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Removable Partial Denture Treatment In A Patient With Angle Class III Malocclusion And Traumatic Anterior Deep Bite: A Case Report

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Abstract

Malocclusion is a deviation from normal occlusion that reflects an imbalance between the teeth, facial bones, and soft tissues; according to Edward H. Angle, it is classified into Classes I, II, and III. In Class III malocclusion, in addition to sagittal deviation, it may also be accompanied by a vertical abnormality in the form of a deep bite. A deep bite is a vertical malocclusion characterized by an increased incisal overbite, to the extent that the mandibular incisors may contact the palatal gingiva in severe cases. This condition can affect masticatory function, aesthetics, and occlusal stability. Tooth loss in patients with a deep bite can exacerbate occlusal disharmony, necessitating appropriate prosthodontic rehabilitation through the use of removable partial dentures (RPD). This case report discusses the fabrication of a removable partial denture for a patient with deep bite. A 24-year-old woman presented to Soelastri Dental Hospital complaining of loss of maxillary anterior teeth due to an accident two years prior. Clinical and radiographic examinations revealed the absence of teeth 11 and 21 and the presence of an interdental gap between teeth 23 and 24, accompanied by a deep bite classified as Applegate-Kennedy Class IV. The use of a removable partial denture (RPD) in patients with a deep bite requires comprehensive prosthodontic planning, particularly regarding occlusal relationships, retention, stability, and the distribution of masticatory forces. Properly designed acrylic resin RPD can yield good results in improving masticatory function, aesthetics, comfort, and the patient's adaptation to wearing dentures. Acrylic resin removable partial dentures in patients with deep bite has shown good results, characterized by adequate retention and stability of the prosthesis, optimal patient adaptation, and improvements in masticatory function, aesthetics, and comfort through comprehensive prosthodontic planning.

Keywords: Malocclusion, Klas III Angle, Deep Bite, Edentulous, PRD.

INTRODUCTION

Malocclusion is a deviation from normal occlusion that does not meet the criteria for ideal aesthetics and reflects an imbalance in the size and position of the teeth, facial bones, and surrounding soft tissues. Edward H. Angle classified malocclusion into three classes based on the relationship of the permanent maxillary and mandibular first molars. Class I is characterized by the mesiobuccal cusp of the permanent maxillary first molar occluding with the mesiobuccal groove of the permanent mandibular first molar. Class II occurs when the mesiobuccal groove of the permanent mandibular first molar is positioned distal to the mesiobuccal cusp of the permanent maxillary first molar. Class III is characterized by the mesiobuccal groove of the permanent mandibular first molar being positioned mesial to the mesiobuccal cusp of the permanent maxillary first molar.

In some cases of Angle Class III malocclusion, the condition is characterized not only by sagittal discrepancies but also by vertical abnormalities. These vertical abnormalities may manifest as a reduced lower facial height, which is commonly associated with a deep bite. A deep bite is frequently observed in patients with a low vertical growth pattern, a characteristic that tends to result in anterior rotation of the mandible. The combination of Class III malocclusion and deep bite may further aggravate occlusal imbalance because of the resulting disharmonious anterior occlusal relationship.

A deep bite is a form of vertical malocclusion characterized by excessive vertical overlap of the anterior teeth, in which the incisal edges of the mandibular incisors contact or extend beyond the cingulum of the maxillary incisors, reaching the palatal gingiva. In severe cases, the mandibular incisors may directly contact the palatal mucosa. A deep bite may result from a combination of skeletal and dentoalveolar factors. Skeletal factors include a facial growth pattern with reduced posterior vertical facial dimension, anterior rotation of the mandible, and imbalanced jaw growth. Meanwhile, dentoalveolar factors include excessive eruption of the anterior teeth, infraocclusion of the posterior

teeth, posterior tooth loss, and changes in tooth position resulting from certain occlusal habits. A deep bite not only affects facial and smile aesthetics but may also lead to functional disturbances, including impaired mastication, occlusal trauma to the palatal tissues, increased wear of the anterior teeth, periodontal disorders, and temporomandibular joint disorders. In more severe cases, the mandibular incisors may come into direct contact with the palatal mucosa posterior to the maxillary anterior teeth, resulting in a traumatic palatal bite, which may cause irritation and soft tissue damage.

