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Case Report

Oral Rehabilitation of a Medically Compromised Patient- Case Report

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Abstract

Rehabilitation of partial edentulism presents unique challenges in medically compromised patients due to the influence of systemic conditions on oral health, treatment planning, and prognosis. Precision attachment-retained partial dentures offer enhanced function, aesthetics, and patient comfort compared to conventional clasp-retained dentures. A 53-year-old female patient with a medical history of hypothyroidism and rheumatoid arthritis presented with missing posterior teeth, loss of vertical dimension, and compromised mastication. She was rehabilitated with extracoronal castable precision attachments in the maxillary arch and a conventional removable partial denture in the mandibular arch. The treatment restored masticatory efficiency, improved aesthetics, and enhanced speech. Over six months of follow-up, the prosthesis remained stable with no complications, and the patient reported high satisfaction. Precision attachment-retained partial dentures are a viable treatment option for medically compromised patients when supported by meticulous planning, proper execution, and patient compliance.

Keywords: Medically compromised patient, precision attachment, Partial edentulism, Prosthodontic rehabilitation, extracoronal attachment.

Introduction

Oral rehabilitation in medically compromised patients is an evolving area of prosthodontics that requires integration of systemic health considerations with dental management. Systemic conditions such as hypothyroidism and rheumatoid arthritis significantly influence prosthetic treatment outcomes, as they may alter bone metabolism, soft tissue healing, neuromuscular coordination, and even patient compliance [1].

Hypothyroidism has been linked to delayed wound healing, increased periodontal disease risk, and oral mucosal changes, all of which can affect the prognosis of prosthodontic treatment [2]. Similarly, rheumatoid arthritis, an autoimmune disorder with systemic inflammation, often impairs manual dexterity, making oral hygiene practices more challenging for affected patients [3]. These factors necessitate careful treatment planning that emphasizes simplified prosthetic design, enhanced retention, and stress distribution. Precision attachments have gained wide popularity in the rehabilitation of partial edentulism due to their superior retention, aesthetics, and biomechanics compared to conventional clasp-retained removable partial dentures [4]. Extracoronal precision attachments, in particular, allow for better stress distribution and reduced torque on abutment teeth, which is especially valuable in medically compromised patients with potentially weakened periodontal support [5]. The literature has demonstrated that such attachments provide improved masticatory efficiency, phonetics, and overall patient satisfaction [6]. Importantly, when systemic diseases are present, treatment objectives must balance functional and esthetic outcomes with biological preservation, ensuring minimal trauma to compromised tissues [7].

Recent advancements in digital dentistry have further improved the accuracy of attachment design and prosthesis fabrication, reducing technical errors and enhancing the prognosis of such restorations [8]. Additionally, patient-centered outcomes, such

as oral health-related quality of life (OHRQoL), have become key benchmarks in evaluating the success of prosthodontic rehabilitation [9]. In medically compromised patients, where systemic conditions already affect general well-being, oral rehabilitation has the potential to significantly improve daily functioning and psychosocial health [10]. This case presents the oral rehabilitation of a medically compromised patient with hypothyroidism and rheumatoid arthritis using extracoronal castable precision attachments in the maxillary arch and a conventional removable partial denture in the mandibular arch, demonstrating the importance of individualized, condition-sensitive prosthodontic management.

Case Report

A 53-year-old Hispanic female reported to the clinic with complaints of impaired chewing and dissatisfaction with her facial appearance due to missing posterior teeth. Her medical history revealed hypothyroidism, managed with levothyroxine, and rheumatoid arthritis, for which she was taking celecoxib. These systemic conditions were considered in the treatment plan, as they could affect oral tissue response and long-term prosthesis maintenance. Clinical examination showed multiple missing posterior teeth bilaterally, reduced vertical dimension, and moderate alveolar ridge resorption. The anterior teeth were intact, with adequate periodontal support. No active periodontal disease was noted. Radiographs confirmed sufficient bone support in the remaining dentition. Diagnostic impressions were made and mounted on a semi-adjustable articulator. After a thorough discussion of treatment options, the plan was to restore the maxillary arch using extracoronal precision attachments incorporated into full-coverage crowns on the canines and first premolars, supporting a removable partial denture framework.

