

Two upper anterior crowns

Accreditation Case Type 2

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Introduction

The restoration of anterior teeth clearly sets its own challenges for both dentist and technician especially with so many choices and options available. In this case we decided to choose Procera AL crowns from Nobelbiocare. This tried and tested material has a long and successful history although it can, in certain circumstances, prove difficult to mask dark, underlying tooth structures. However, as there were no concerns with discolouration in this case excellent aesthetics were anticipated.

Complaint and medical history

There was no relevant medical history. The patient had been dissatisfied with her old restoration on tooth 11 for some time and now wished to have a more attractive smile. The shortness and opacity of

the crown and the lack of symmetry had become an issue for her. She had undergone a root treatment in which the restorative dentist had placed a fibre post in tooth 11 and she elected to have 21 restored at the same time for aesthetic convenience.

Technique

A diagnostic wax up was created to assist with the design of the final restorations in terms of shape and contour. The teeth were subsequently prepared and temporised to facilitate assessment of the final contour. A Zeiser model was produced as the accuracy and stability of the models was essential. The model was sectioned and the dies trimmed under magnification before being scanned using a Model 40 Procera scanner and sent for production in Sweden.

Once manufactured, the copings were verified under magnification and layering with VM7 porcelain commenced. The copings were cut back at the margins to facilitate porcelain margins. In doing so it was possible to control the intensity of colour in the cervical region and to establish stability in the fit early in the crowns' construction. Initially a layer of base dentine was fired to the copings to facilitate bond and give foundation to the colour, followed by application of margin porcelain which required two firings at the appropriate temperature. This initial layer also played a vital role in the integrity of the restorations.

The main body dentines were then applied and the build up taken to full contour prior to cutting back for application of VM7 MM2 mamelons and EE translucencies as seen on the shade diagram. These brought life to the restoration when layered onto the dentine which was carefully shaped to this patient's



Figure 1a: a-f – Smile: Before (above) and after (below) images of the case

Figure 1d: a-f – Before (above) and after (below) images of the case



requirement. The translucencies and enamels ENL/END were applied and slightly overbuilt to compensate for the inevitable shrinkage of the porcelain during the firing period. The contact areas were removed and replaced with deep dentines to give warmth to these areas and in doing so gave a natural hue, once covered with a thin wash of enamel.

The crowns were then fired at 950° in the vacuum and allowed to cool to 400° before removal from the furnace. Great care was taken when fitting them back to the master model so as to minimise any chance of abrading the contacts or damaging the margins. Once achieved, using Shofu stones, it was able to commence with the second

build. This was used to finesse the contour of the crowns and details of fit prior to sintering. It is at this stage that the details of adaptation to the soft tissues can be perfected to ensure there will be a natural emergence profile and thus harmony with the soft tissues. After the second bake, the crowns were readapted to both master model and

