

The use of locators incorporated into an overdenture bar to assist with retention

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INTRODUCTION

- Following tooth loss the alveolar ridge can undergo significant resorption
- Wearing a conventional complete denture can therefore be challenging
- This situation in some cases can be managed with the use of dental implants, either to support a fixed bridge or over denture abutments
- In the mandible, the standard of care as agreed by the McGill consensus 2002 and later endorsed by the York consensus 2009 suggests the use of 2 implants to retain a complete denture
- The key to success often lies in the planning with the final prosthesis in mind
- This poster presents an example of inadequate planning and a solution to the challenges faced as a result of this

CASE HISTORY

Presenting complaint

- Patient presented requesting a remake of her 10 year old implant retained denture

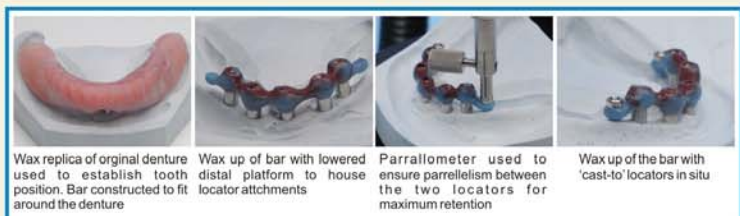
History of presenting complaint

- In 1996 5 Astra implants placed were placed in the mandible
- Following osseointegration an implant retained bridge was provided giving the patient a class II relationship due to the position of the implants
- Patient could not tolerate the position of the bridge giving her problems with eating and speech
- Subsequently the bridge was replaced with a bar retained overdenture using ball attachments which were incorporated into the bar. This made it possible to place the teeth in a class I relationship as per the patients request
- The combined height of the bar and the ball attachments made the prosthesis bulky giving rise to continuing problems with ball attachments repeatedly breaking
- In 2002 a new innovative bar was made with the female component of a Ceka attachment incorporated into a gold bar and the male component housed in the denture allowing the height and bulk of the prosthesis to be reduced
- The patient was able to wear this denture successfully until recently where it started to show signs of wear resulting in the patients presenting complaint
- Due to the unconventional technique used to construct the bar it was difficult to replace the dentures by taking a conventional pick up impression of the retentive component in the bar
- An alternative solution was to pick up the whole bar in the impression and send this to the lab. However, the Patient was unhappy to stay without her denture while the bar was sent to the lab to allow them to process the male component of the Ceka attachment into the new denture.
- It was therefore decided to take fixture level impressions and have a new bar constructed with a more universal design using 'cast-to' locator attachments

PRE OP PHOTOGRAPHS



TECHNICAL PHOTOGRAPHS



TECHNICAL PHOTOGRAPHS



POST OP PHOTOGRAPHS



DISCUSSION

- This case highlights the importance of prosthetically driven implant placement
- Whilst there may be enough bone it is important to assess the position of the bone in relation to the final proposed prosthesis
- This patient had five implants placed with the view to providing a fixed bridge. Careful planning may have revealed that a fixed bridge was not the right option and 2 implants for an over denture would have been a more cost effective approach
- Due to the angulation of the implants it was not possible to place over denture abutments directly onto the implants and therefore a bar was made to fit onto uniabutments
- The original gold bar was an innovative solution to the challenge faced 10 years ago but due to the unconventional approach providing a replacement denture was difficult. With advances in implant science and technology we were able to replace the bar with a more universal design
- Locators are commonly used implant retained over denture abutments. Compared to other attachments they are relatively low profile and can therefore significantly reduce the bulk of the denture
- Careful design of the bar allowed a more slim line bar with locators at the distal ends bilaterally to be fitted. The locators offered good retention and the bar itself provided good support for the denture
- By using locator attachments the patient can now have a replacement denture made in the future without the need to remove the bar using locator impression copings
- The bar shown above was made in the in house laboratory at Leeds Dental Institute using 'cast-to' locator attachments. A similar bar can be made using laser welding of locator attachments or milling the bar from titanium

ACKNOWLEDGMENT

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REFERENCES

Feine JS, Carlsson GE, et. al. The McGill Consensus Statement on Overdentures. Montreal, Quebec, Canada. May 24-25, 2002. Int J Prosthodont. 2002 Jul-Aug;15(4):413-4.
 British Society for the Study of Prosthetic Dentistry. The York consensus statement on implant-supported overdentures. Eur J Prosthodont Restor Dent. 2009 Dec;17(4):164-5.