

TIPS FROM OUR READERS

Wax rim split technique for tooth arrangement

Rohit Sunny Mathew, MDS,^a Kawalpreet Kaur Kapoor, BDS,^b and Della Jeby, BDS^c



Although the arrangement of artificial teeth may seem straightforward, knowledge of the physical and biological factors of the patient is needed to rehabilitate the occlusion.¹ Current evidence demonstrates that improper tooth positioning with regard to residual ridges can lead to accelerated bone resorption and compromise the longevity of the prosthesis.²

Natural tooth loss leads to alveolar ridge resorption. In the molar region, the maxillary ridge becomes located more palatally and the mandibular ridge more buccally, making optimal placement of the artificial teeth in relation to the residual ridges challenging.^{3,4} Given the force factor, the artificial teeth should ideally be placed along the crest of the ridge so that forces are transmitted directly along the center of the ridge to aid in seating the denture.³

If maxillary teeth are placed first along the center of the crest of the ridge, the mandibular posteriors need to be set lingually to the crest of the ridge, which may cause tongue cramping and difficulty in tongue movements, which may eventually unseat the denture base.³ Taking into account the mandibular denture's limited stability and lower retaining force associated with the smaller surface area than that of the maxillary denture, mandibular teeth should be set along the crest of the ridge and maxillary teeth according to the horizontal occlusal plane.³⁻⁵

This article describes a novel technique for positioning maxillary teeth along the horizontal occlusal plane and mandibular teeth along the crest of the ridge to enhance treatment outcomes while still following the conventional concepts of occlusion.

TECHNIQUE

1. Mount the maxillary and mandibular edentulous casts with occlusal wax rims (Rolex; Ashoo Sons) on an articulator (Hanau Wide-View; Whip Mix Corp).
2. Remove the mandibular wax rim from the edentulous cast. Using a pencil, draw a reference line (R-line) along the center of the crest of the ridge. Extend this line anteriorly and posteriorly onto the land area of the cast using a ruler held along the ridge (Fig. 1A).
3. Reposition the mandibular wax rim on the cast. Align the ruler on the occlusal surface of the rim such that it coincides with the extended R-line on the land area both anteriorly and posteriorly. Score a line along the ruler onto the occlusal surface of the rim (Fig. 1B).
4. Using a sharp knife (Stanley; Stanley Black & Decker), carefully split the mandibular rim along the scored line into buccal and lingual halves, maintaining rim stability (Fig. 1C). For enhanced stability, the cast may be held firmly on a bench surface, and the wax rim can be lightly chilled or supported with finger pressure to minimize distortion during cutting.
5. Remove the buccal half of the rim (Fig. 1D).
6. With the rims in occlusion, use the discoid end of a Lecron carver (Wcl4; GDC Fine Crafted Dental Pvt Ltd) to trace the crestal midline of the mandibular ridge onto the maxillary rim by running the instrument along the buccal aspect of the mandibular rim (Fig. 2A).

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

^aAssociate Professor, Department of Prosthodontics, Christian Dental College, Ludhiana, Punjab, India.

^bPostgraduate Resident, Department of Prosthodontics, Christian Dental College, Ludhiana, Punjab, India.

^cPostgraduate Resident, Department of Prosthodontics, Christian Dental College, Ludhiana, Punjab, India.

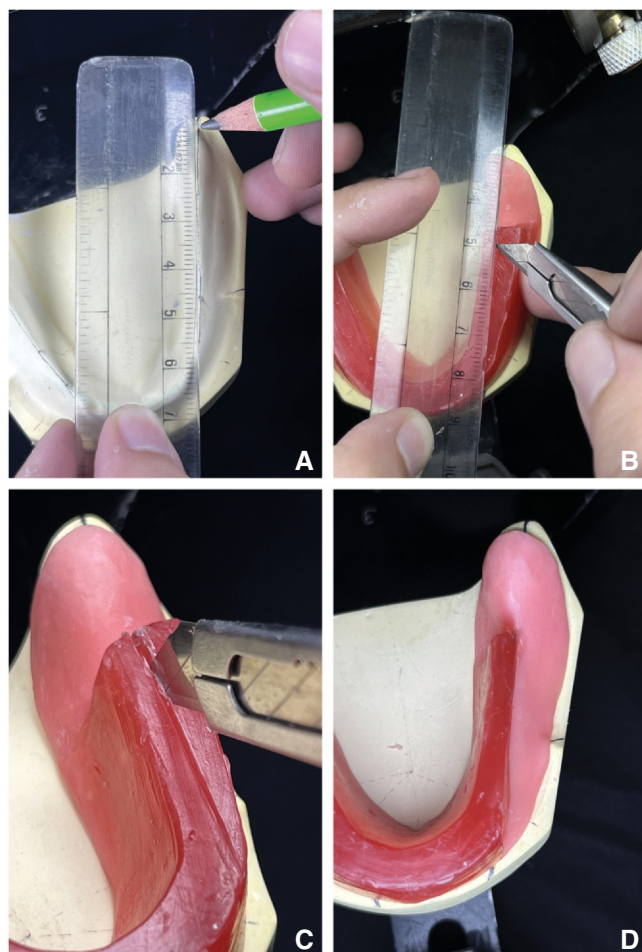


Figure 1. A, Mandibular R-line extended onto land area anteriorly and posteriorly. B, R-line transferred onto mandibular wax rim. C, Wax rim split along scored line into buccal and lingual half. D, Buccal half of rim removed.