The presence of a deep bite is closely associated with removable partial denture (RPD) treatment, as excessive vertical overlap of the anterior teeth may affect the interocclusal space, the stability of the occlusal relationship, and the design of the prosthesis. In patients with a deep bite, posterior tooth loss may further exacerbate occlusal disharmony due to a reduction in the vertical dimension and an increased occlusal load on the anterior teeth. This condition limits the available space for prosthetic component placement. Furthermore, a deep bite may lead to unstable occlusal contacts, attrition of the anterior teeth, and a traumatic palatal bite resulting from excessive contact between the mandibular incisors and the palatal tissues.

A removable partial denture (RPD) is one of the most commonly used prosthodontic rehabilitation options for replacing missing teeth within a partially edentulous dental arch. RPDs may be fabricated from various materials, including acrylic resin, metal frameworks, and thermoplastic materials. Acrylic resin is widely used as a denture base material because it is relatively inexpensive, easy to manipulate during fabrication, and lightweight, thereby providing greater patient comfort. In addition, the denture base design should be carefully planned to ensure even distribution of masticatory forces and to prevent damage to the underlying soft tissues and supporting bone. An appropriate prosthesis design contributes to optimal comfort, stability, and functional performance of the removable partial denture.

According to the prosthodontic literature, the fabrication of a removable partial denture (RPD) for patients with a deep bite requires more comprehensive treatment planning because excessive vertical overlap of the anterior teeth may affect the interocclusal space, the stability of the occlusal relationship, and the design of the prosthesis. In such cases, posterior tooth loss may also result in a reduction of the occlusal vertical dimension and an increased occlusal load on the anterior teeth, thereby further aggravating the existing occlusal disharmony. Therefore, prosthodontic rehabilitation using an RPD in patients with a deep bite should include a comprehensive occlusal evaluation, adequate restoration of the vertical dimension, and balanced distribution of masticatory forces to achieve optimal prosthesis retention, stability, and function. With appropriate treatment planning and prosthesis design, an RPD is expected to improve masticatory function, enhance aesthetics, and provide greater patient comfort and quality of life.

RESEARCH METHODS

This study employed a descriptive case report design to describe the prosthodontic management of a patient requiring an acrylic removable partial denture (RPD) with angle class III malocclusion and deep bite. The case was managed at the Dental and Oral Hospital Soelastri, Universitas Muhammadiyah Surakarta. The subject was a 24-year-old woman patient who reduced self-confidence due to the loss of her maxillary anterior teeth following a traffic accident two years earlier. Comprehensive clinical examination included medical and dental history taking, extraoral and intraoral examinations, periodontal assessment, and panoramic radiographic evaluation to determine the condition of the remaining dentition, supporting tissues, and potential abutment teeth. The edentulous areas were classified according to the Applegate-Kennedy classification system to guide prosthodontic treatment planning.

Treatment was initiated with patient education and the acquisition of informed consent, followed by diagnostic impressions using an irreversible hydrocolloid impression material. Study casts were subsequently fabricated to facilitate the design of the removable partial denture. The prosthesis was

designed with careful consideration of functional load distribution, as well as the selection of appropriate direct and indirect retainers, major connectors, and minor connectors. A surveying procedure was then performed to determine the optimal path of insertion, identify favorable undercut areas, and enhance the retention and stability of the prosthesis.

Subsequently, working impressions were obtained using a mucodynamic impression technique. This was followed by jaw relation recording, articulator mounting, clasp fabrication, arrangement of the artificial teeth, wax try-in, acrylic resin processing, finishing, polishing, and insertion of the removable partial denture. At the insertion appointment, a comprehensive clinical evaluation was performed to assess the retention, stability, occlusion, phonetics, esthetics, and overall patient comfort. The patient was provided with detailed instructions regarding the insertion and removal of the prosthesis, oral hygiene practices, and appropriate denture maintenance.

