



Xinyue (Cinny) Ma, Class of 2024, DDS Candidate

Department of Removable Prosthodontics, University of the Pacific, Arthur A. Dugoni School of Dentistry, San Francisco

Abstract

Gastroesophageal reflux disease (GERD) poses significant challenges to systemic and oral health, often resulting in **severe erosive tooth wear** and dentin hypersensitivity¹. This clinical case study focused on the restoration of oral function through the utilization of fixed and removable prosthetics to reconstruct the occlusal plane. The patient underwent a comprehensive treatment plan aimed at restoring lost tooth structure and restoring chewing functions. Tooth-colored composite restorations, monolithic Zirconia crowns, and partial dentures were strategically employed to rebuild the occlusal plane, alleviate dentin **hypersensitivity** and improve **masticatory function**.

This case highlights the importance of a **multidisciplinary** approach in managing severe tooth erosion secondary to GERD, with an emphasis on functional restoration and patient-centered care.



Clinical Assessment

- Age/race/sex: M85 Chinese
- CC: I want to be able to chew again. My teeth are sensitive when I drink cold water.
- MH: Arthritis on left leg and right palm, GERD
- Meds: Omeprazole
- Allergies: NKDA

- Heavy erosion
- High caries risk
- Generalized stain
- Oral hygiene is inadequate, visible plaque
- Generalized chronic moderate periodontitis
- Mild crowding on Maxillary
- Cross-bite
- Maxillary and Mandibular partially edentulous



Treatment plans⁵

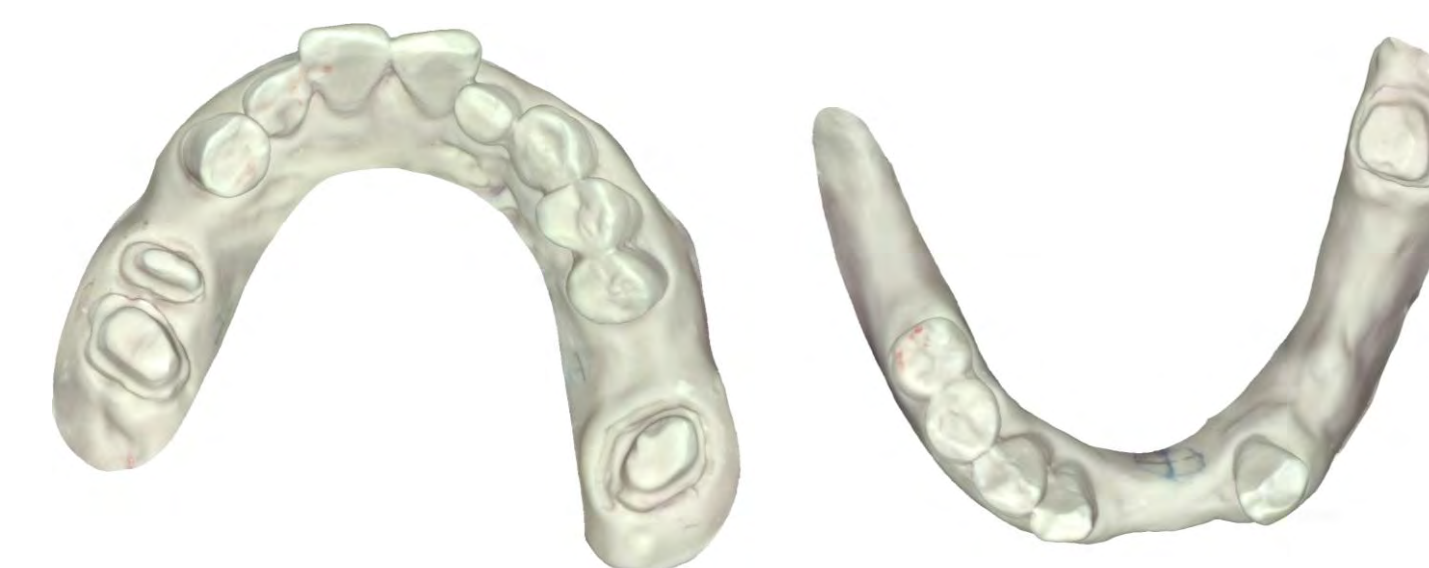
Urgent phase	#2 Ext-Supraerupted #21 Ext-Gross decay
Preventative Phase (Before and after Disease control phase)	CAMBRA-Prevident 5000 toothpaste, CTX spray OHI- Soft bristle toothbrush Diet Consult---Acidic food, Sugar Intake
Disease control phase	CAMRBA, OHI, Diet consult UL, LL quads SRP, prophy UR, LR One month ITE, OHI reinforced Stayplate Upper and Lower---Temporary #29, #18, #15, #3, #4 build-up #8 IL, #9 IL, #7 IL, #12 OL, #13 OL, #13 DB
Reconstructive phase	#29, #18, #15, #4 Survey crowns #3 Crown Upper and Lower RPD
Maintenance Phase	Denture recall Perio recall CAMBRA products Night Guard-Bruxism



