Advanced restorative techniques and the full mouth reconstruction: part seven – duralay bonnets

In part seven of the series, Paul Tipton reviews using duralay bonnets or copings as an impression technique and suggests circumstances where the technique would be most appropriately used.

Impression techniques demand a high degree of accuracy for the completion of advanced restorative cases. This is often a difficult procedure for the restorative dentist when taking impressions both sides of the mouth at the same time (as a full arch impression where there are multiple teeth present) or undertaking an impression of mobile teeth as in the case of a Lindhe/Nyman-style bridge.

This article will review using ‘duralay bonnets’ or copings as an impression technique and suggest circumstances where the technique would be most appropriately used.

**Complex bridgework**

The standard way of completing a full mouth or partial reconstruction is always to follow the following principles:

1. Establish posterior stability
2. Prepare anterior teeth
3. Establish correct anterior guidance
4. Restore anterior crowns/teeth
5. Restore posterior crowns/teeth.

In this way, following the basic rules, the full mouth/partial reconstruction is broken down into easily negotiable stages.

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**Figures 1: Case one – missing and worn upper and lower teeth**

**Figure 2: Edge-to-edge occlusion in RAP**

**Figure 3: Upper occlusal view**

**Figure 4: Lower anterior view**
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**Case one; complete crown and bridgework**

However, from time to time the rules are made for breaking and if anterior and posterior teeth are connected together in the form of bridgework, an alternative solution is required.

In cases like these, the same steps one to three are taken, however step four is preparation of posterior teeth and fitting of prototypes. Impressions are then taken of anterior teeth and posterior teeth in three different impressions – i.e. UR, UL and anteriors and the impressions are silver plated before duralay copings are made on them.

The technician sends back duralay copings, coat hanger wire for strength, special tray, and often a second set of copings to use as a jaw registration. Once the copings are placed onto the tooth preps in the mouth and verified as
properly seated, the coat hanger wire is placed and connected to the individual copings with further duralay using the ‘bead-on technique’. A further pick up impression is then taken.

Once in the lab, the technician places the silver dies into the master impression and casts the master model. He can then produce his definitive work on this model of the whole arch.

In case one, the gentleman had an upper reconstruction including crown and bridgework. Mr W was referred with missing upper teeth and worn remaining upper dentition (Figures 1-4). Upon manipulation back to RAP we had an edge-to-edge occlusion. The teeth were individually prepared and mesh prototypes fitted (Figures 5 and 6), and initial impressions taken for the definitive silver dies.
Duralay copings were fabricated by the technician and placed onto the tooth preps at the next visit (Figures 7 and 8). These were connected together with duralay and coat hanger wire using the ‘bead-on technique’ (Figures 9 and 10). A final impression was then taken and the copings picked up using impregum impression material (Figure 11). The definitive crown and bridgework was then constructed and cemented (Figures 12 and 13).

Case two: mobile teeth
An additional difficulty when taking impressions is if the teeth or some of the teeth are mobile. The force of seating the impression material onto the teeth – even with light and medium body polyvinyl siloxane material – can move the teeth into positions that are not in a neutral position. Thus the master model will not replicate the natural position of the teeth and inaccuracies will arise in the final
Case study two shows a case of a lady with mobile teeth who opts for a Lindhe/Nyman bridge rather than implants (Figures 14-23).

In order to alleviate the discrepancy between the master model and the natural position, duralay bonnets are used. If not then bridgework will often not fit passively; the occlusion will be incorrect and need major alteration; contact points may be open or tight, and margins will not fit.

A full description of this type of bridge will follow in the next part of the series, which will be published in the next issue of Private Dentistry.
Figure 29: Duralay bonnets with coat hanger wire

Figure 30: Duralay bonnets plus implant impression copings

Figure 31: Upper pick up impression

**Case three: teeth and implants**

A further use for the duralay bonnets is when there are teeth and implants in the same jaw that need restoration. The standard way of restoring implants is by the use of pick up impression copings onto the head of the implant. In order that the crowns on the implants and on the teeth...
can be made together (rather than risking problems of colour matching if making the crowns first on the natural teeth and then at a later stage matching the crowns on the implants), duralay bonnets can be made on the teeth as previously described. These are fitted onto the prepared teeth and standard implant pick up impression copings placed onto the implants. A pick up impression is then taken as before.

Case study three shows the technique where both teeth and implants are restored with crowns in the same arch (Figures 24-34).

Conclusions
While this technique of duralay bonnets requires two lots of impressions (two stages) and appears to increase the time the clinician has to spend on each case, the benefits of having excellent fit, occlusion etc, far outweighs the extra time taken.

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Comments to pd@fmc.co.uk
Dr Paul A Tipton BDS, MSc, DGDP UK is a specialist in prosthodontics, has published many scientific articles in the dental press and is an expert lecturer in his field with Tipton Training Academies in Manchester, Leeds, London, Dublin and Edinburgh. After gaining his Masters degree in conservative dentistry in 1989, he was awarded the Diploma in General Dental Practice by the Royal College of Surgeons four years later and received specialist status in prosthodontics in 1999 from the GDC. Paul is currently the president of the British Academy of Implant Dentistry (www.baid.org.uk). Over the last 20 years more than 2000 dentists have completed a yearlong certificate courses from one of the Tipton Training Academies (www.tiptontraining.co.uk). His new implant course starts in Manchester, Leeds and London in January and February 2011. Paul is now practising in London, Liverpool and Leeds. For further information please call 0161 602 3132.