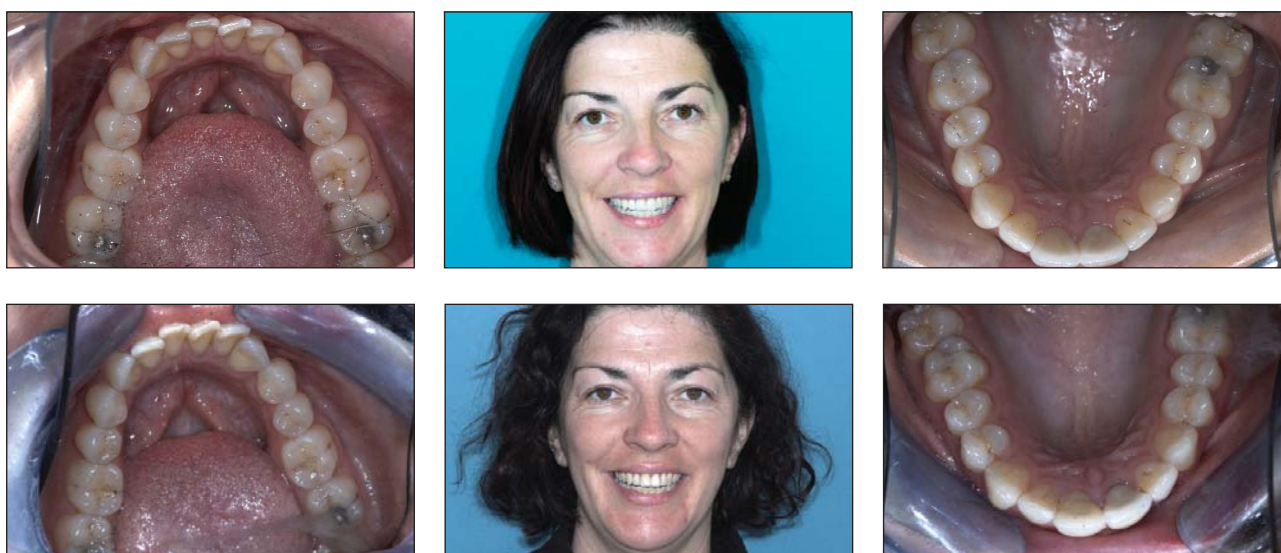


Figure 1c: a-f – Full face, upper occlusal and lower occlusal: Before (above) and after (below) images of the case

Figure 1d: a-f – Retracted: Before (above) and after (below) images of the case



soft tissue model. The surface was contoured using Shofu stones, diamonds and silicone wheels and gold dust was applied to the surface to refine micro aesthetic details such as perikamata and labial ridges.

A biscuit try-in was arranged and the finer detail of function fit and surface contour can be made and glaze applied. The crowns can then be polished using Pumice and Brasso metal polish and finessed with diamond polishing paste.

Conclusion

This case demonstrates that for technician and dentist to achieve fine results the direct participation of the patient is an integral part of the success story. Without the co-operation of the recipient a good result can be very difficult to attain.

