

## A simple method to detect undercuts during tooth preparation for fixed prosthodontics

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During abutment tooth preparation for fixed partial dentures, the presence of undesirable undercuts, due to clinical complicating factors such as poor visibility and access, frequently is observed.<sup>1</sup> The presence of undercuts may hinder the complete seating of the cast restoration, resulting in the need to recontour the prepared tooth and make a new impression. This article presents an easy and quick method for evaluating single or multiple tooth preparations to detect undercuts before making the final impression.

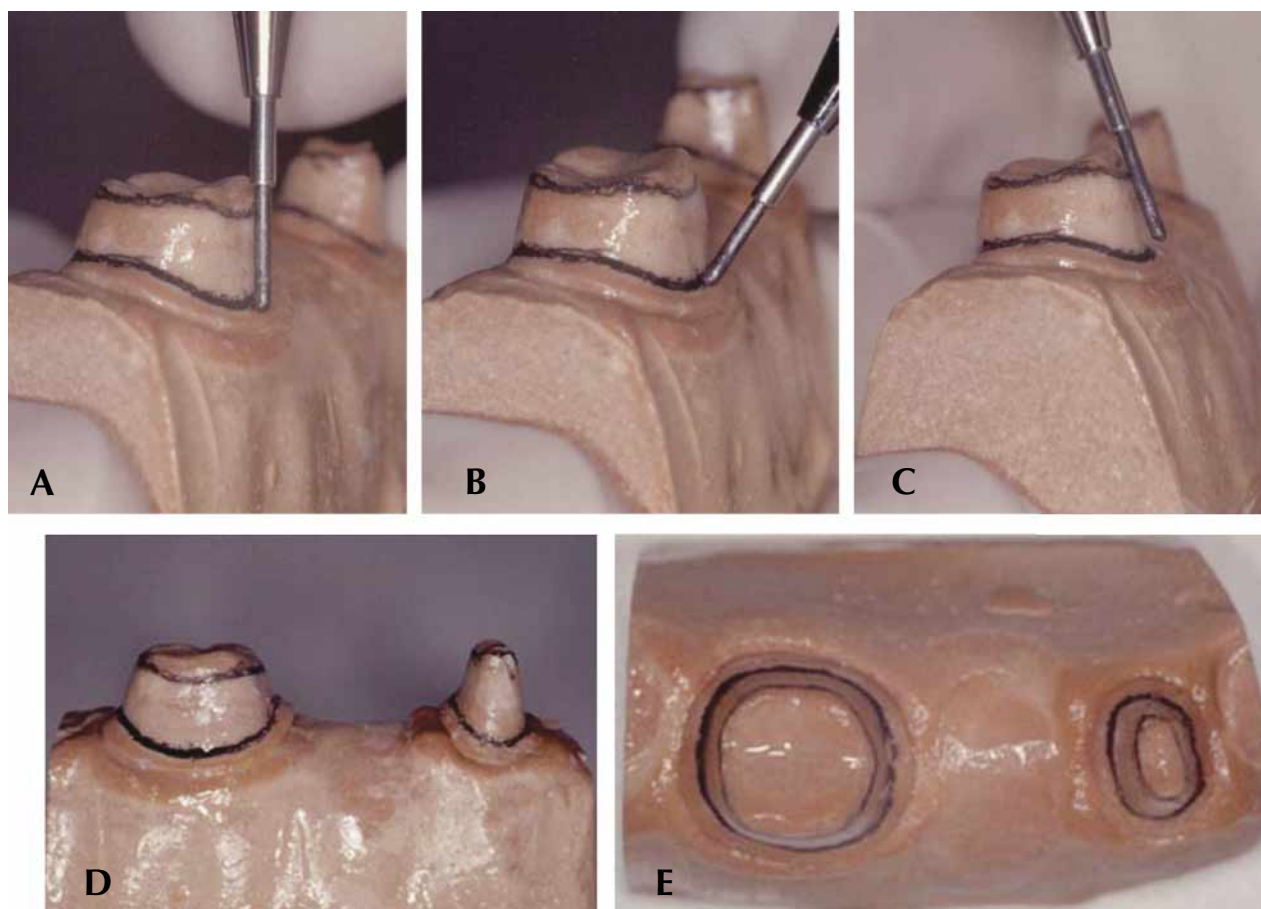
### PROCEDURE

1. Make an irreversible hydrocolloid impression after gross tooth reduction using a partial perforated tray, and form the mold with a fast-setting stone. Temporization procedures can be initiated concomitantly to prevent loss of time.<sup>2</sup>
2. Using a pencil such as the analyzing rod of a surveyor, hold the lead parallel to the axial wall of the prepared teeth (Fig. 1, *A*) and draw 2 lines that encompass the entire circumference of the prepared tooth. The first one must be coincident with the junction between the axial wall and the cervical margin (Fig. 1, *B*), and the other must correspond to the junction between the axial reduction and the external cusp reduction (Fig. 1, *C*). Note that the

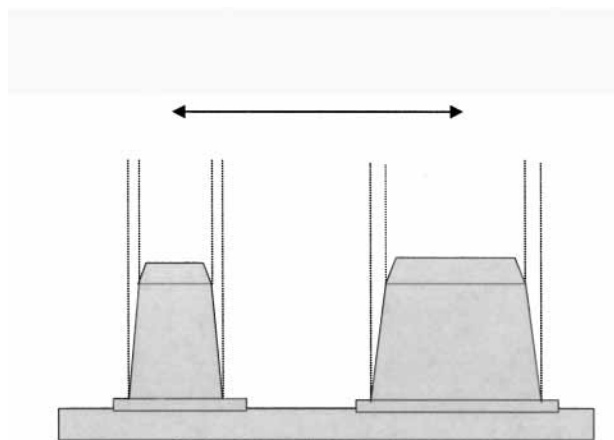
