To the Point first focused on bar type overdentures in the winter 1991 Vol. 4 issue, "How to Select Bars and Riders". We will now detail the fabrication of a bar type overdenture and feature a more advanced telescopic removable restoration utilizing a new locking attachment, the Swivel Loc.

We will begin, however, with a summary of the fundamentals covered in the Vol. 4 issue of "To The Point".

Bar type attachments are classified as either Bar units or Bar joints. The bar unit is a non-resilient/solid attachment, whereas a bar joint is classified as a resilient attachment allowing vertical and/or rotational movements. The original gold Dolder Bar is a good example of both these classifications. Fig. 1

The original Dolder Bar is composed of type IV gold and must be post soldered with a low fusing gold solder.

Various castable plastic bar patterns are now available and are indicated for natural teeth as well as implant restorations. Fig. 2

All of the castable plastic bar patterns illustrated are a standard 13 gauge diameter (1.8mm) and will accept the same clips/riders.

Pre milled plastic bar patterns PPM Bars are now available in 0, 2, and 4 degrees for telescopic milled restorations. Fig. 3

The implant or natural tooth abutments should be joined with straight sections placed over the center of the ridge whenever possible Fig. 4. Bar castings should only be made in hard alloys. Non-precious alloys, however, are contraindicated for implant reconstructions.

The bar sections should be placed low to the ridge (no more than 1mm above the ridge) to allow adequate room for the prosthetic teeth. We strongly recommend the use of a silicone or stone index made from a preliminary set-up when positioning the bar patterns.

Clips/Riders are also available in different materials and configurations. The metal clips/riders are fully adjustable where the plastic Hader or EDS Clips are easily replaceable Fig. 7. We strongly recommend the use of the metal housing with the Hader / EDS plastic clips.

*Metal EDS/Hader housings are now available.
CASE HISTORY #1
A woman with an atrophic mandible was treated with four 4.0mm Integral implants. Following the integration period, the healing caps were placed and the tissue was allowed to heal from the second stage surgery before impressions were recorded. Fig. 8

Following impressions, the working model was made incorporating abutment analogs. The castable abutment cylinders were joined with short sections of the EDS Bar pattern. The bar sections were placed low to the ridge including the distal extensions. Fig. 9

The bar casting was finished and evaluated intraorally to verify a passive fit. (To verify a passive fit, the bar is initially seated with only one distal fixation screw. The opposite side should not lift.) Fig. 10

Once the tooth arrangement was approved, the wax-up was flasked and boiled out in the normal manner. The bar was blocked out gingivally and buccal/lingually with plaster. The spacer and CM Riders were then placed occlusally over the bar. Fig. 11

The entire bar section including the bottom aspect of the CM Riders was covered with a layer of Rubber Sep latex material. Fig. 12

The acrylic was packed in one step and then polymerized in the normal manner. The overdenture was then devested and finished as usual. The latex material allows for resilient function and easy removal of the bar from the processed acrylic. Fig. 13

The final prosthesis was delivered and evaluated for function and comfort. The patient was instructed as to maintenance and recall. Figs. 14 & 15

AN OPTION TO METAL CLIPS / RIDERS

Hader / EDS Clips & Housings
When processing with the plastic Hader/EDS Clips, we strongly recommend the use of metal housings as they hold the clips securely and facilitate replacement. Fig. 16

The technique is similar to that for metal riders, however, the Hader/EDS Clips are placed into the metal housings before processing Fig. 17. The overdenture is finished as usual. Fig. 18

Use of the metal EDS housing reduces maintenance time and prevents the clips from loosening in the acrylic.