A follow-up evaluation was conducted one week after denture insertion. Both subjective and objective assessments were carried out, including patient-reported comfort, evaluation of the oral mucosa, retention, stability, occlusion, masticatory function, phonetics, and oral hygiene status. The treatment outcome was considered successful, as the patient reported satisfactory comfort and increase self confidence, with no clinical evidence of mucosal trauma or prosthesis instability.

RESULTS AND DISCUSSION

Case Report

A 24-year-old woman presented to Soelastri Dental Hospital with a chief complaint of reduced self-confidence due to the loss of her maxillary anterior teeth following a traffic accident two years earlier. She also reported the presence of a gap in the canine region. The patient requested a removable prosthesis to address these concerns. She had no history of systemic disease and was able to communicate effectively and cooperate well throughout the treatment by understanding and accepting all information provided.

Extraoral examination revealed symmetrical facial proportions and a convex facial profile, with the distance from the pupil to the corner of the mouth greater than the distance from the base of the nose to the chin. The tone of the masticatory muscles was within normal limits, with no abnormalities detected. Evaluation of the temporomandibular joint (TMJ) demonstrated normal function, with no evidence of deviation or tenderness on palpation. TMJ movements were normal and were not accompanied by pain, clicking, or crepitation. In addition, examination of the regional lymph nodes revealed no enlargement.

Figure 1. Patient's Facial Profile

Intraoral examination revealed edentulous areas at teeth 11 and 21, as well as an interdental space between teeth 23 and 24. The alveolar ridge exhibited adequate height and a U-shaped contour. The gingival mucosa appeared healthy, with a coral pink color, stippled surface, firm consistency, and no evidence of a flabby ridge. The maxillary labial frenum was classified as high, whereas the maxillary buccal frenum was of moderate height. The patient's oral hygiene was classified as good. The remaining anterior teeth exhibited malposition, with tooth 23 positioned palatal to tooth 22, causing tooth 22 to be displaced labially and resulting in a diastema in the region of tooth 23. During

occlusal examination, an anterior deep bite was observed. The patient did not report any pain associated with the deep bite; however, she complained of reduced self-confidence and discomfort.

Figure 2. Frontal View of the Patient's Occlusion

Figure 3. Maxillary Edentulous Area

Panoramic radiographic examination demonstrated a well-preserved alveolar bone structure with no evidence of pathological lesions. Based on the clinical findings, the patient was diagnosed with edentulism involving teeth 11 and 21, accompanied by an interdental space between teeth 23 and 24, and an anterior deep bite. According to the Applegate–Kennedy classification, the prosthodontic classification was Class IV.

Figure 4. Panoramic Radiograph

Case Management

Based on the patient's medical history, objective clinical examination, and supporting diagnostic examinations, the patient was diagnosed with Applegate–Kennedy Class IV. The patient was informed that the recommended treatment plan included extraction of the retained deciduous tooth and orthodontic treatment prior to prosthodontic rehabilitation; however, she declined this treatment option. Instead, the patient requested prosthodontic rehabilitation with an acrylic resin removable partial denture (RPD). The proposed treatment plan was accepted, and written informed consent was obtained before treatment.

Before treatment was initiated, the patient received a comprehensive explanation regarding her oral condition, diagnosis, treatment alternatives, treatment-related risks, the advantages and disadvantages of an acrylic resin removable partial denture, and the long-term prognosis. Written informed consent was obtained after the patient had understood and agreed to the proposed treatment plan.

At the first visit, a diagnostic cast was obtained using the mucostatic impression technique with an irreversible hydrocolloid (alginate) impression material. The purpose of this impression was to

obtain an accurate replica of the oral anatomical structures, which served as the basis for treatment planning and the design of the removable partial denture.

