Concealing a single crown within the natural dentition

Accreditation Case Type 2
(1 or 2 indirect restorations with natural teeth beside)

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Dr Uchenna Okoye and Mr Tony Knight (Knight Dental Design) faced a stiff challenge in getting a crown to fit undetected into this patient's smile. Invisible Dentistry is what patients are after. From the sometimes barely disguised resistance to whitening, to the delight in an undetectable final restoration, most patients just don't want to draw attention to what they have had done. This sometimes manifests itself in a reluctance to accept dental treatment that in the eyes of the patient is purely cosmetic and unnecessary. Dealing with Accreditation Case Type 2 where we have to 'blend things in', sometimes requires perception and patience in communication, together with the clinical and technical skill and perseverance necessary to create and deliver a truly aesthetic restoration.

Introduction

Replacing a single unit in the aesthetic zone of the mouth is probably one of the greatest challenges in restorative dentistry, even in the 21st century.

Communication is key and requires a close dialogue between the technician and clinician. Patients have to be warned that multiple shade visits are often required.

History

A very long standing patient of the practice, this gentleman had been encouraged repeatedly to replace a poorly fitting crown on tooth 21, which had been placed over 30 years previously whilst he was serving with the British Army in Sierra Leone. He preferred regular hygiene sessions to try to maintain the inadequate margins rather than replacing the crown! Finally to celebrate his 60th birthday, he said he had decided it was time to let go of his past and replace the crown.

Examination and treatment plan

A comprehensive clinical examination of all the hard and soft tissues confirmed the patient's dentition was stable. He was a regular attender at the practice for over 10 years. His mouth was heavily restored and although there were

