IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 24, Issue 11 Ser. 3 (November. 2025), PP 05-09
www.iosrjournals.org

Management Of A Patient With Malpositioned Two-Stage Implant Via Immediate Loading Protocol: A Case Report

Dr Muhsina T[1], Dr Harsha Kumar K[2], Dr R Ravichandran[3], Dr Sahala P[4]
[1](Postgraduate Student, Department of Prosthodontics and Crown and Bridge, Government Dental College, Thiruvananthapuram, Kerala, India)
[2](Professor, Department of Prosthodontics and Crown and Bridge, Government Dental College, Thiruvananthapuram, Kerala, India)
[3](Professor, Department of Prosthodontics and Crown and Bridge, Government Dental College, Thiruvananthapuram, Kerala, India)
[4](Postgraduate Student, Department of Prosthodontics and Crown and Bridge, Government Dental College, Thiruvananthapuram, Kerala, India)

Abstract
Successful implant rehabilitation in the anterior maxilla requires precise positioning due to esthetic and functional demands. Malpositioned implants may compromise prosthesis design, peri-implant tissues, and long-term stability. This case report describes a 24-year-old male with a labially placed unrestorable implant in the maxillary right central incisor. The fixture was atraumatically removed using a reverse torque technique, and three single-piece implants were immediately placed in sites 11, 12, and 21 with provisional restorations. After three months, definitive porcelain-fused-to-metal crowns were delivered. At one-year follow-up, stable osseointegration, healthy peri-implant soft tissues, and satisfactory esthetics were observed. Immediate implant replacement with loading proved effective for managing failed implants in esthetic sites.

Date of Submission: 04-11-2025 Date of Acceptance: 14-11-2025

I. Introduction

Dental implants are widely regarded as a predictable and successful treatment modality for the replacement of missing teeth. With success rates exceeding 90%, they have revolutionized oral rehabilitation, particularly in partially edentulous patients. However, despite high survival rates, implant failure or complications can occur, particularly in the esthetic zone, where both hard and soft tissue architecture play a crucial role in treatment outcomes.[1]

Implant placement in the maxillary anterior region presents unique challenges due to the anatomical limitations, high esthetic demands, and the thin labial bone often found in this region. Precise three-dimensional implant positioning is critical to achieving both functional and esthetic success. Deviation from a prosthetically driven implant placement approach can lead to adverse outcomes such as soft tissue recession, exposure of abutment or implant components, and difficulty in achieving passive prosthetic fit, compromised emergence profiles, and ultimately, failure of the prosthetic rehabilitation.[2]

One of the frequent causes of anterior implant complications is improper implant angulation or depth, often associated with inadequate planning, poor bone quality or quantity, or failure to graft deficient sites prior to implant placement. These issues may not manifest immediately but often become evident during the second-stage surgery or the prosthetic phase, where alignment and soft tissue contours are essential for esthetics and hygiene.[3]

Management of such complications requires careful assessment and a multidisciplinary approach. In some cases, prosthetic compensation may suffice, but in others, especially where the implant position significantly compromises the outcome, surgical intervention such as implant removal and re-placement becomes necessary[4]. Immediate implant placement and loading, when feasible, offer several advantages, including reduced treatment time, preservation of soft and hard tissues, and improved patient comfort and satisfaction.[5]

This clinical report presents the case of a young male patient who experienced esthetic and prosthetic complications due to labially malpositioned implant placement in the maxillary central incisor region. The case highlights the importance of recognizing malposition early, the decision-making process in managing failed implants in the esthetic zone, and the successful application of immediate implant placement and loading for optimal rehabilitation.

II. Clinical Report

A 24-year-old male patient systemically healthy was referred to the Department of Prosthodontics for fixed prosthetic rehabilitation of missing teeth in the maxillary anterior region. The patient reported a history of a road traffic accident (RTA) 8 years earlier, which had resulted in the loss of three maxillary anterior teeth.

Dental history revealed that an implant had been placed six months prior in the region of the maxillary right central incisor. A narrow platform two piece implant (3.0 × 11.5 mm) was placed following standard surgical protocols, and the postoperative healing was uneventful.