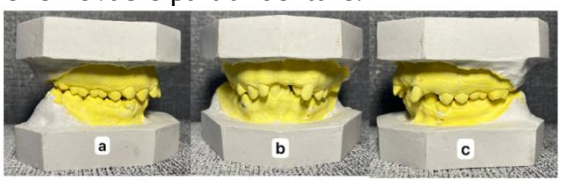

Figure 5. Diagnostic Casts: (a) Right View, (b) Frontal View, and (c) Left View

The removable partial denture (RPD) was designed through four sequential stages: determination of the classification, selection of the support system, determination of the retainer, and selection of the connectors. The prosthesis was designed with consideration of both masticatory function and aesthetics, while also preventing direct contact between the mandibular anterior teeth and the maxillary palatal mucosa.

Analysis of the diagnostic cast revealed edentulous areas involving teeth 11 and 21, which were classified as Applegate–Kennedy Class IV. This classification was established according to the Kennedy classification system, as modified by Applegate. The classification process began with the identification of all edentulous areas within the dental arch, followed by determination of the most posterior edentulous area to establish the primary classification. Once the primary classification had been determined, the number of additional edentulous areas was assessed to identify the appropriate modification.[9]

During the determination of the support system for the removable partial denture (RPD), a tooth- and mucosa-supported design was selected, in which support was provided by both the abutment teeth and the oral mucosal tissues. This support system was chosen to achieve a more balanced distribution of masticatory loads between the abutment teeth and the supporting tissues, thereby improving the stability and comfort of the prosthesis. Mucosal support was obtained by extending the acrylic resin denture base palatally and incorporating a buccal flange as an indirect retainer on the labial aspect. The palatal extension of the denture base was intended to increase the supporting area, thereby promoting a more even distribution of masticatory forces over the supporting tissues. Tooth support was provided by teeth 15 and 25, which were selected as the abutment teeth because of their sound crown and root structure. The occlusal rests on these abutment teeth established a fulcrum line. The parallel orientation of the fulcrum line across the posterior teeth provided a biomechanical basis for applying Miller's principle in the design of the removable partial denture (RPD). This configuration allowed the fulcrum line to be positioned relatively stably in the posterior region, thereby maximizing the distance between the fulcrum line and the indirect retainer. According to Miller's principle, the greater the distance between the indirect retainer and the fulcrum line, the more effective the indirect retainer is in controlling rotational movement of the denture base. In addition, positioning the clasps on the posterior teeth enhanced the patient's confidence because the clasps were not directly visible when smiling.

In this case, the direct retainers consisted of C clasps with modified cingulum rests on teeth 15 and 25, which functioned to resist vertical dislodging forces during mastication. The selection of C clasps as direct retainers on the second premolars was based on the anatomical characteristics of the teeth and the patient's deep bite condition. The indirect retainer consisted of an extension of the acrylic resin denture base to the height of the vestibular reflection in the anterior region, together with a buccal flange on the labial aspect of the prosthetic teeth replacing teeth 11, 21, and 23.

The major connector used in the removable partial denture design consisted of an acrylic resin denture base, which functioned to unite all prosthetic components into a stable assembly. In addition to serving as the primary connector, the major connector also facilitated the uniform distribution of masticatory forces to the supporting tissues, thereby enhancing the stability and comfort of the prosthesis. In this design, the minor connectors consisted of the framework components of the C clasps and the cingulum rests, which were embedded within the acrylic denture base on the palatal aspects

of teeth 15 and 25. These minor connectors served to connect the retentive components (clasps) to the major connector and the remaining prosthetic components, thereby creating a rigid union among all parts of the prosthesis. Furthermore, the minor connectors contributed to improved retention and stability while facilitating a more efficient distribution of masticatory forces throughout the removable partial denture.

At the second visit, the master cast impression was made using the mucodynamic impression technique with an irreversible hydrocolloid (alginate) impression material. This impression technique was intended to obtain an accurate reproduction of the oral tissues, particularly the denture-bearing tissues that contribute to the stability and retention of the prosthesis. The negative impression was subsequently poured with Type III dental stone to produce a representative and dimensionally stable master cast. After the master cast had been obtained, a surveying procedure was performed to analyze the contours of the abutment teeth and the supporting tissues. This procedure included determining the path of insertion, path of removal, and survey lines. In this case, the path of insertion of the prosthesis was determined to be from the left posterior direction, based on the results of the surveying analysis. The buccal undercuts of the abutment teeth were utilized as the sites for placement of the retentive clasp arms to achieve optimal retention of the removable partial denture (RPD). The appropriate clasp design was determined by measuring the depth of the undercuts on the abutment teeth using an undercut gauge.

