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Full Mouth Rehabilitation Of Partially Edentulous Patient A Case Report

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ABSTRACT:

Complete mouth rehabilitation involves restoring oral health for patients with extensive dental issues. This article explores the essential elements of the rehabilitation process, including diagnostic assessment, treatment planning, and the use of restorative and prosthetic techniques. It highlights the importance of a multidisciplinary approach and aims to clarify how integrating various dental disciplines contributes to effective outcomes. The study focuses on providing a comprehensive overview of these methodologies and assessing their effectiveness in meeting functional needs, offering insights into achieving optimal results through coordinated care.

Keywords: *Full Mouth Rehabilitation, Partially Edentulous Patient, Case Report, Oral Health Restoration, Diagnostic Assessment, Treatment Planning, Restorative Techniques, Prosthetic Techniques, Multidisciplinary Approach, Comprehensive Dental Care, Functional Needs, Coordinated Care, Dental Disciplines, Integration Prosthodontics, Rehabilitation Methodologies*

1. INTRODUCTION

Effective dental restoration relies on the seamless integration of restorative and prosthetic techniques. [(1)] This study is initiated to address the complexities of rehabilitating patients with severely impaired dentitions, where both approaches are essential for comprehensive treatment. By examining how these methods can be combined, the research aims to evaluate their impact on managing extensive tooth loss and advanced decay. The focus is on the role of strategic treatment planning, alongside well-defined parameters in prosthetic design. The objective is to provide insights into how these integrated strategies enhance functional restoration and patient satisfaction, ultimately contributing to improved practices in complete mouth rehabilitation.[(2)]

2. Case presentation

A 43-year-old male patient presented to the outpatient clinic, the College of Dentistry, AASTMT with a chief complaint of severe throbbing pain in the upper left teeth, which interferes with daily activities. The patient also wanted to be able to chew normally and was concerned about a yellow discharge coming from the lower left area after a recent tooth extraction (Fig.1).

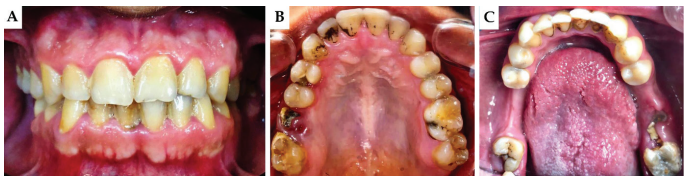

Figure 1: Initial intraoral status

3. Clinical finding

Extraoral examination findings revealed that the patient's face was almost symmetrical with normal masticatory muscles and facial expressions, asymptomatic TMJ, normal range of motion with

no deviation in opening or closing, and the absence of palpable lymph nodes.

The intraoral examination revealed stage I grade B periodontitis and multiple carious lesions in teeth numbers 13,14, 15, 16, 17, 27, and 45. Endodontic therapy was required for teeth numbers 24 and 25. Additionally, a tilted lower wisdom tooth with no opposing and remaining root of tooth number 26 were observed, along with bilateral lower edentulous spaces. Diagnostic casts were mounted, and intraoral radiographs were used to verify these findings. [3]

4. Case management

A detailed explanation of the treatment plan was presented to the patient, encompassing the necessary details and potential implications. Subsequent to confirming the patient's understanding, informed consent was obtained to proceed with the proposed comprehensive dental treatment plan, as outlined below:

The initial treatment prioritized the patient's chief complaint concerning teeth numbers 24 and 25 as an emergency.

Clinical examination for tooth number 25 revealed proximal caries, positive response to sensibility tests with negative findings on percussion, palpation, and biting tests, A periapical X-ray exhibited a radiolucent image extending from the mesio-occlusal region to the dental pulp. The established diagnosis is symptomatic irreversible pulpitis with normal apical tissue.

Clinical examination for tooth number 24 revealed disto-occlusal caries, negative response to sensibility test with positive response on percussion, palpation, and biting tests, A sinus tract was detected, Standard gutta-percha cone size 30 is inserted through the sinus until resistance was felt, Radiograph confirmed the lesion led to the root canal apex of tooth number 24. The established diagnosis was necrotic pulp with chronic apical abscess.