The mandibular arch was rehabilitated with a conventional removable partial denture to provide posterior occlusal support. During fabrication, parallelism of the precision attachments was carefully maintained to ensure ease of insertion and removal. The removable framework incorporated a metal base with acrylic resin and artificial teeth in harmony with the maxillary prosthesis.

Upon delivery, the prostheses were adjusted for occlusion and retention. The patient reported immediate improvement in mastication, facial profile, and speech. Over a six-month follow-up period, the prosthesis demonstrated excellent stability, healthy abutment condition, and satisfactory patient adaptation.

Figure 1: Extra oral Examination

Figure 2: Intra Oral Examinations

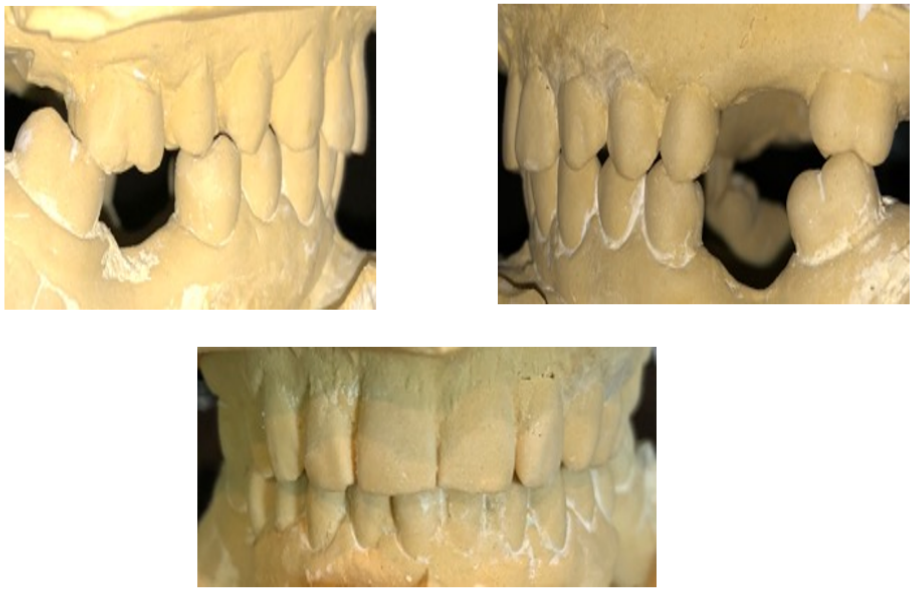


Figure 3: Occlusal Evaluation – Static


Right Working

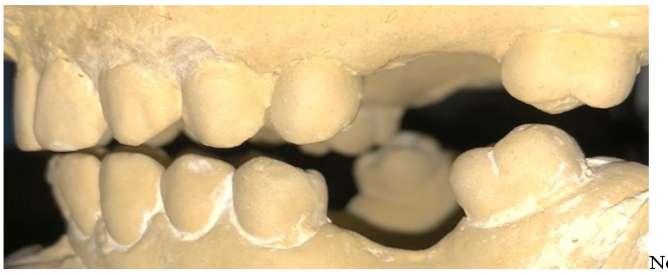

Non-Working

Figure 4: Occlusal Evaluation – Dynamic


Left Working

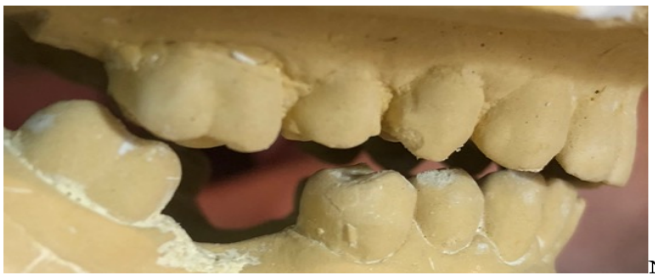

Non-Working

Figure 5: Occlusal Evaluation – Dynamic

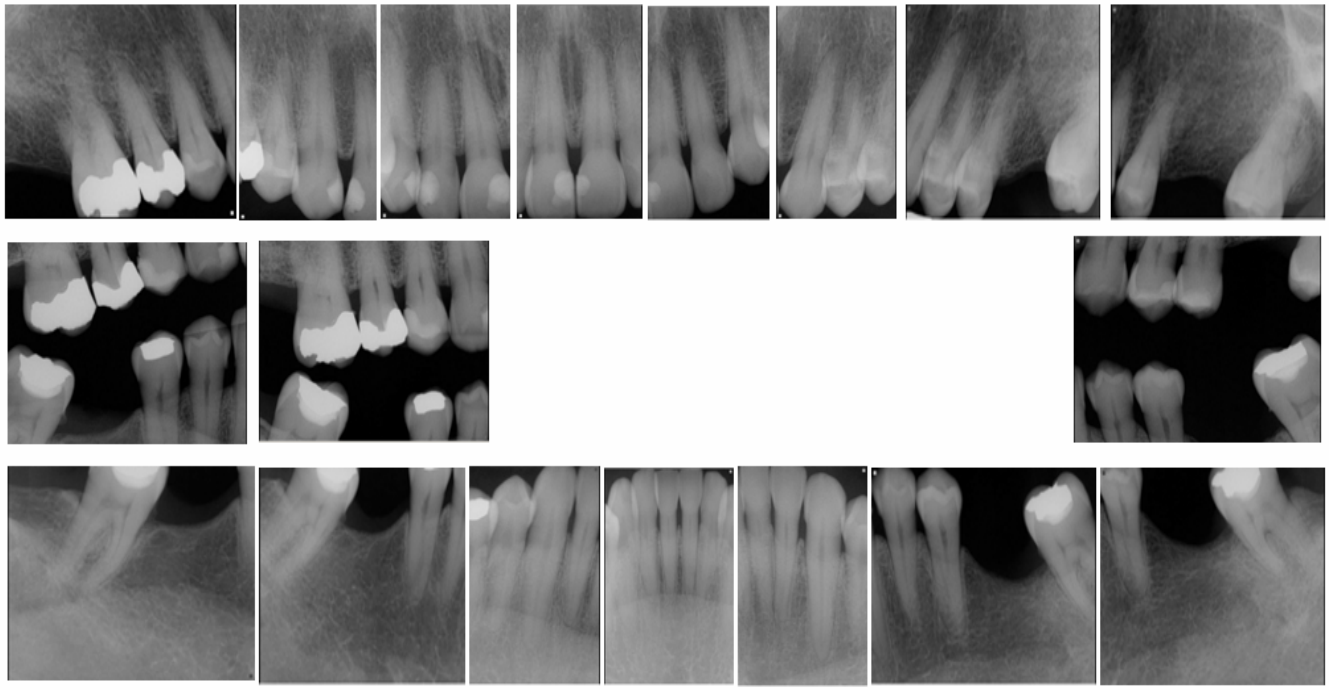
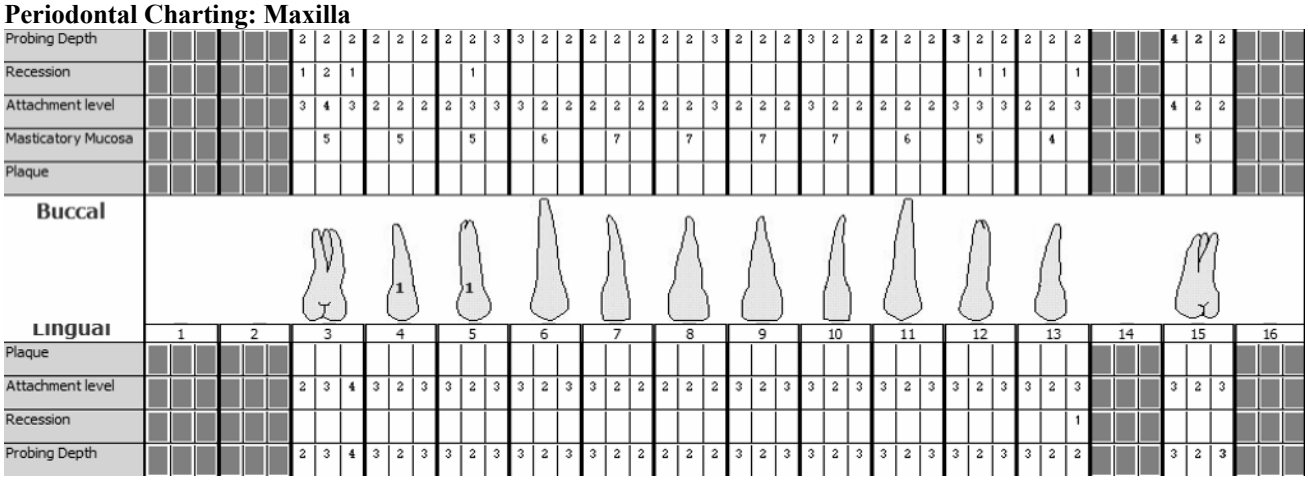