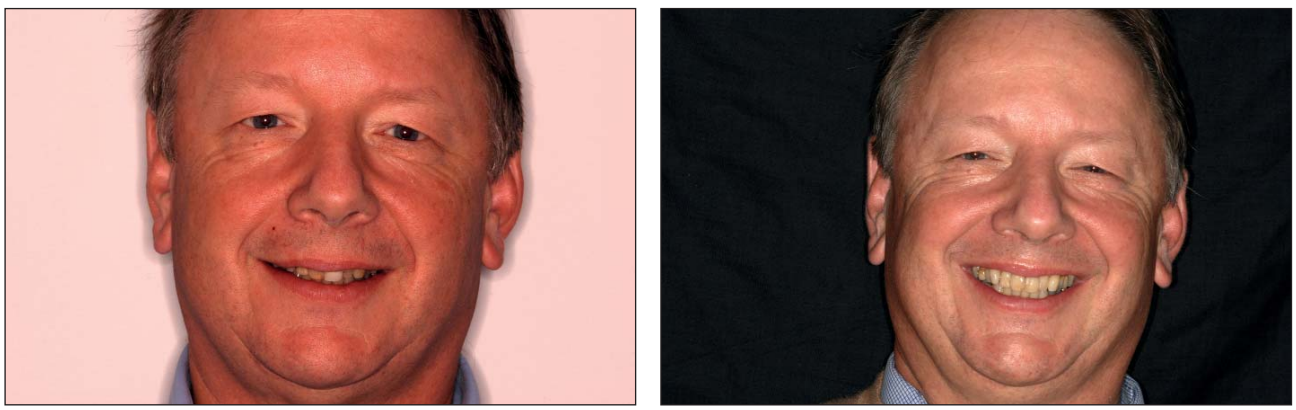
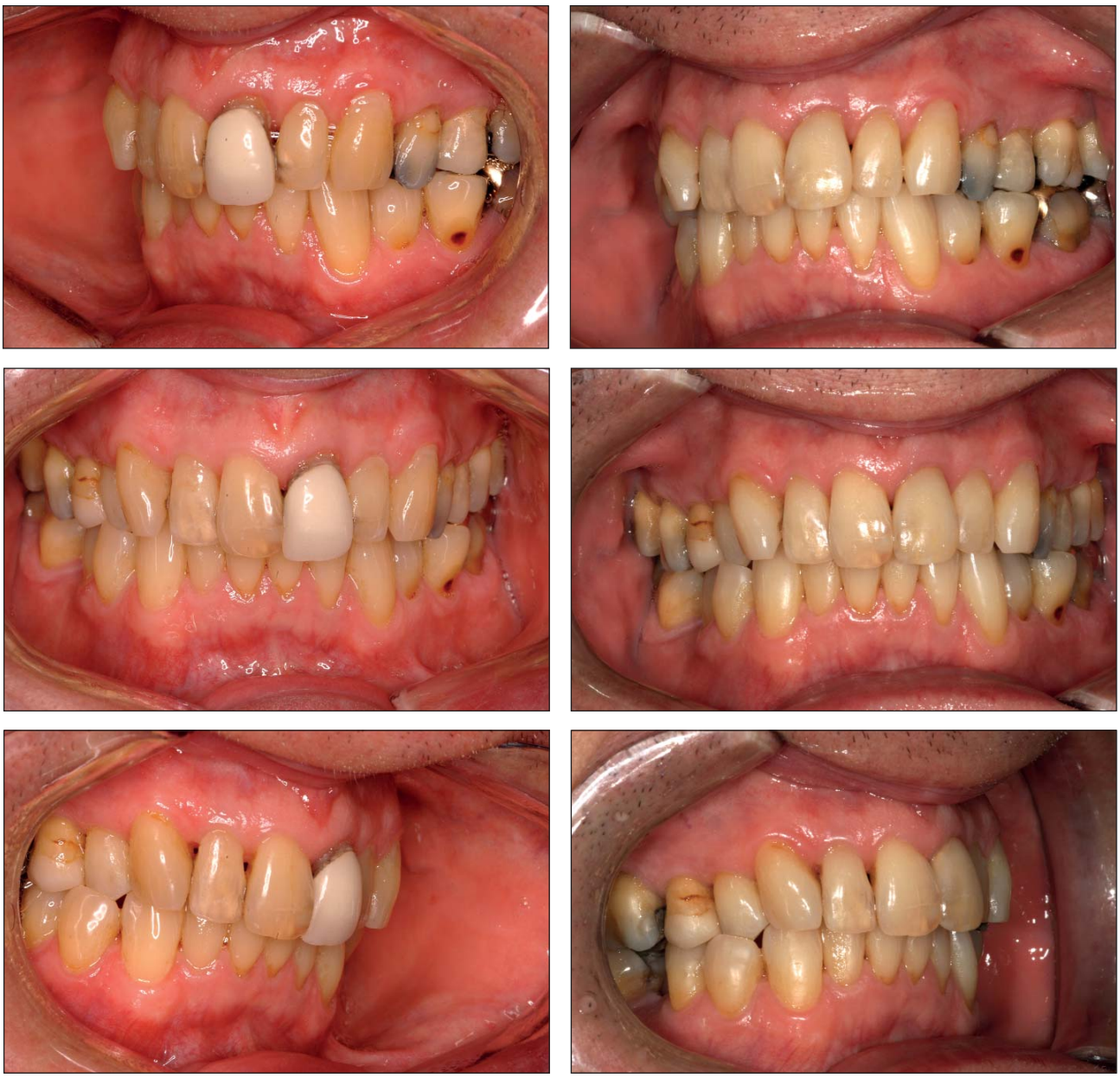


Figure 1: a-b – Full face: *Before (left) and after (right) images of the case*

Figure 2: a-f – Retracted: *Before (left) and after (right) images of the case*



some brown lesions present, all were hard and non-active and had been monitored with no change for years.

The decision was taken to replace the 22 restoration also, primarily for aesthetic reasons, as there was some staining present. There was also some plaque and gingival inflammation present and he was referred to the hygienist before any definitive treatment was begun. His treatment plan was:

1. Pre-operative hygiene sessions
2. Tooth Whitening – in-office followed by 7 days home whitening
3. Replacement of 21 crown and 22 restoration
4. Visit to laboratory for shade taking
5. Cementation of crown.

Clinical Summary

On completion of his hygiene treatment, in-surgery whitening was carried out using the Zoom system. The original shade was A4 and the final accepted shade was A2.

Although he had been asked to wear trays at home for seven days following the in-office whitening, at his review appointment the patient advised us that he had only worn them for two nights and returned the whitening gel syringes he had been given. He did not want to go any lighter and felt the whitening was a success, as his wife had not noticed the change.