Meanwhile, undesirable undercuts on the palatal and proximal surfaces that were not required for the prosthesis design were eliminated by blocking out with dental plaster. The blocked-out areas were subsequently refined during the wax trimming procedure using a wax trimmer.

The next stage was articulator mounting, which aimed to mount the master casts according to the patient's maxillomandibular relationship. This procedure was followed by the fabrication of the clasps, denture base, processing, and occlusion rim as part of the removable partial denture (RPD) fabrication process. After the denture base had been fabricated, a try-in procedure was performed at the third visit to evaluate physiological retention, mechanical retention, prosthesis stability during functional oral movements, and the patient's initial comfort with the prosthesis. This evaluation was intended to verify the adaptation of the denture base to the supporting tissues and to ensure optimal stability before proceeding to the subsequent stages of treatment.

At the second visit, the shade of the artificial teeth was selected by matching the hue, chroma, and value of the patient's natural teeth. Shade selection is an important aspect of treatment because it contributes to the patient's self-confidence. Subsequently, an articulator mounting procedure was performed to record and simulate the patient's maxillomandibular relationship and mandibular movements more accurately, thereby ensuring optimal occlusion and masticatory function in the removable partial denture to be fabricated.

Figure 6. Shade Selection of the Artificial Teeth

The artificial teeth were arranged on the articulator with careful consideration of the direction and angulation of mandibular movements to establish a harmonious and functional occlusal relationship. The artificial teeth were selected according to the shade-matching results obtained using a shade guide to achieve an aesthetic match with the patient's natural dentition. The selected shade was A2. Following the arrangement of the artificial teeth, articulator movements were evaluated to verify the position of the artificial teeth in relation to the occlusal relationship and mandibular

movements. Four articulator movements were assessed: lateroprotrusive, lateroretrusive, laterotrusive, and laterodetrusive movements.

The subsequent stage involved a try-in of the arranged artificial teeth in the patient's oral cavity to evaluate aesthetics, stability, and phonetics, as well as to ensure the absence of occlusal interference and any subjective complaints from the patient before the final processing procedure.

At the fourth visit, the removable partial denture (RPD) was inserted. At this stage, an initial evaluation of the prosthesis was performed, including assessment of retention, stability, denture base adaptation, and the occlusal relationship. Retention was evaluated by assessing the ability of the prosthesis to remain in its intended position without displacement or dislodgement while the patient was at rest. Subsequently, stability was assessed while the patient performed functional movements, such as speaking and mastication, to evaluate the resistance of the prosthesis to horizontal and rotational forces. The pressure-bearing areas of the supporting tissues were evaluated using Pressure Indicator Paste (PIP) to identify areas subjected to excessive pressure resulting from inadequate denture base adaptation. If areas causing instability or excessive pressure were identified, appropriate adjustments were made by selectively relieving the denture base as required. In addition, the occlusal relationship was evaluated using articulating paper to detect any premature occlusal contacts or occlusal trauma. When occlusal interferences were identified, occlusal adjustment was performed using the selective grinding technique to establish a harmonious and comfortable occlusal relationship for the patient.

After completion of the insertion procedure, the patient received instructions on the proper insertion and removal of the removable partial denture (RPD) according to the predetermined path of insertion and removal. The patient was also instructed to wear the prosthesis continuously for the initial 48-hour adaptation period, removing it only for denture cleaning and oral hygiene procedures. In addition, the patient was educated on appropriate denture hygiene, including cleaning the prosthesis with a denture brush and a suitable denture cleanser to maintain its cleanliness and condition. The patient was subsequently scheduled for a follow-up visit one week after insertion to evaluate prosthesis adaptation, comfort, and function. However, the patient was advised to return earlier if any complaints or discomfort developed during denture use.

