

Temporary Modification of a Mandibular Implant Supported Overdenture for the Treatment of Salivary Duct Dysfunction

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Introduction

Dental implants, particularly mandibular overdentures, offer many benefits but may lead to complications involving the salivary glands—especially the sublingual and submandibular glands, which are anatomically close to anterior implant sites. While implant-supported overdentures are common, salivary gland dysfunction remains underreported, with few conservative treatment options available.

Case Overview

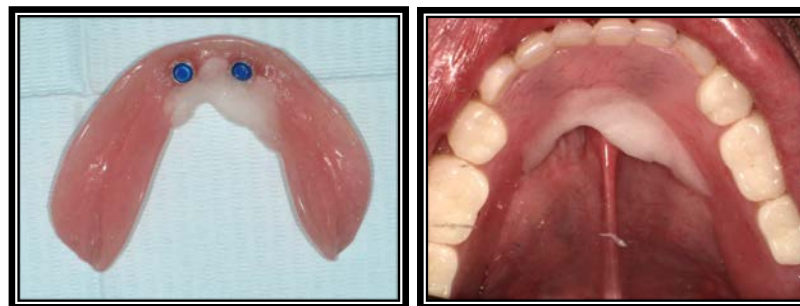
A 63-year-old male, edentulous and light smoker, presented with pain and swelling near implant site #22 following mandibular overdenture placement. Despite osseointegration confirmation and standard interventions (e.g., rinses, denture relief), symptoms persisted. Examination revealed swelling near the left sublingual caruncle. Digital pressure increased salivary flow, indicating duct involvement.



Intervention:

A novel and unconventional temporary overdenture modification was implemented:

- Lynal (tissue conditioner) was mixed to a stiffer consistency.
- Material was shaped to extend the lingual flange of the denture to apply sustained pressure to the floor of the mouth.
- This mimicked manual massage and stimulated salivary flow.



Discussion

Salivary gland complications related to implant-retained mandibular overdentures are rarely addressed in the literature, despite the anatomical proximity of implant sites to the sublingual and submandibular ducts. In this case, persistent swelling and discomfort near implant site #22, unresponsive to standard care, suggested sublingual duct involvement. CBCT showed no obstruction, highlighting the limitations of imaging alone and the importance of clinical evaluation.

An unconventional modification—intentional overextension of the lingual flange using a stiffened tissue conditioner—was designed to replicate the therapeutic effect of digital massage on the sublingual area. This approach was inspired by techniques in radiation oncology, where intraoral appliances are deliberately extended to apply localized pressure. By adapting border molding principles, the overdenture applied continuous pressure to the anterior floor of the mouth, stimulating salivary flow and reducing inflammation.

Notably, this method leveraged the enhanced retention of implant-supported prostheses, allowing controlled overextension without compromising denture stability—something not feasible in conventional complete dentures. The modification also restricted tongue and floor-of-mouth movement, mitigating tissue irritation and allowing the area to heal.

This case emphasizes the need to consider soft tissue dynamics, anatomical variations, and behavioral factors (e.g., smoking) during prosthetic design and post-op care. It offers a first-of-its-kind conservative intervention for salivary dysfunction, bridging a gap in current implant prosthodontic protocols.



CONCLUSION

This case presents a conservative, non-invasive method to relieve salivary duct dysfunction related to mandibular overdentures. The technique offers a practical, patient-friendly solution and warrants further investigation in broader clinical settings.



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Project Title

Temporary Modification of a Mandibular Implant Supported Overdenture for the Treatment of Salivary Duct Dysfunction

Full name(s) and class year(s) of all project collaborators

Example: Jane Smith, DDS 2022; John Smith, DDS 2022

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Project Category

DDS/IDS - Clinical Awards: Implant Dentistry



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Dental implants are a widely accepted solution for tooth replacement, but their placement can lead to complications affecting adjacent anatomical structures. This case highlights a rare instance in which a 63-year-old male presented with delayed soft-tissue healing and persistent discomfort throughout the retrofit process of a mandibular overdenture. Clinical and radiographic evaluation attributed these complications to salivary gland dysfunction. Despite conventional treatments, including antimicrobial rinses and denture intaglio relief, the patient's symptoms persisted. Soft-tissue healing and symptom resolution were ultimately achieved by extending the intaglio of the overdenture with Lynal, creating continuous pressure on the floor of the mouth. This simple, non-invasive modification effectively relieved salivary gland dysfunction and facilitated recovery.

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