The endodontic treatment for teeth numbers 24 and 25 commenced with aseptic procedures and the administration of 2% lidocaine with 1:100,000 epinephrine to ensure patient comfort. Optimal isolation was achieved with the meticulous placement of a rubber dam. Access cavity preparation was then carried out to facilitate entry into the root canal system.[4]

During the initial visit for tooth number 25, canal negotiation was executed to the apex using size #8 and #10 K-files (M.access, Dentsply). Working length was precisely established with an electronic apex locator (Woodpecker Woodpex V) and confirmed radiographically. The canals were meticulously cleaned and shaped using a rotary instrumentation system, with copious irrigation performed between each file. The irrigation protocol involved an initial flush with 5.25% sodium hypochlorite (NaOCl), followed by a saline rinse, application of 17% ethylenediaminetetraacetic acid (EDTA), another saline rinse, and a final irrigation with 5.25% NaOCl, concluded with a saline rinse. Following thorough drying with sterile paper points, the canals were three-dimensionally obturated with cold lateral compaction of gutta-percha and a resin-based sealer (Meta Biomed Adseal), ensuring a comprehensive and secure fill of the root canal system.[4]

For tooth number 24, intracanal medication was administered using calcium hydroxide (Ultracal XS), delivered to the canal with a lentulo spiral and positioned 1 mm short of the working length. A sterile Teflon pellet was placed over the medication, and the access cavity was sealed with a temporary restorative material (3M Cavit). Additionally, sinus de-epithelization was performed, and antibiotics were prescribed. The patient was scheduled for clinical evaluation and follow-up treatment in two weeks.

The lower left quadrant presented with an infected socket post-extraction of the lower first molar. Curettage of the socket was performed, followed by saline irrigation. Antibiotics were also prescribed to address the infection.

Plaque and calculus were effectively removed through scaling and root planning, followed by polishing and tetracycline irrigation. The patient was also provided with comprehensive education, motivational support, and detailed oral hygiene instructions to ensure effective long-term oral care.

After a two-week interval, significant clinical improvement was observed for tooth number 24, the sinus tract had resolved, and the condition was asymptomatic. The tooth was isolated with a rubber dam, and the temporary restoration along with the calcium hydroxide were removed. The canal was then instrumented using a rotary system, irrigated sequentially with 5.25% sodium hypochlorite, 17% EDTA, and saline. The final irrigation was performed with 2% chlorhexidine digluconate. After drying the canal with paper points, obturation was completed using cold lateral condensation technique.

Following the obturation of teeth numbers 24 and 25, they were restored with composite restoration. Full coverage restorations are planned as the next step in the treatment protocol.

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Extractions of hopeless tooth number 26 and lower wisdoms were performed.

The proximal carious lesions in teeth numbers 14,15 extends below the cementoenamel junction which makes deep marginal elevation the best option to relocate the margin coronally.[5]

Caries removal was initiated, followed by rubber dam isolation, sulcus retraction with Teflon, and the application of the double matrices technique with wedging until an adequate seal was achieved. This was followed by selective etching (Meta Biomed® Etch) and bonding (Bisco® All-Bond Universal®). The snowplough technique was then performed, combining flowable composite and a viscous composite resin (Ivoclar Tetric N Ceram Nano-Hybrid Composite), molded together in an unpolymerized form and subsequently polymerized to complete the restoration (Fig. 2).

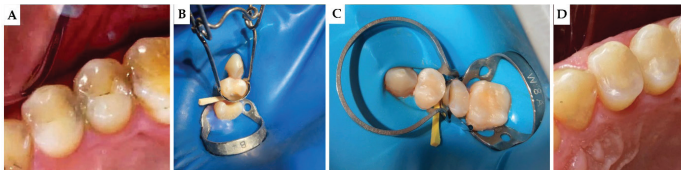

Figure 2: Deep marginal elevation of teeth number 14 and 15

Composite restorations using an incremental technique[7] for teeth numbers 13,16,17,27,45

During the prosthetic phase, the upper arch was opposed by an edentulous space, and the upper left first molar was extracted. A fixed partial denture was fabricated to address this space, and complete coverage was provided for endodontically treated teeth.

