

Bridge design, part eight: the use of gold copings in bridgework

By Paul Tipton, BDS, MSc, DGDGP (UK)

In this article, Paul Tipton examines a further type of longer span bridgework

From the studies produced by Lindhe and Nyman it would certainly seem possible to succeed with long span bridgework, provided many of their criteria for success are followed, such as occlusal design, margin placement, oral hygiene etc. The other important aspect of this type of longer span bridgework is to control the stress on cement lutes, where failure can readily occur. When the prognosis of longer span bridgework is in doubt because of the loss of many units or mobility of abutments, gold copings can be used (Robertson, 1986). Copings (otherwise known as telescopic crowns) were originally used to overcome problems of parallelism in relation to the path of insertion of fixed restorations (Amsterdam, 1974).

TYPE OF COPING

The gold coping is a thin crown, 0.7mm thick, that is waxed directly onto the die and usually cast in yellow gold. They are made parallel to each other and can be sandblasted by the technician for extra retention (Figures 1 to 3) (Newburg, 1978). The margins are polished, however, as they will be exposed in the mouth. These copings are permanently cemented over the remaining abutment teeth with a traditional hard cement, such as zinc phosphate. The long span bridgework is then made in the conventional manner and cemented over the gold copings with a softer cement such as zinc oxide and eugenol such as 'Temp-bond' (Kerrs). Should excess stress be transferred to the cement lute then one or more of the soft cement lutes will preferentially fail.

Because the copings have been made parallel to each other there is reasonably good retention of the bridge, however, even without cement. When all the cement lutes fail and the cement washes out the patient will usually re-attend for further cementation with

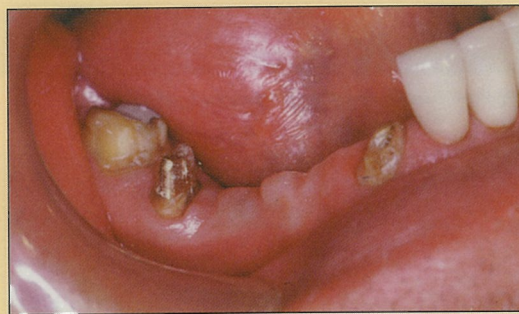


Figure 1: Three root-filled anterior and posterior teeth

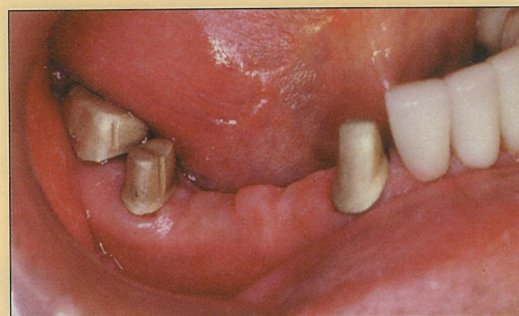


Figure 2: Sandblasted gold copings cemented in place with zinc phosphate



Figure 3: Three-quarter gold crown as a minor retainer in mandible

more soft cement.

It is unlikely that caries will occur under the bridgework because the tooth structure is protected by the gold coping. Bridgework margins are placed above or incisal to the gold coping margins so that periodontal problems can be avoided. This style of bridge design does however require more aggressive tooth removal as an extra 0.6-1mm is required for the extra thickness of the gold coping and

Paul Tipton BDS, MSc, DGDGP (UK) is a specialist in prosthodontics and runs a private referral restorative and implant practice at the St Ann's Dental Clinic in Manchester