological complications ^{11,12}.

Dental implants are widely accepted as a reliable option for replacing missing teeth; however, their long-term success is strongly influenced by the periodontal status of the patient. Individuals with a history of periodontitis require meticulous disease control and careful treatment planning to optimize implant outcomes (9,10).

Advanced diagnostic imaging, particularly cone beam computed tomography, plays a key role in accurate assessment of bone availability and anatomical structures for implant planning (8).

This case report presents a phase-wise periodontal management strategy in a young female patient with generalized severe periodontitis, highlighting the importance of achieving periodontal stability prior to mandibular implant-supported rehabilitation.

Case Report

Patient Presentation

A 35 year old female patient reported to the department of Periodontics with a chief complaint of poor esthetics, loose teeth, and difficulty in chewing. The patient was systemically healthy as confirmed by blood investigations. On clinical examination it was observed that the patient had generalized calculus, suppuration from periodontal pockets, severe mobility of multiple teeth. Gingival enlargement between 11 and 12, deep periodontal pockets in maxillary teeth. For further investigations an OPG was advised along with blood investigations.

It was found that the patient was healthy and not systemically compromised in any terms. The OPG revealed that all the mandibular teeth were grade III mobile and had to undergo extraction except the second molars. (Fig:1) Generalized severe bone loss with advanced periodontitis was evident. (2)

Fig 1: Chronic periodontitis before treatment.



Fig 2: Post extraction and flap surgery in maxilla.



Initial phase therapy

Following periodontal treatment protocol was established:

- Full mouth oral prophylaxis was performed.
- Hopeless mandibular teeth were extracted (Fig:2).
- Root pieces in 16 and 36 were extracted.

Surgical phase

Persistent deep pockets in the maxillary arch warranted periodontal flap surgery to allow thorough debridement and recon touring. This approach is well supported for managing residual inflammatory sites in severe periodontitis (3). A 3 month post surgical evaluation revealed: healthy soft tissues, no active infection, adequate healing.

Implant planning and placement phase

A cone beam computed tomography (CBCT) scan was advised to assess bone morphology, density, nerve position, and available height for future mandibular implants. Before planning implant placement, the oral

cavity was ensured to be free of pathogenic microbial flora to optimise implant prognosis, especially in previously periodontally compromised patients. A diagnostic impression was taken to prepare a temporary denture in accordance with the implant placement.

After about 3 months of extraction, the patient was recalled for implant placement. An immediate temporary denture post implant placement was made (Fig:3). The standard surgical protocol for implant placement in which Informed written consent was taken from the patient prior to the treatment. Anesthesia was achieved through the local infiltration of 2% Lignocaine HCl with 1: 200,000 epinephrine. A midcrestal incision was performed using a number 15 BP blade, and a full-thickness mucoperiosteal flap was gently raised to visualize the available alveolar bone in both the mesiodistal and buccolingual directions. The soft tissue remnants from the implant surgical site were cleared and irrigated with normal saline. Subsequently, the osteotomy site preparation was performed, 5 Alpha-bio implants were placed, 3 implants of sizes 4.5*8mm and 2 of 4.5*10mm (Fig:4). Interrupted sutures were given (Fig:5). Antibiotics and painkillers were prescribed. Screw retained castable abutments were used in the temporary denture (Fig:6).

Fig 3: Denture prepared before implant placement.



Fig 4: Implant placement.



Fig 5: Interrupted sutures given.



Fig 6: Denture with Screw retained castable abutment.



The patient was recalled the next day to check for any discomfort, inflammation and mobility. The patient was recalled 7 days post surgery for suture removal and the denture was placed back and evaluated for any mobility. The patient was given postoperative cleaning instructions using a powered water irrigation system.

Fig 7: (a) & (b) 7 days post surgical implant evaluation and stability.



(a)



(b)

The patient was kept on 3-month follow-up recalls for periodontal maintenance. 3 months post evaluation RVG was taken to ensure osseointegration and gingival status. An open tray impression was taken for preparation of final prosthesis (Fig:8). A porcelain fused metal prosthesis was designed. A try in was done. The occlusal screws of the prosthesis were tightened and sealed with composite resin. The patient was given postoperative instructions(Fig:9). Following the delivery of the final prosthesis, the patient was placed on a strict Supportive Periodontal Therapy program. This included professional mechanical plaque removal every three months and reinforcement of oral hygiene instructions, specifically the use of interproximal brushes and water flossers. At

the 12-month follow-up, the implants remained stable with no signs of bleeding on probing or peri-implant bone loss.

Fig 8: Prep for open tray impression.



Fig 9: Final PFM prosthesis.

Discussion

Severe periodontitis in young adults often reflects an aggressive disease course requiring early and comprehensive intervention. Such cases, commonly classified as Stage IV, Grade C periodontitis, are associated with rapid attachment loss and a high risk of early edentulism if inadequately managed ^{1,4}.

Prognosis-based extraction of hopeless teeth is a critical step in controlling periodontal inflammation and preserving alveolar bone for future rehabilitation. In the present case, advanced mobility of the mandibular teeth rendered retention unfavorable, and early extraction helped establish a stable foundation for subsequent therapy ⁵.

Residual periodontal pockets in the maxillary arch were managed surgically to eliminate persistent inflammatory sites. Periodontal flap surgery provides improved access for debridement and is effective in achieving periodontal stability in advanced disease ^{3,6}. Establishing a disease-controlled environment prior to implant therapy is particularly important in patients with a history of severe periodontitis. Implant placement was deliberately

delayed until periodontal health and soft tissue stability were achieved. Evidence suggests that postponing implant placement following disease control improves implant survival and reduces the risk of peri-implantitis in susceptible individuals^{11,12}. A healing phase following extractions and surgery allowed resolution of inflammation and favourable tissue conditions for implant planning.

Cone beam computed tomography was used for three-dimensional assessment of bone availability and anatomical structures. CBCT is widely recommended for implant planning due to its superior diagnostic accuracy and contribution to precise implant positioning, especially in compromised cases⁸.

Following prosthetic rehabilitation, the patient was placed on a structured supportive periodontal therapy program. Regular maintenance and reinforcement of oral hygiene are essential for maintaining peri-implant tissue health and preventing biological complications^{6,10}. At the 12-month follow-up, the implants remained stable with no signs of peri-implant inflammation or bone loss.

Overall, this case supports the concept that implant therapy should be integrated within a comprehensive periodontal treatment framework. Transitioning patients from active disease to periodontal stability prior to implant placement remains fundamental for achieving predictable and sustainable outcomes¹³.

Conclusion

A systematic, phased periodontal approach coupled with advanced radiographic planning enabled successful preparation for implant supported rehabilitation in a patient with generalized severe periodontitis. Establishing periodontal stability prior to implant placement remains critical for long term success. This case demonstrates that a multidisciplinary, phased approach is the gold standard for rehabilitating patients

with generalized severe periodontitis. The key to clinical success was not merely the surgical placement of implants, but the rigorous preparation of the oral environment.

By adhering to a structured protocol, we successfully transitioned a patient from a state of functional disability to a stable, esthetic, and healthy oral condition. Early diagnosis and the prioritization of periodontal health remain the most critical factors in the long-term prognosis of implant-supported rehabilitations.

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