



Occlusal Consequences of Inadequate Follow-Up in Removable Partial Denture Patients: A Case-Based Approach to Longevity and Complication Management

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Background

Removable partial dentures (RPDs) rely on proper design and structured recall for long-term success. Without regular follow-up, patients may experience progressive complications such as denture tooth wear, loss of occlusal vertical dimension, and supra-eruption of opposing teeth. These changes compromise prosthesis stability, function, and patient comfort, but they are preventable through proactive recall and thoughtful treatment planning.

Case Presentation

The patient had an existing 13 y.o. Kennedy Class II maxillary RPD and Kennedy Class IV implant-supported removable partial overdenture which presented with severe wear of denture teeth leading to supra-eruption of opposing natural teeth and loss of inter-occlusal space. The lack of periodic relining to compensate for the progressive residual ridge resorption also played a role in the evident poor tooth to frame relationship and denture sores. In response, cast gold occlusal surfaces were fabricated on newly made, well adapted RPD prostheses, and a 4-month recall was established for the patient with specific maintenance requirements.



Initial Treatment

An increase in occlusal vertical dimension (OVD) was warranted to increase the inter-occlusal space and improve the uneven bilateral contacts. The OVD had been held by the patients last remaining contacts between #16 and #17. Tolerance of the increased OVD was tested with a temporary bis-acrylic composite MODB onlay, worn on #17, and the addition of a self-curing acrylic resin applied to both RPD's occlusal surfaces at the newly proposed OVD for four weeks before starting the definitive fabrications.