Fixed Prosthetics

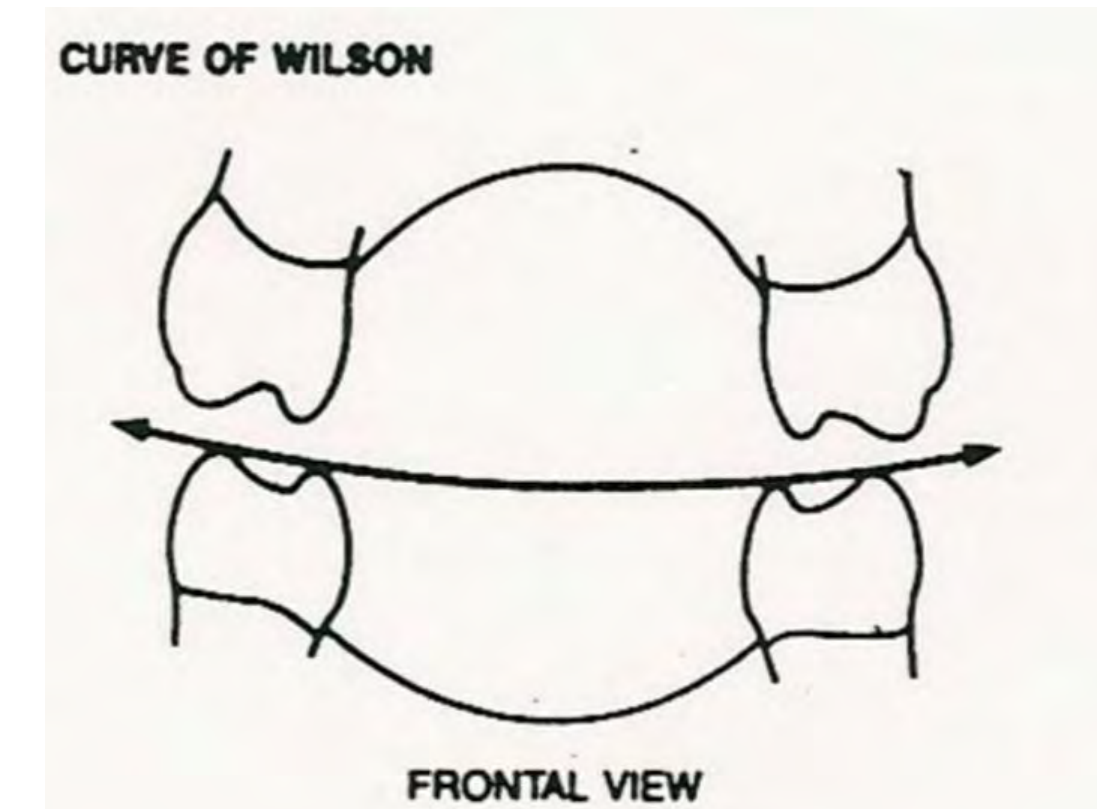
Survey crowns: #4, #15, #18, #29 were designed with Dr. La Barre with diagnostic wax up:

- Correct the inverse curve of Wilson #18
- Assess occlusal reduction including rest preps areas
- Restore proper occlusal plane
- Fabricating temps to alleviate dentin hypersensitivity
- Design Undercuts and rest preps better fit with RPD