Figure 7. Frontal View of the Removable Partial Denture at Insertion

Follow-up evaluation of the removable partial denture (RPD) was performed one week after insertion to assess the patient's adaptation to the prosthesis. Subjective examination revealed that the patient reported no pain or discomfort during RPD use. Meanwhile, the objective examination included assessment of the condition of the oral mucosa, the abutment teeth and their supporting tissues, the Oral Hygiene Index (OHI), prosthesis retention and stability, the occlusal relationship, and the overall function of the stomatognathic system. The examination findings demonstrated that the oral mucosa remained healthy, with no signs of irritation or trauma associated with prosthesis use. In addition, the patient reported increased self-confidence while wearing the removable partial denture. Evaluation of the prosthesis also yielded favorable results, as evidenced by adequate retention and stability together with a harmonious occlusal relationship, thereby allowing optimal masticatory function and successful patient adaptation to the removable partial denture (RPD).

Discussion

A deep bite is a form of vertical malocclusion characterized by excessive vertical overlap between the maxillary and mandibular anterior teeth in centric occlusion. A deep bite may be influenced by both skeletal and dentoalveolar factors, including anterior rotation of the mandible,

insufficient posterior vertical growth, excessive eruption of the anterior teeth, and posterior tooth loss resulting in altered occlusal relationships.[10] In addition to affecting the occlusal relationship, a deep bite may also compromise facial and smile aesthetics due to changes in lower facial proportions and the position of the anterior teeth. [4]

A deep bite may also result in various functional disturbances, including impaired mastication, increased wear of the anterior teeth, periodontal disorders, and traumatic palatal bite caused by excessive contact between the mandibular incisors and the palatal tissues.[11] In patients with partial edentulism, this condition may further aggravate occlusal disharmony because of a reduction in the occlusal vertical dimension and increased loading of the anterior teeth. Therefore, prosthodontic rehabilitation using a removable partial denture (RPD) requires comprehensive treatment planning, particularly with regard to the occlusal relationship, interocclusal space, distribution of masticatory forces, and prosthesis stability, in order to achieve optimal functional and aesthetic treatment outcomes.[12]

In general, dental prostheses are classified into two main categories: fixed dental prostheses and removable dental prostheses. A removable partial denture (RPD) is a type of removable dental prosthesis used to replace missing teeth in a partially edentulous arch by utilizing the abutment teeth and the oral mucosa as supporting structures. The selection of the prosthesis type is based on the patient's oral condition, functional requirements for mastication, aesthetic considerations, and economic factors. Compared with fixed dental prostheses, RPDs offer several advantages, including a relatively simpler treatment procedure, the absence of extensive invasive intervention, and lower treatment costs. Therefore, RPDs are widely used in the rehabilitation of partial edentulism, particularly in patients with healthy alveolar bone and supporting tissues in accordance with the Applegate–Kennedy classification.[13]

One of the materials most commonly used for the fabrication of RPD denture bases is acrylic resin. This material is selected because of its biocompatibility, ease of fabrication and repair, and its ability to provide satisfactory aesthetics through a color that closely resembles the natural gingival tissues. In addition, acrylic resin exhibits adequate resistance to corrosion and is relatively inexpensive, making it practical for routine clinical use.[14] However, acrylic resin also has several limitations, particularly its porous nature, which allows the absorption of fluids and chemical substances from the oral cavity. This condition may increase the risk of plaque accumulation, the development of dental caries in the abutment teeth, and irritation of the oral mucosa if adequate denture hygiene is not maintained.[15]

The fabrication of a removable partial denture (RPD) involves a surveying procedure, which is an essential step in prosthesis design planning. This procedure aims to determine the path of insertion, path of removal, identify undercut areas, and evaluate the contours of the abutment teeth and supporting tissues. Through surveying, the retention and stability of the prosthesis can be planned more effectively, thereby promoting a more balanced distribution of masticatory forces between the abutment teeth and the supporting tissues. With appropriate force distribution, the risk of excessive torquing forces that may damage the abutment teeth and periodontal tissues can be minimized.[16]