This transferred line on the maxillary rim serves as a guide for arranging the palatal cusps of the maxillary posterior teeth (Acryrock; Ruthinium Dental Pvt Ltd) (Fig. 2B-D).

DISCUSSION

Arranging the maxillary posterior teeth along the transferred crestal midline ensures that the mandibular posterior teeth, when set in occlusion, will align over the center of the ridge—a position that promotes maximum denture stability. In a Class III ridge relation, the transferred ridge crest line may not always coincide with the optimal functional cusp position, and careful adjustments are often needed to establish stable occlusal contacts and avoid interferences. In such situations, the broader mandibular arch necessitates a reverse articulation, with maxillary posterior buccal cusps articulating in the mandibular central fossae. While first maxillary premolars are set conventionally, the second premolars

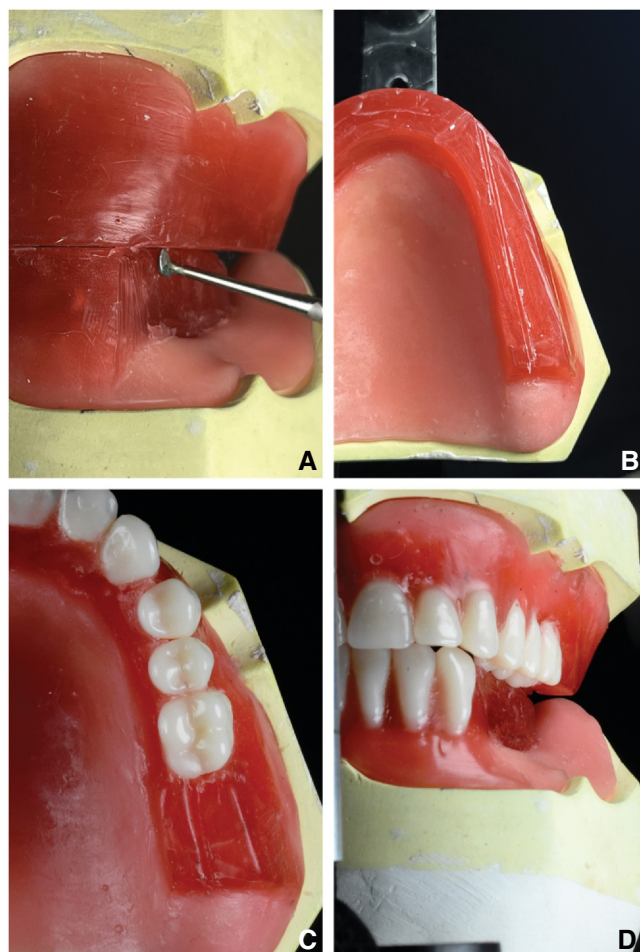


Figure 2. A, Mandibular R-line transferred onto maxillary wax rim with discoid end of Lecron carver. B, Transferred line used as guide for arrangement of palatal cusps of maxillary posterior denture teeth. C, Palatal cusps of maxillary posterior teeth arranged in line with transferred line. D, Palatal cusps of maxillary posterior teeth coinciding with mandibular split wax rim.

are adjusted by flattening the buccal and lingual cusps and are positioned cusp-to-cusp to initiate the cross-over. Maxillary first and second molars are arranged in reverse articulation, and the exact crossover point varies among patients.⁵ When occlusal rims are fabricated using materials other than wax, such as modeling plastic impression compound, preheating the knife before scoring or sectioning facilitates the procedure and minimizes the risk of material fracture.

SUMMARY

This technique provides a straightforward and reproducible means of registering the mandibular ridge crest on the maxillary rim, creating a dependable reference for arranging the palatal cusps of the maxillary posterior teeth; this in turn guides the mandibular tooth

arrangement in accordance with traditional prosthodontic teaching.

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Corresponding author:

Dr Rohit Sunny Mathew
Department of Prosthodontics
Christian Dental College
Ludhiana, Punjab 141008
INDIA
Email: rohitsunny89@hotmail.com

CRediT authorship contribution statement

Rohit Sunny Mathew: Conceptualization; Data Curation; Methodology; Project Administration; Writing - Original Draft; Writing - Review and Editing.
Kawalpreet Kaur Kapoor: Writing - Original Draft. **Della Jeby:** Writing - Original Draft; Visualization.

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<https://doi.org/10.1016/j.prosdent.2025.09.045>