The patient later reported for second-stage surgery and prosthetic rehabilitation. However, radiographic evaluation at this stage revealed unsatisfactory healing. Consequently, the patient was referred to our department for further assessment and definitive management.

Comprehensive clinical and radiographic examinations were conducted. Clinical inspection showed soft tissue overgrowth on the implant head, with labial malpositioning and palpability through the labial mucosa (fig. 1 & 2). Additionally, the implant had been placed too labially, making prosthetic rehabilitation unfavourable.

FIGURES 1-2, Fig 1: Pre- operative clinical view. Fig 2: Preoperative panoramic radiograph showing an implant placed in an incorrect position in the lateral incisor region.

Revised Treatment Plan

A revised treatment plan was formulated, involving the removal of the existing implant at site 11 and immediate placement of three single piece implants in the regions of the right central incisor (11), left central incisor (21), and right lateral incisor (12), followed by immediate loading.

Surgical and Prosthetic Procedure

Under local anesthesia, a full-thickness mucoperiosteal flap was raised via a mid-crestal incision. On flap reflection, the implant was found to be unrestorable due to excessive labially and superficial placement. It was determined that the poor implant positioning likely resulted from inadequate grafting and deficient bone volume at the initial surgery, leading to an improper implant bed (Fig. 3).

The cover screw was removed, and the implant was atraumatically explanted using a reverse torque wrench. Minimal force was required, and there was negligible bone loss with no macroscopic signs of necrosis (Fig. 4).

Osteotomy sites were sequentially prepared in the regions of teeth 12, 11, and 21. Single-piece implants were placed with dimensions 3 × 14 mm (21), 3.5 × 16 mm (11), and 3 × 16 mm (12), achieving adequate primary stability (Fig. 5). A postoperative panoramic radiograph confirmed accurate implant placement.

Abutments were prepared to ensure parallelism and adequate prosthetic space. Provisional restorations were fabricated using self-cure acrylic resin and cemented. These provisionals were relieved from occlusion (Fig. 6). The patient was prescribed appropriate antibiotics and analgesics and was given standard postoperative instructions.

After a 3-month healing period, the provisional crowns were removed, and final impressions were made using the closed tray technique with putty and light-body polyvinyl siloxane impression material. The impressions were sent to the laboratory for fabrication of porcelain-fused-to-metal (PFM) crowns.

A three-unit PFM prosthesis was fabricated and cemented over the abutments, with a fixed prosthesis design of FP1 in relation to 21 and FP2 in relation to 11 and 12

FIGURES 3-6,
Fig 3: Intraoperative view showing a two-piece implant positioned too labially.
Fig 4: Removal of two-piece implant with torque wrench.
Fig 5: Intraoperative view showing placement of three single-piece implants.
Fig 6: Clinical view after provisionalization

Follow-Up

Follow-up evaluations were conducted at 3, 6, and 12 months, revealing satisfactory esthetic and functional outcomes, with healthy peri-implant soft tissue and stable osseointegration of the implants (Fig. 7 & Fig. 8)

FIGURE 7-8,
Fig 7: Panoramic radiograph after 8 months.
Fig 8: Definitive prosthetic restoration at 8-month follow-up.

III. Discussion

Several studies have demonstrated the success of immediate implant placement into fresh extraction sites (Type 1 protocol) with stable hard and soft tissue outcomes in the anterior maxilla[6]. In the present case, the implant placed immediately after explantation of a malpositioned fixture also showed favorable clinical, functional, and esthetic results, despite the more complex context of a previously failed implant site.

There is limited literature on immediate implant placement into failed sites. When such implants fail due to malpositioning or early osseointegration issues, they should be removed with minimal trauma[7].

Atraumatic explantation using the reverse torque technique is widely recommended to minimize bone loss and preserve the surrounding bone structure for immediate reimplantation. A systematic review of 372 implants (241 patients) identified reverse torque as the most commonly employed method with an 87.7% success rate and minimal bone damage, making it the most conservative and practical approach[8]. Similarly, another recent review noted counter-torque ratchet techniques as the preferred choice for explantation when future implant placement is anticipated in the same session[9].