Figure 6: Radiographs

Periodontal Charting: Maxilla



Periodontal Charting: Mandible

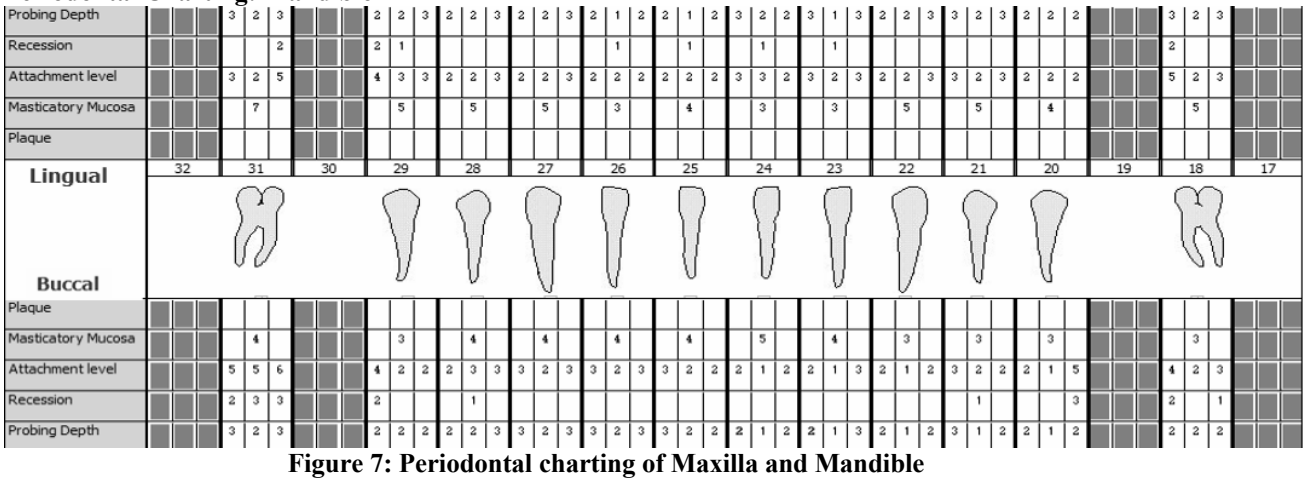


Figure 7: Periodontal charting of Maxilla and Mandible

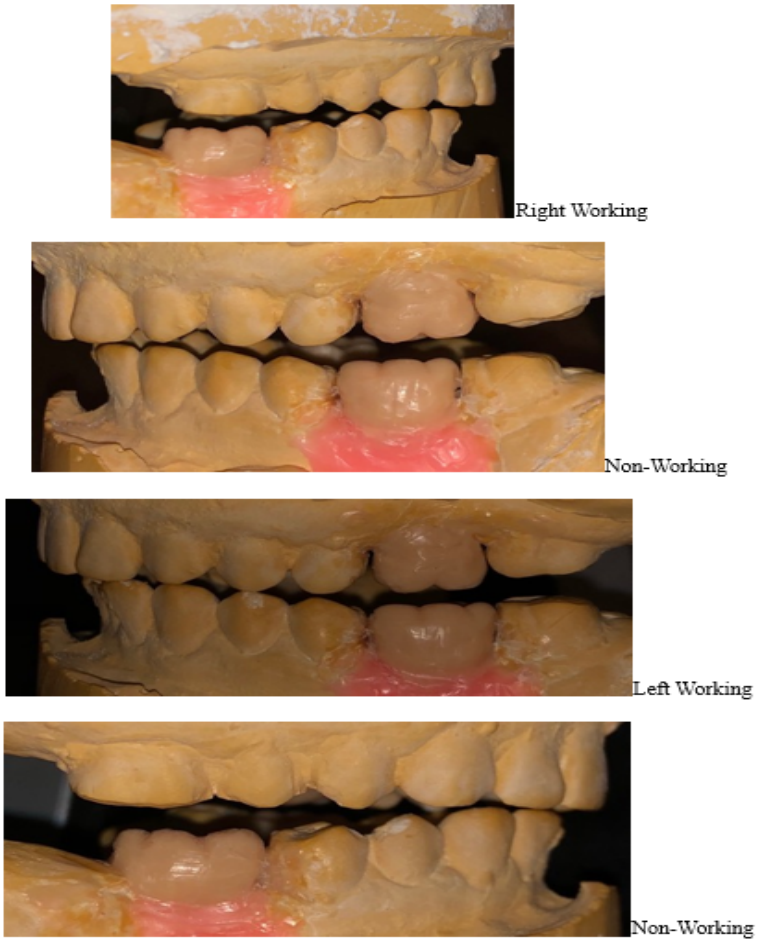


Figure 8: Post-Operative Occlusal Evaluation Dynamic

Discussion

Medically compromised patients often present additional challenges in prosthodontic rehabilitation due to systemic conditions influencing oral structures, healing, and maintenance.

In hypothyroidism, delayed tissue response may compromise prosthetic success if not carefully monitored, while rheumatoid arthritis affects dexterity, necessitating designs that simplify hygiene maintenance. The use of precision attachments in this case provided a practical solution by ensuring secure retention, improved distribution of occlusal loads, and superior aesthetics compared to clasp-retained dentures.

Extracoronal attachments are advantageous in distal extension cases, as they minimize torque on abutment teeth while enhancing patient comfort.

Literature supports that such prostheses result in improved masticatory efficiency and quality of life, particularly in patients with systemic comorbidities where functional rehabilitation is essential. Nonetheless, successful outcomes depend heavily on meticulous treatment planning, patient education, and regular follow-up to maintain prosthesis longevity. This case underscores the importance of tailoring treatment modalities to systemic conditions, ensuring that medically compromised patients receive functional and aesthetic rehabilitation without compromising their oral or systemic health.

Conclusion

The rehabilitation of a medically compromised patient with precision attachment-retained dentures demonstrates that systemic health conditions need not preclude successful oral rehabilitation. With careful planning, interdisciplinary consideration, and patient compliance, such prostheses can provide long-term functional and aesthetic benefits. This case emphasizes that prosthodontic interventions must be adapted to each patient's medical status to achieve optimal outcomes.

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