A transitional partial denture[8, 9] was inserted to assess the clearance of the non-anatomical reduction of the zirconia fixed partial denture on abutments numbers 25 and 27, as well as the adjacent single crown on tooth number 24. Following the reduction, gingival-impregnated retraction cord (Ultradent Ultrapak) was applied in the sulcus to record one mm apical to the finish line and to accommodate the impression material thickness. A secondary impression was then taken using an elastomeric impression material condensation silicone (Zhermack Zetaplus) with a putty and wash one-step technique. Temporization was carried out by creation of provisional crowns (CharmTemp) to preserve both space and vitality. At next visit, the three unit fixed partial denture and crown were cemented simultaneously using adhesive resin cement (Calibra Ceram Dentisply Sirona) (Fig.3).

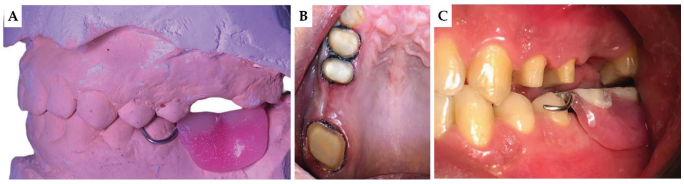

Figure 3: Steps involved in the fabrication of a fixed prosthesis

The decision to utilize a removable partial denture, as opposed to an implant-supported prosthesis, was made after the patient refused the implant option. The refusal was primarily based on the patient's apprehension regarding the prolonged treatment timeline required for implant placement and integration.

Primary impressions were made using irreversible hydrocolloid impression material alginate (Cavex). These impressions were then poured into stone cast. A surveyor was utilized to assess the tilt and determine the optimal path of insertion. Based on this evaluation, an appropriate design for the prosthesis was selected, and a special tray was subsequently fabricated. The process then proceeded with mouth preparation, followed by secondary impressions taken with medium-body impression material (Lascod Silaxil), jaw relations were recorded in centric occlusion.[9, 10] A try-in phase was conducted to evaluate the fit, esthetics, and functionality of the prosthesis. The final steps included the insertion of the prosthesis and subsequent occlusal adjustments to restore and optimize the occlusion (Fig. 4).

The patient was thoroughly instructed on the proper insertion and removal of their new prosthesis. They were advised to wear the prosthesis for the recommended duration each day, typically from morning until evening, and to remove it at night to allow the gums to rest.

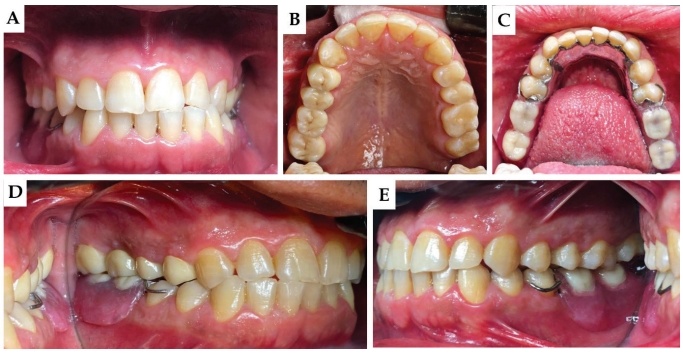

Figure 4: Final prosthesis; The stable occlusion was established

5. DISCUSSION

Oral health affects both a person's general health and quality of life as well. Consequently, if dental health problems become an obstacle to regular activities, they must be addressed immediately.[1, 10] The restoration and preservation of the overall oral mechanism health ought to be the aim of

complete mouth rehabilitation. It requires therapy within the stomatognathic system physiological and functional equilibrium. For effective treatment planning, a thorough assessment of the etiology, history, and aspects pertaining to the occlusal vertical dimension is necessary.[3]

6. CONCLUSION:

Full-mouth rehabilitation is essential for maintaining dental hygiene and enhancing overall quality of life. The treatment not only restores functionality but also achieves high levels of patient satisfaction. Continuous education in dental hygiene plays a crucial role in supporting oral health and ensuring the lasting success of rehabilitation efforts.

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