Figure 2a: a-f – Associated laboratory images of the case

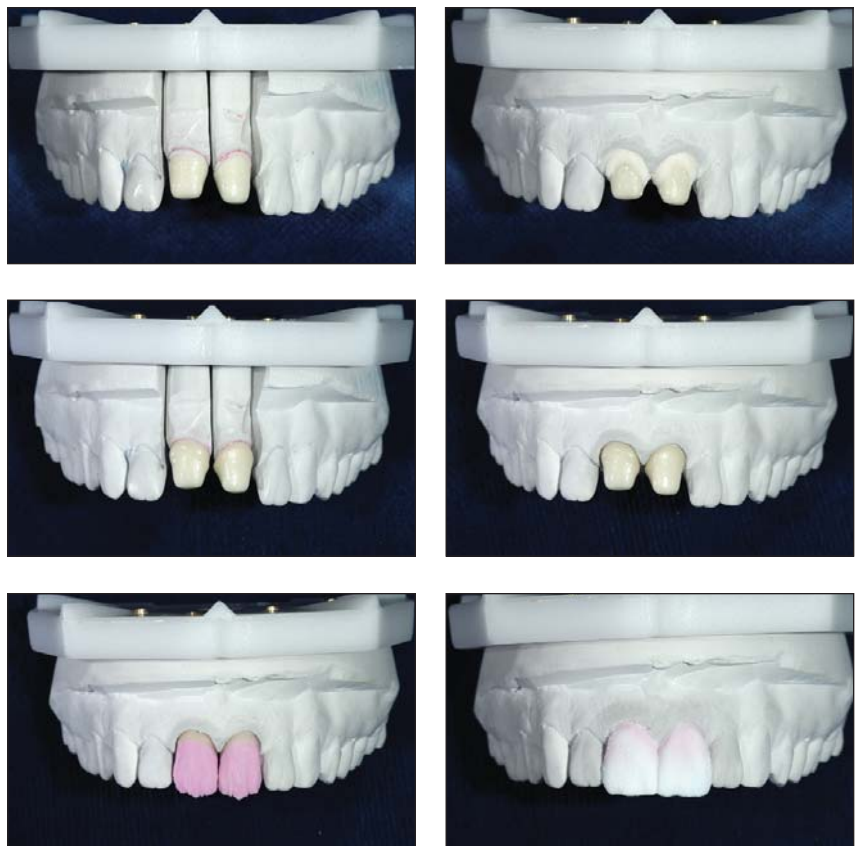
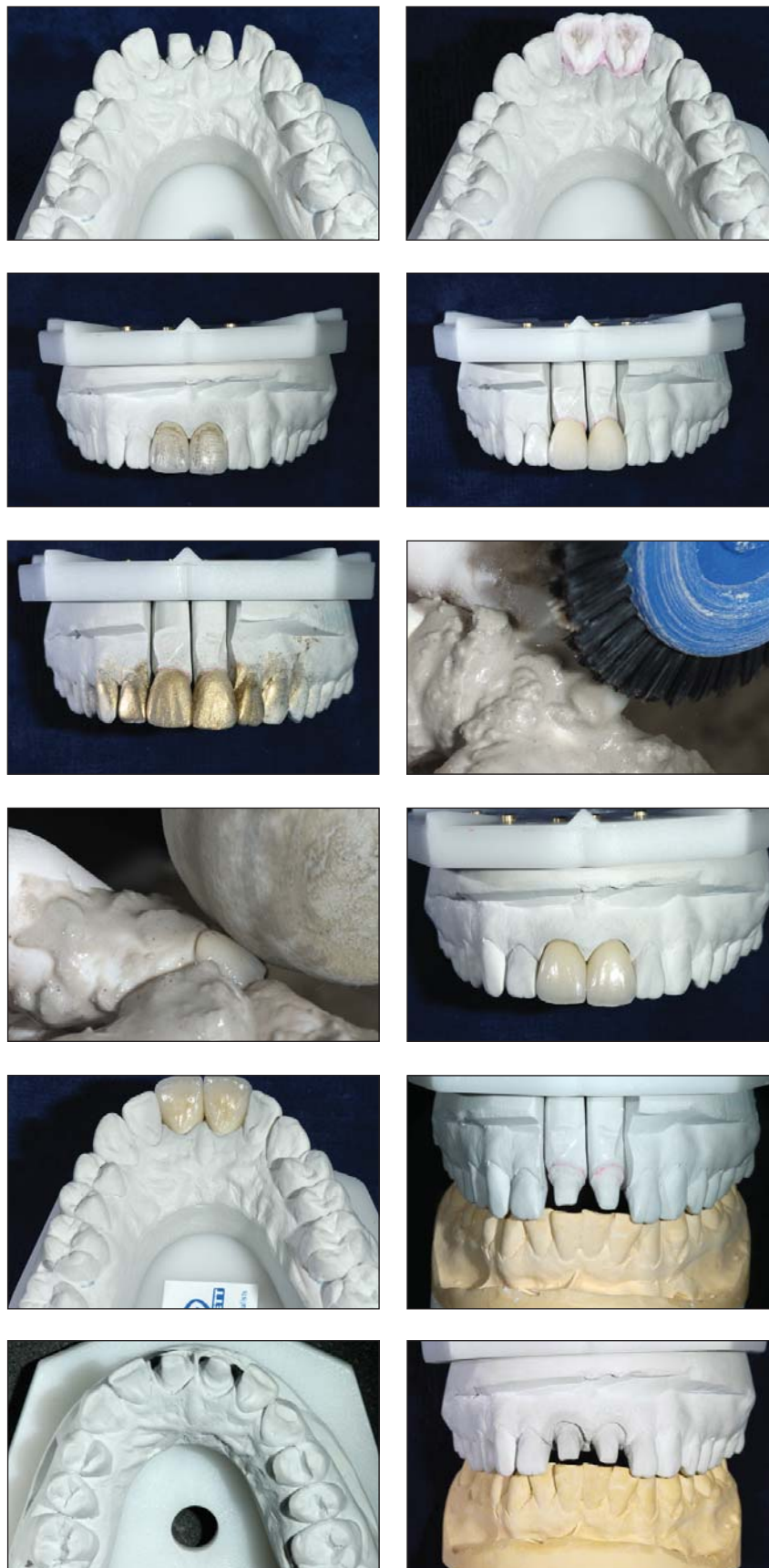


Figure 2b: a-j – Associated laboratory images of the case



Armamentarium

- Zeiser model system
- Die stone -Pastel Rock Grey Kerrlab
- Seal-It Model hardener EZ
- Gingifast Soft tissue material Zhermack
- Wax Transpa white –Yeti Dental
- SilaGum Lab Putty DMG
- Tungsten Die trimming burs Edenta
- Procera Model4o Scanner NobelBiocare
- Procera AL-Copings NobelBiocare
- Smile line brushes sable
- Kavo K11 hand piece
- Kavo air-plus turbine
- Vita VM7 Ceramic System Vita Lichtenstein
- Articulating paper Bauch DL
- Diamond trimmers Brassler 850 016 /842R018/Horico H167 014
- Green Stones Meisinger 632 070 / Risa 652 GHP Green
- Fine pumice
- Brasso metal polish
- Dia Bright Diamond polishing paste Bracon Dental
- Camera Nikon D100 Twin light flash.

References

1. Clinical evaluation of Procera AllCeram crowns in the anterior and posterior regions. *Int J Prosthodont* 2007 20: 239-241.
2. Chiche G, Aoshima H. *Smile design: A guide for clinician, ceramist and patient.*

Acknowledgement

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