In the present case, the edentulous area was classified as Applegate–Kennedy Class IV, indicating an anterior edentulous space crossing the midline. The loss of teeth 11 and 21 may impair masticatory function, phonetics, and aesthetics; therefore, prosthodontic rehabilitation was required to restore these functions. In addition, the presence of a deep bite posed an additional clinical challenge, although the patient did not report any symptoms related to this condition.[17] A tooth- and mucosa-supported design was selected in this case. Tooth support was provided by teeth 15 and 25, which were selected as the abutment teeth. Mucosal support was achieved by extending the acrylic resin denture base palatally to distribute masticatory forces while maintaining prosthesis retention.[18]

Teeth 15 and 25 were selected as the primary abutment teeth because they were the most posterior teeth adjacent to the edentulous area, thereby providing greater prosthesis retention. Their symmetrical position on the right and left sides contributed to improved prosthesis stability. In

addition, teeth 15 and 25 exhibited mesiobuccoversion, resulting in sufficient buccal undercuts for placement of the retentive clasp arms.[19] In this case, a C clasp with a modified occlusal rest was selected as the direct retainer because surveying of the master cast demonstrated a 0.02-mm buccal undercut on the abutment teeth, which was compatible with the 0.7-mm C clasp wire. In addition to the direct retainer, an indirect retainer was obtained by extending the buccal flange into the labial vestibular region corresponding to the prosthetic teeth replacing teeth 11, 21, and 23, thereby enhancing prosthesis stability.[20]

Follow-up evaluation of the removable partial denture (RPD) for the rehabilitation of partial edentulism associated with a deep bite in this case demonstrated favorable outcomes, as evidenced by both subjective and objective examinations. Subjective evaluation revealed that the patient was comfortable while eating and speaking and experienced no pain during denture use. Objective evaluation showed no evidence of mucosal irritation, dental trauma, or occlusal disturbances. These findings are consistent with those reported by Ahmed et al. (2025), who demonstrated successful treatment outcomes with removable partial dentures, characterized by patient comfort during use, the absence of pain, and the absence of mucosal irritation, dental trauma, and occlusal disturbances.

Overall, the prosthodontic approach selected in this case, namely the use of an acrylic resin removable partial denture (RPD), represents an appropriate treatment option that is consistent with the principles of evidence-based prosthodontic rehabilitation. The prosthesis was designed with careful consideration of the patient's clinical condition, particularly the presence of a deep bite, which could affect the occlusal relationship, interocclusal space, and prosthesis stability during masticatory function. In addition to offering advantages such as relatively low cost, ease of fabrication and adjustment, and satisfactory aesthetic outcomes, the use of acrylic resin also allows modification of the denture base design to enhance retention and stability. A prosthesis design that incorporates appropriate distribution of masticatory forces, mechanical retention, a harmonious occlusal relationship, and palatal extension of the denture base facilitates optimal prosthodontic rehabilitation by improving masticatory function, enhancing patient comfort, and restoring both aesthetics and patient self-confidence.

CONCLUSION

Based on the treatment outcomes in this case, the use of an acrylic resin removable partial denture (RPD) in a patient with a deep bite provided satisfactory prosthodontic rehabilitation when supported by appropriate and comprehensive treatment planning. A deep bite requires special consideration during prosthesis design because of the limited interocclusal space and the altered distribution of masticatory forces, both of which may affect the retention and stability of the prosthesis. Therefore, the surveying procedure, selection of the abutment teeth, determination of the path of insertion, and the design of the prosthetic retention and support are critical factors for successful treatment. Post-insertion evaluation demonstrated that the patient adapted well to the removable partial denture (RPD), as evidenced by the absence of complaints, healthy oral mucosa, a harmonious occlusal relationship, and satisfactory prosthesis retention and stability. Therefore, the use of an RPD in cases of partial edentulism associated with a deep bite may serve as an effective prosthodontic rehabilitation option for improving masticatory function, aesthetics, patient comfort, and quality of life.

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