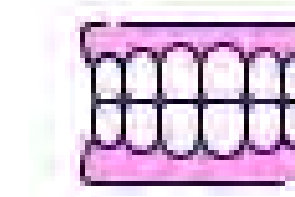
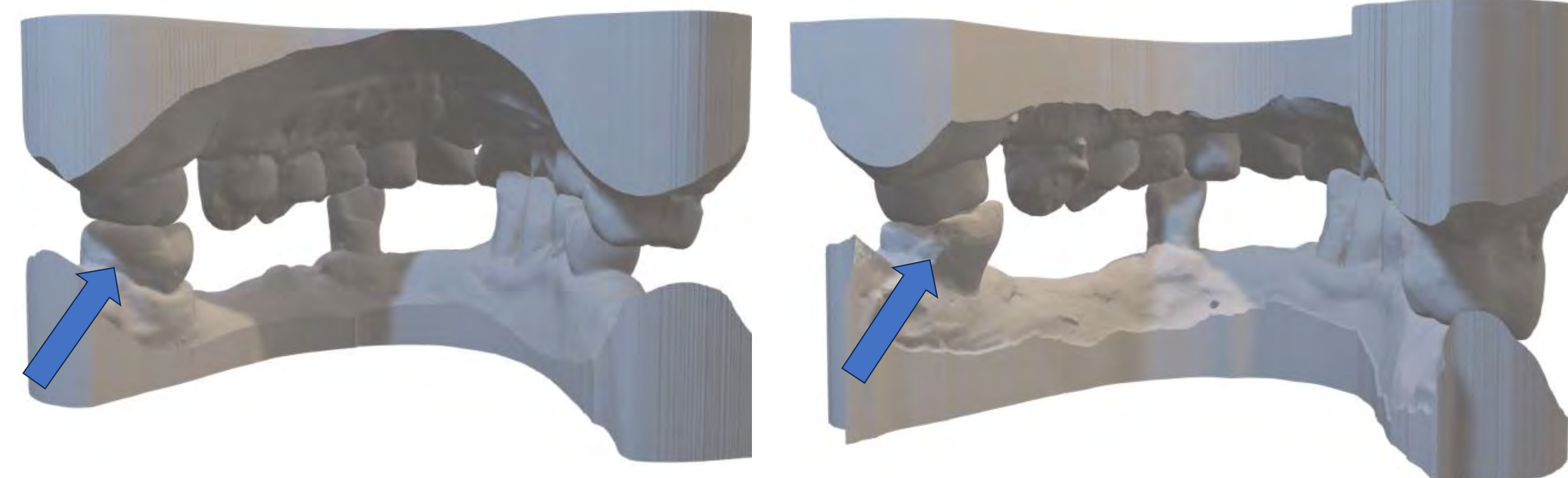
Material of choice:

- Zirconia: resistance to acidic environments, durability and superior strength².
- Porcelain: alleviate dentin hypersensitivity caused by intricate erosion patterns².

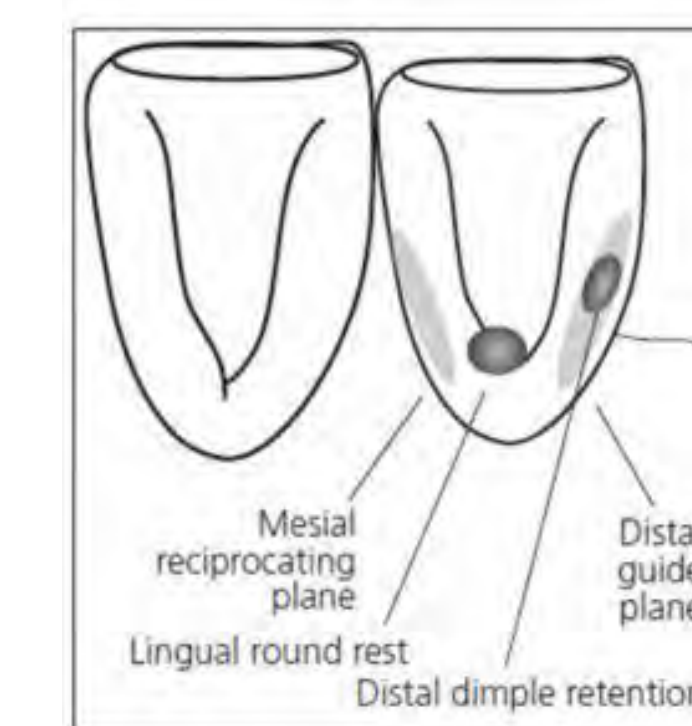


Functions of the **Curve of Wilson**⁶:

