Short Communication

A New Coping for Overdentures. Part 2: Preliminary Results of a Clinical Study

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The aim of this study was to evaluate a new type of coping used for overdentures. Twenty-nine patients received 60 new chairside copings prepared by 3 operators. The copings, used to anchor removable prostheses, were followed up for between 6 months and 4 years with inspection, probing, and radiographic evaluation. Five teeth (8.3%) were extracted. A few clinical problems occurred, including decementation, periodontal pathology (loss of support and bleeding on probing), subgingival decay, and root fracture. No differences were noted in the incidence of complications among the 3 operators. The study demonstrated the clinical predictability of the new copings. *Int J Prosthodont 2007;20:179–180.*

For functional and esthetic reasons, there is an increasing demand for prostheses that cover residual roots. The positive consequences derived from maintaining the residual roots are widely known.[1] This study evaluated the clinical outcome of new chairside copings proposed to reduce the cost and number of overdenture therapy sessions.

Materials and Methods

Twenty-nine patients (11 men, 18 women; mean age, 62 years) received a total of 60 copings (One-Step-Post, Simex), which were unevenly distributed according to each patient's clinical needs (Table 1). The copings were prepared and cemented in a single session following a published protocol.[2]

The inclusion criteria were:

- Patients wearing removable partial dentures with pathologies affecting the abutment teeth (decay, periodontitis, coronal fracture, endodontic problems) (Fig 1) and who wanted their dentures repaired at a low cost without extracting the affected teeth (Fig 2)
- Teeth in strategically appropriate positions for the anchorage of a removable prosthesis (attachments: Ecco, Unor)
- Roots at least 12 mm long (from the gingival margin), inserted at least 6 mm in alveolar bone, showing a maximum first degree mobility (according to Miller), and not requiring surgical periodontal therapy
- No subgingival decay
- No apical lesions and/or broken fillings or posts in case of previous root canal treatments
- Roots inclined parallel to one another in the case of multiple copings, or to the insertion axis of the removable dentures

Three operators adapted the copings, with no predetermined distribution criteria. Thirty-four copings were adapted using the direct technique, and 26 with the indirect method (see Part 1 of this study). The indirect technique was used in patients with a thin periodontium, patients taking anticoagulant therapy, or infectous subjects (HIV, hepatitis B or C virus) in whom it was important to avoid gum trauma or cause bleeding.[2]

The clinical fit of the copings was assessed by inspection, probing, and radiographic evaluation. The copings were followed for between 6 months and 4 years (mean: 27 months) (Table 2), with 2 recalls per year to control marginal precision and periodontal health. Once a year, radiographs were taken to evaluate the root integrity and endodontic status. Only the impossibility of maintaining the roots as retentive elements was considered as failure.

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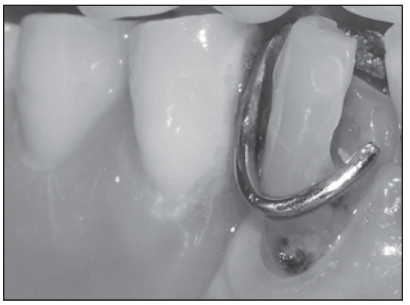
Table 1 Distribution of the Teeth Included in the Study

	Central incisors	Lateral incisors	Canines	First premolars	Second premolars	First molars
Maxilla	6	2	10	1	4	–
Mandible	–	4	14	8	9	2



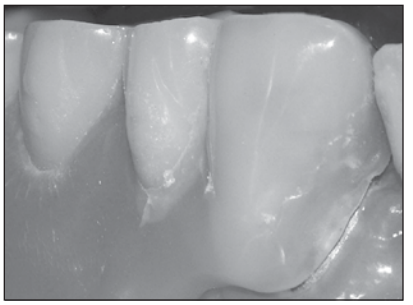


Fig 1 *(left)* Removable partial denture with a compromised anchorage. The new copings can be recommended for anchoring removable provisional prostheses or reestablishing prosthetic anchorage, in the case of coronally damaged abutments, by modifying the prostheses to incorporate an attachment.

Fig 2 *(right)* Readapted removable partial denture.

Table 2 Lengths of the Follow-up Periods of the 60 Copings

	Months				
	48	36	24	12	6
No. of copings	12	15	17	8	8

Results

An overall success rate of 91.7% was reported. Five elements (8.3%) required extraction (1 after 2 years and 4 after 3 years). Periodontal problems were the cause of 3 extractions (5%), subgingival decay caused 1 (1.6%), and root fracture caused 1 (1.6%).

Five roots presented bleeding on probing. Four roots required nonsurgical periodontal therapy. Three of the 5 periodontally compromised elements also presented with increased mobility, thus requiring extraction. Further, 7 copings decemented. In 3 of those 7 copings, the foil lifted partially and was successfully recemented without removing the coping by placing adhesive cement under the foil and readapting the foil to the root with a ball filler; the other 4 copings decemented completely and were recemented. No endodontic problems arose. No significant differences were noted in the distribution of the clinical setbacks among the 3 operators or between the 2 adaptation techniques.

Discussion

Overdenture failure may result from periodontal or endodontic problems, caries, or fractures.[3,4] Root canal treatment contamination caused by delayed post space preparation has also been reported.[5] The percentage of teeth that were extracted is in line with reported values.[3,4] The root fracture of a lateral maxillary incisor probably resulted from its insufficient dimension to sustain the stresses transmitted from the post. No endodontic failures were encountered; the adaptation of the posts in a single session and the precision of the margins may have had a positive influence.[5] Both of the mandibular molar copings may have partially decemented because of the large root platform. The totally decemented copings were caused by operator error: the inclination of the roots was misjudged, thereby creating excessive friction between the ball and attachment during insertion of the prostheses.

Conclusions

From the preliminary results and within the limitations of this study, the following conclusions were drawn:

1. Tooth loss was in line with reported values.
2. The technique seems to be predictable.

References

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