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**Fig. 1.** Procedural steps. **A**, Determination of axial wall of prepared teeth; **B**, cervical line; **C**, occlusal line; **D**, final aspect of cast; and **E**, occlusal view of convergence of prepared teeth.



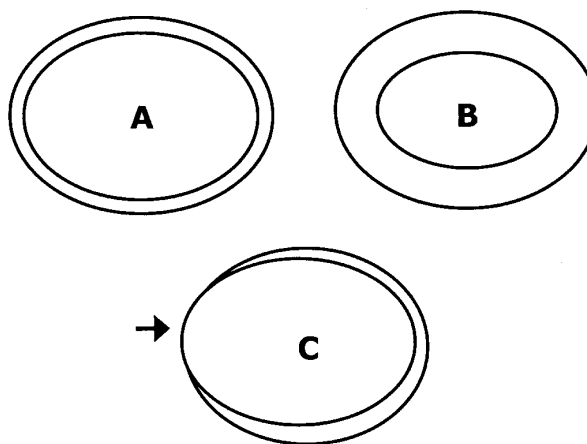
**Fig. 2.** In cases of multiple prepared teeth, occlusal view must be performed following same horizontal plane.

occlusal line is not always coincident with the occluso-axial angle (Fig. 1, *D*).

3. An occlusal view of the cast allows a clear visualization of the convergence of single or multiple prepared teeth (Figs. 1, *E*, and 2). Undercuts or excessive convergence angles can be detected when the relative position of the 2 drawn lines are observed (Fig. 3).

## CONCLUSION

The described method creates conditions for determining proper abutment convergence and a common path of insertion in multiabutment preparations. It is a time-saving procedure because the undercuts can be detected and corrected in the same clinical visit, before the final impression is made.



**Fig. 3.** Relative position of both lines serves as reference for analysis of teeth preparation. *A*, Correct preparation; *B*, excessive convergence angle; *C*, presence of undercut (arrow).

## REFERENCES

1. Gold HO. Instrumentation for solving abutment parallelism problems in fixed prosthodontics. *J Prosthet Dent* 1985;53:172-9.
2. Tylman SD, Malone WF. Tylman's theory and practice of fixed prosthodontics. St. Louis: Mosby Co; 1978. p. 198.

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