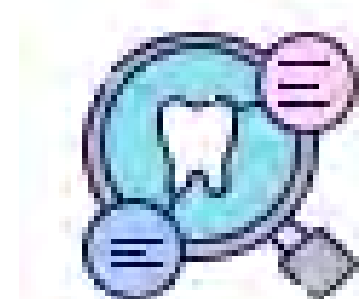
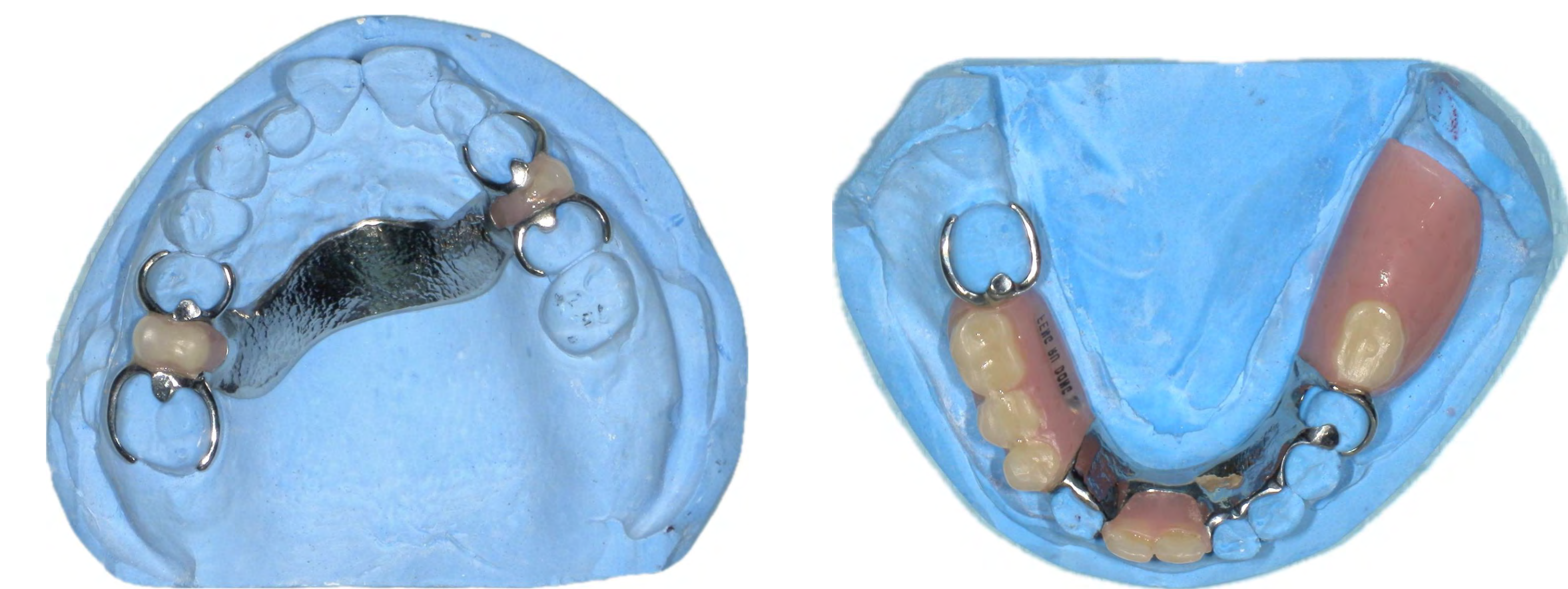
1. Protect the posterior occlusion during the lateral **excursion**
2. Prevent fracture of restorative due to parafunction,
3. Negative curve of Wilson will impact the temporomandibular joint (TMJ) and lead to the development of **TMD**



Removable Prosthetics



- **Maxillary**: 93% of patients tolerate the maxillary **palatal bar** best instead of the plating design, for the most satisfying speaking, chewing, and swallowing functions⁴. Options of **R2D2** and **C3PO** were considered to be alternate design options for better esthetic outcomes³.
- **Mandibular**: Due to space constraints, lingual plating is used instead of lingual bar.



Discussion

- Maintaining or increasing VDO
- Full mouth Rehabilitation
- Aftercare: **CAMBRA products**⁵, Dietary and Medical consultation
- Perio, Denture recall



REFERENCES

1. AlShahrani MT, Haralur SB, Alqarni M. Restorative Rehabilitation of a Patient with Dental Erosion. Case Rep Dent. 2017;2017:9517486. doi: 10.1155/2017/9517486. Epub 2017 Jul 30. PMID: 28828189; PMCID: PMC5554566.
2. Benk I, Némethy M, Fábrián TK. Intrinsic erosio okozta foganyagvesztés helyreállítása porcelánborított koronákkal. Esetismertetés [Restoration of profound tooth damage caused by intrinsic erosion, with porcelain crowns. A case report]. Fogorv Sz. 2011 Sep;104(3):81-5. Hungarian. PMID: 22039713.
3. Tran C, LaBarre E, Landesman HM. A removable partial denture using an esthetically designed round-rest distal clasp on maxillary anterior abutment teeth: a clinical report. J Prosthet Dent. 2009 Nov;102(5):286-9. doi: 10.1016/S0022-3913(09)60174-8. PMID: 19853169.
4. Arigbede AO, Dosumu OO, Esan TA, Akeredolu PA. Acceptability of maxillary major connectors in removable partial dentures. Afr Health Sci. 2006 Jun;6(2):113-7. doi: 10.5555/afhs.2006.6.2.113. PMID: 16916303; PMCID: PMC1831977.
5. Featherstone JDB, Chaffee BW. The Evidence for Caries Management by Risk Assessment (CAMBRA®). Adv Dent Res. 2018 Feb;29(1):9-14. doi: 10.1177/0022034517736500. PMID: 29355423; PMCID: PMC5784484.
6. Yi WJ, Zhang JY, Kong WD, Mai AD, Duan JH. Clinical research on the relationship between the curve of Wilson and temporomandibular joint disorders. J Stomatol Oral Maxillofac Surg. 2023 Oct;124(5):101496. doi: 10.1016/j.jormas.2023.101496. Epub 2023 May 12. PMID: 37182758.