The decision to place implants immediately after explantation was guided by four key factors, absence of active infection, preserved bone volume, ability to achieve primary stability, and favorable soft-tissue architecture[10]. A retrospective study investigating immediate versus delayed replacement at failed sites (124 failed implants in 109 patients) reported early failure rates of 15.3% for immediate replacement versus 9.1% for delayed replacement—though the difference was not statistically significant ($P = 0.431$), supporting the safety of immediate strategy under valid conditions [11].

Achieving primary stability, often indicated by insertion torque > 35 Ncm or sufficiently high ISQ values, is critical to justify immediate provisional restoration[12]. In the present case, successful implant insertion in sites 11, 12, and 21 achieved adequate primary stability, which facilitated immediate provisionalization in the esthetic zone.

The timing of implant placement in the anterior maxilla is a significant determinant of esthetic outcomes. A systematic review by Khzam et al. highlighted midfacial recession rates ranging from 9% to 41% following Type 1 (immediate) placement—especially in cases with thin facial bone or absent facial wall—whereas early placement (Types 2 and 3) had significantly lower recession prevalence (< 1 mm)[13]. These findings are consistent with our clinical experience, wherein careful surgical technique, meticulous tissue preservation, and immediate provisionalization supported the maintenance of gingival zeniths and papillary morphology.

A prospective longitudinal study of 30 anterior implants placed via flapless immediate placement with simultaneous augmentation showed minimal hard-tissue shrinkage over 2–5 years and excellent preservation of soft-tissue contours[14]. Likewise, a study comparing two implant systems in the anterior maxilla reported good esthetic and clinical outcomes for immediate placement and restoration protocols[15].

In the present case, provisional crowns were relieved from occlusion to prevent functional load and micromotion during osseointegration. After 3 months, the healing abutments were removed, and final impressions taken, leading to fabrication of porcelain-fused-to-metal (PFM) crowns. Although all-ceramic crowns offer aesthetic advantages, PFM remains a dependable choice when combined with healthy soft-tissue architecture and implant position.

At 3, 6, and 12 months follow-up, clinical and radiographic evaluations demonstrated stable peri-implant soft-tissue health, negligible marginal bone loss, and excellent prosthetic function. These observations reaffirm that prosthetically guided implant placement, combined with atraumatic removal and careful surgical re-entry, can result in predictable outcomes—even in previously compromised sites.

IV. Conclusion

This case report illustrates the successful immediate reimplantation of a dental implant in a failed and esthetically demanding maxillary anterior site. Prosthetically driven planning, atraumatic explantation, and adherence to evidence-based protocols enabled reosseointegration while preserving hard and soft tissue integrity. Immediate provisionalization facilitated favorable peri-implant tissue maturation and yielded predictable esthetic outcomes. The outcome demonstrates that, with proper management, implant failure does not preclude predictable re-intervention, and immediate replacement can provide a biologically sound, efficient, and patient-centered alternative to delayed protocols. This clinical evidence supports the growing trend toward immediate reimplantation in compromised sites. It reinforces the role of minimally invasive, protocol-driven strategies in achieving long-term esthetic and functional success in implant dentistry

References

[1]. Mahendra J, Subbiah U, Gopalakrishnan P, Karunanidhi K, Rajendran S, Mohan S. Decoding Success: A Five-Year Retrospective Study Of Dental Implant Survival. J Oral Biol Craniofacial Res [Internet]. 2025 Sept 1 [Cited 2025 Aug 7];15(5):948–54. Available From: Https://Www.Sciencedirect.Com/Science/Article/Pii/S221242682500140X

[2]. Den Hartog L, Huddleston Slater JJR, Vissink A, Meijer HJA, Raghoebar GM. Treatment Outcome Of Immediate, Early And Conventional Single-Tooth Implants In The Aesthetic Zone: A Systematic Review To Survival, Bone Level, Soft-Tissue, Aesthetics And Patient Satisfaction. J Clin Periodontol [Internet]. 2008 [Cited 2025 Aug 7];35(12):1073–86. Available From: Https://Onlinelibrary.Wiley.Com/Doi/Abs/10.1111/J.1600-051X.2008.01330.X

[3]. Gupta A, Kale B, Masurkar D, Jaiswal P, Gupta A, Kale B, Et Al. Etiology Of Dental Implant Complication And Failure—An Overview. AIMS Bioeng [Internet]. 2023 [Cited 2025 Aug 7];10(2):141–52.