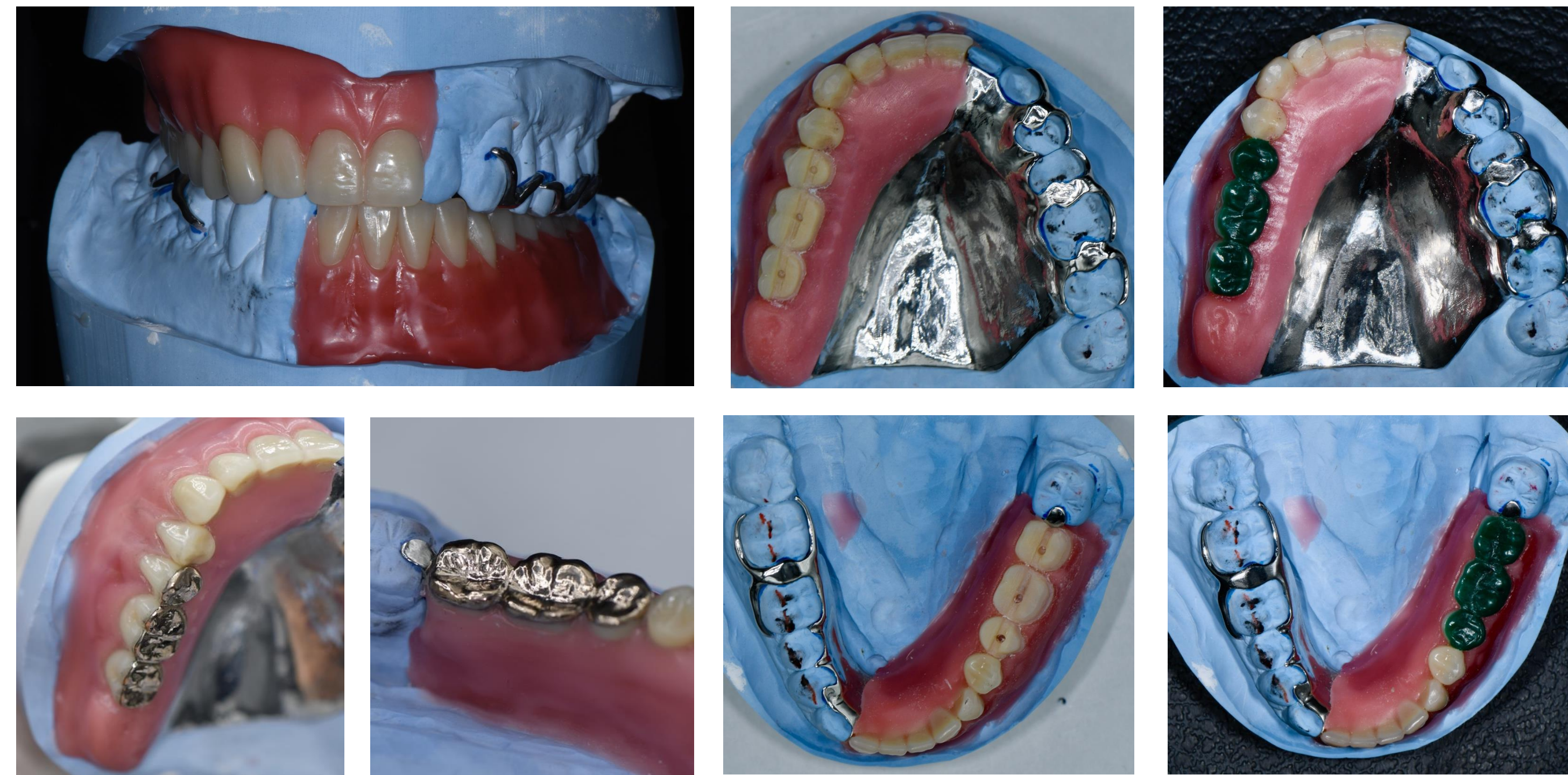


Definitive Treatment

Fabrication and cementation of #17 MODB onlay resulting in increased restorative space.



After the wax try-in was confirmed, the metal occlusal surfaces were then fabricated. A uniform reduction of occlusal surfaces of the denture teeth were prepared with retention holes and grooves. A separating agent was applied to the denture teeth before applying inlay wax. The occlusal surfaces were reproduced, and the wax patterns were then casted in type III gold.



The overlays were adjusted to the opposing dentition and polished prior to air abrading and Cementing with metal primer and dual cure composite resin.

Results

The RPDs were processed and delivered. Occlusal contacts adjusted and verified in the mouth.



Clinical Considerations

Patients who are caries-susceptible or have tendencies toward periodontal disease or alveolar atrophy should be examined more frequently (every 3–4 months), while a 6-month recall interval should be the standard if conditions are normal.

Follow-up services should include:

1. Prevention of caries and periodontal disease through oral and prosthesis hygiene instruction.
2. Improving retention by adjusting clasp arms to engage deeper retentive undercuts.
3. Identifying loss of ridge support and correcting it through relining or rebasing.
4. Evaluating the prosthesis for distortion or breakage.
5. Identifying and addressing tooth wear and malocclusion.
6. Reinforcing the understanding that partial denture treatment requires regular and continuous care by both the patient and dentist.

In this case presentation, the new prostheses are well-adapted to the supporting ridges, and the metal occlusal surfaces have re-established stable occlusal stops that will minimize wear throughout the anticipated life of the prostheses. Metal surfaces have demonstrated superior resistance to wear, potentially reducing the need for frequent prosthetic adjustments and helping preserve occlusal vertical dimension. Although esthetic materials such as zirconia and porcelain offer high strength and favorable color matching, they may introduce unwanted wear on opposing dentition and are more susceptible to fracture. Gold remains the most biocompatible and forgiving material for occlusal surfaces, especially in patients with parafunctional habits. Other options for minimizing occlusal wear include the use of porcelain denture teeth or milled ceramic occlusal overlays.

Conclusions: Occlusal instability due to inadequate recall is a preventable complication. Long-term maintenance and integrating durable materials such as gold or porcelain occlusal surfaces into strategic treatment planning can significantly improve the long-term success and functional preservation of the removable prosthesis. This case reinforces the prosthodontist's role in designing both the prosthesis and its maintenance protocols to safeguard against the reoccurrence of disease, occlusal complications, and prosthetic failure.

Resources

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