Products & Acknowledgements Case 1

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>ORDER #</th>
</tr>
</thead>
<tbody>
<tr>
<td>UMA short Cylinders</td>
<td>11-300270</td>
</tr>
<tr>
<td>UMA Hex Screws</td>
<td>11-000052</td>
</tr>
<tr>
<td>EDS Bar</td>
<td>99-531030</td>
</tr>
<tr>
<td>Hader Clips</td>
<td>94-531125</td>
</tr>
<tr>
<td>Hader Clip Housing</td>
<td>99-531060</td>
</tr>
<tr>
<td>0 Degree PPM Bars (6)</td>
<td>99-560000</td>
</tr>
<tr>
<td>SwissLoc Attachment</td>
<td>89-600100</td>
</tr>
</tbody>
</table>

ACKNOWLEDGEMENTS:
Darwin Bagley, CDT
Ginjee Dental Lab
Michael Patner, DDS

San Mateo, CA
**Case Histories**

**CASE HISTORY #2**

*The Swivel Loc Attachment*

A woman with an atrophic mandible was treated with four Branemark implants. A telescopic patient removable restoration with a locking attachment was selected for treatment.

The mandrel was allowed to protrude through the buccal side leaving a hole to aid investing. **Fig. 22**

The cast primary framework was milled and finished with carbide milling burs and polishing stones **Fig. 23**. Once polished, the secondary wax pattern was fabricated over the primary. **Fig. 24**

The final restoration was delivered and the function and comfort was evaluated. The patient was instructed as to proper hygiene and recall. **Figs. 27, 28 & 29**

The standard abutments were placed and the impressions were recorded **Fig. 19**. Once the set-up was approved, a silicone matrix was made to aid in the positioning of the milled bar pattern. A wax bar pattern was milled joining the plastic abutment cylinders. **Fig. 20**

The double sided Swivel Loc mandrel was used to create the channels for the attachment. Wax was applied around the mandrel while it was held in the milling machine. **Fig. 21**

The secondary framework is seated and the Swivel Loc Attachments were soldered to the secondary framework. The attachments may also be cured with auto-care resin **Fig. 25**. A small groove was cut occlusally / mesially to allow access for removal by the patient. The acrylic was then processed over the secondary framework. **Fig. 26**

The Swivel Latch is adjustable and is easily engaged by the patient's fingernails for removal.

**Summary:**

Bar type overdentures are superior to conventional dentures because of the stability created by the retentive mechanism. Telescopic milled removable restorations provide a solid “fixed” feel as well as the necessary esthetics. Locking attachments prevent dislodging forces. This results in a restoration with improved function that is more comfortable for the patient.

**Products & Acknowledgements Case 2**

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>ORDER #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Branemark tapered impression copings</td>
<td>42-000080</td>
</tr>
<tr>
<td>Branemark standard brass analogs</td>
<td>42-000015</td>
</tr>
<tr>
<td>Branemark abutment cylinders/hex screw</td>
<td>42-000252</td>
</tr>
<tr>
<td>Swivel Loc Kit</td>
<td>87-700100</td>
</tr>
</tbody>
</table>

**ACKNOWLEDGEMENTS:**

Alan Schneider, DDS  
Henry Zissman, DDS  
Herrmann Dental Lab  
Stringfield, VA  
Fairfax, VA  
St. Paul, MN
**Question:** My doctors are now using the BIO-TORQ™ wrenches. Could you explain how to properly use them?

*Richard Green CDT, Salt Lake City*

**Answer:** BIO-TORQ™ wrenches are now widely used for screw retained implant restorations. They evenly deliver a higher and more precise preload or initial tightening of the screws.

Studies have shown that torque levels of approximately 10 to 12 N/cm (Newton/Centimeters) are created with standard hand held wrenches. The BIO-TORQ™ wrench delivers a controlled 10, 20 or 30N/cm of torque to the component or fixation screw. A higher preload lessens the occurrence of screw loosening.

The fully autoclavable BIO-TORQ™ wrench is quite simple to use. The “head” of the wrench is designed to ratchet and then quickly pivot when the designated torque level is reached. The wrench is simply inverted for removal.

**NOTE:** The operator must immediately stop applying pressure when the head pivots. Failure to do so will create excessive torque levels and may round the BIO-TORQ tips or possibly break a screw.

We also recommend that the joint be lubricated with lemon oil or eucalyptus oil and “clicked” several times after autoclaving.

The BIO-TORQ™ wrench is available from Attachments International in 3 N/cm settings. A wide assortment of BIO-TORQ™ Tips are also available that are compatible with virtually all implant abutment systems and fixation screws, and most are available in short and long lengths.

For more information call 800-999-3003 to request our product literature.