[4]. Raes F, Cosyn J, De Bruyn H. Clinical, Aesthetic, And Patient-Related Outcome Of Immediately Loaded Single Implants In The Anterior Maxilla: A Prospective Study In Extraction Sockets, Healed Ridges, And Grafted Sites. Clin Implant Dent Relat Res [Internet]. 2013 [Cited 2025 Aug 7];15(6):819–35. Available From: Https://Onlinelibrary.Wiley.Com/Doi/Abs/10.1111/J.1708-8208.2011.00438.X

[5]. Stajčić Z, Stojčev Stajčić LJ, Kalanović M, Đinić A, Divekar N, Rodić M. Removal Of Dental Implants: Review Of Five Different Techniques. Int J Oral Maxillofac Surg. 2016 May;45(5):641–8.

[6]. Dutta SR, Passi D, Singh P, Atri M, Mohan S, Sharma A. Risks And Complications Associated With Dental Implant Failure: Critical Update. Natl J Maxillofac Surg [Internet]. 2020 [Cited 2025 Aug 7];11(1):14–9. Available From: Https://Www.Ncbi.Nlm.Nih.Gov/Pmc/Articles/PMC7518499/

[7]. Tafuri G, Santilli M, Manciocchi E, Rexhepi I, D'Addazio G, Caputi S, Et Al. A Systematic Review On Removal Of Osseointegrated Implants: Un Update. BMC Oral Health [Internet]. 2023 Oct 13

[8]. (PDF) Removal Of Dental Implants: Review Of Five Different Techniques. Researchgate [Internet]. 2025 Aug 6 [Cited 2025 Aug 30]; Available From: Https://Www.Researchgate.Net/Publication/286453900_Removal_Of_Dental_Implants_Review_Of_Five_Different_Techniques

[9]. Yan Q, Xiao LQ, Su M Ying, Mei Y, Shi B. Soft And Hard Tissue Changes Following Immediate Placement Or Immediate Restoration Of Single-Tooth Implants In The Esthetic Zone: A Systematic Review And Meta-Analysis. | Ebscohost [Internet]. Vol. 31. 2016 [Cited 2025 Aug 7]. P. 1327. Available From: Https://Openurl.Ebsco.Com/Contentitem/Doi:10.11607%2Fjomi.4668?Sid=Ebsco:Plink:Crawler&Id=Ebsco:Doi:10.11607%2Fjomi.4668

[10]. Troiano G, Luongo R, Romano DC, Galli M, Ravidà A, Wang HL, Et Al. Comparison Of Immediate Versus Delayed Implant Placement In A Failed Implant Site: A Retrospective Analysis Of Early Implant Survival. Int J Oral Implantol Berl Ger. 2021 Mar 16;14(1):67–

[11]. D'Albis G, Forte M, Alrashadah AO, Marini L, Corsalini M, Pilloni A, Et Al. Immediate Loading Of Implants-Supported Fixed Partial Prostheses In Posterior Regions: A Systematic Review. Dent J [Internet]. 2025 May 15

[12]. Chen ST, Buser D. Esthetic Outcomes Following Immediate And Early Implant Placement In The Anterior Maxilla--A Systematic Review. Int J Oral Maxillofac Implants. 2014;29 Suppl:186–215.

[13]. Arora H, Khzam N, Roberts D, Bruce WL, Ivanovski S. Immediate Implant Placement And Restoration In The Anterior Maxilla: Tissue Dimensional Changes After 2-5 Year Follow Up. Clin Implant Dent Relat Res. 2017 Aug;19(4):694–702.

[14]. Parvini P, Trimpou G, Begic A, Cafferata EA, Petsos H, Müller KM, Et Al. Esthetic And Clinical Outcomes After Immediate Placement And Restoration: Comparison Of Two Implant Systems In The Anterior Maxilla-A Cross-Sectional Study. Clin Implant Dent Relat Res. 2023 Apr;25(2):252–60.