Three weeks after the whitening procedure he returned for the preparation appointment. A labial infiltration of 2% xylocaine with 1:80,000 adrenaline was administered and a preliminary impression was taken to be used to construct the provisional crown. The existing crown was removed, the preparation was refined and a butt finish created. The gingivae were retracted using gingival retraction cord followed by Expasyl. After two minutes the Expasyl was thoroughly washed off. A full arch impression was taken using Impregum. An opposing impression was taken using alginate and a bite registration recorded using Blu-Mousse, with the patient in centric occlusion. A temporary crown was made using the preliminary alginate impression and Luxatemp Shade A2, and cemented in place using Temp Bond NE.

The patient visited the laboratory on three occasions to record and refine the shade characteristics as this was a very challenging case due to the degree of pigmentation. Three crowns were actually fabricated before the final crown was accepted.

At the cementation visit, the temporary crown was removed and the preparation cleaned using pumice, while taking care not to

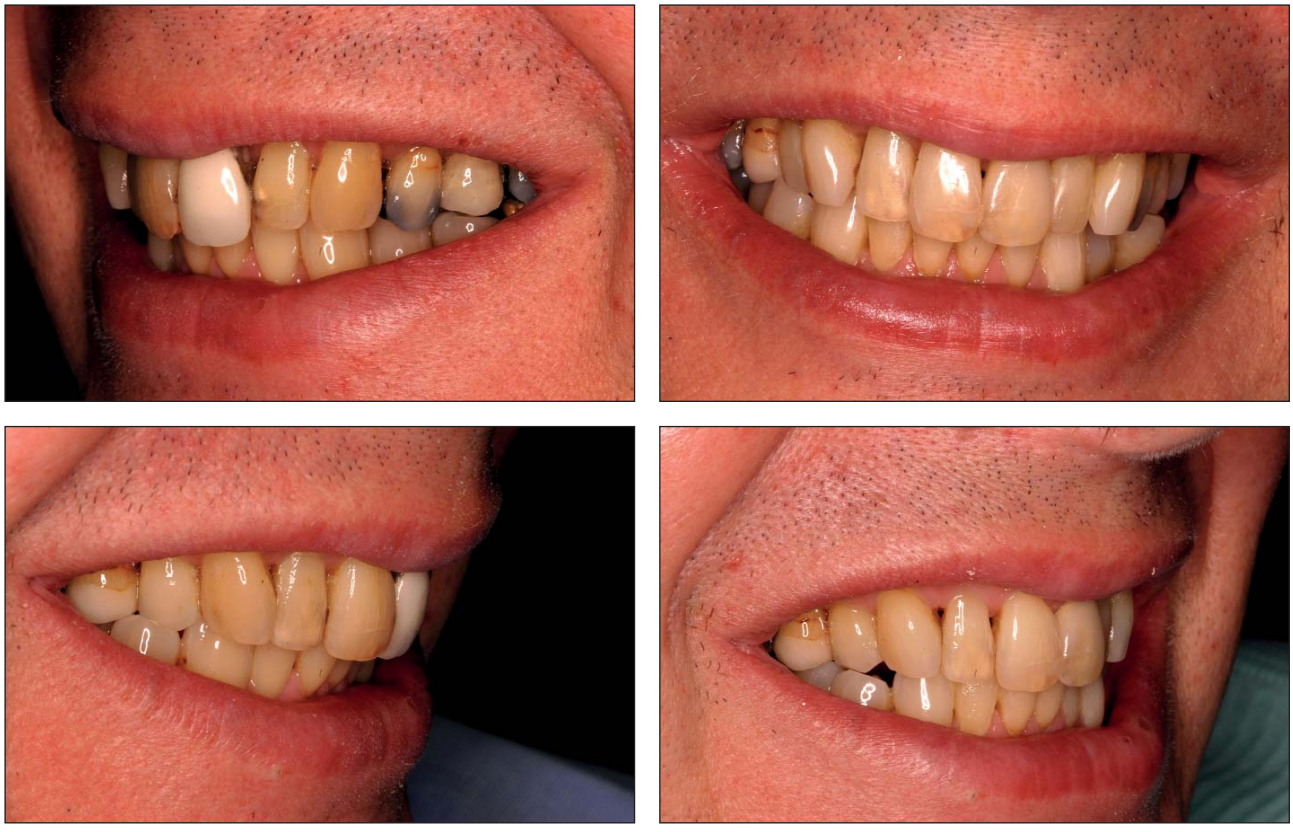
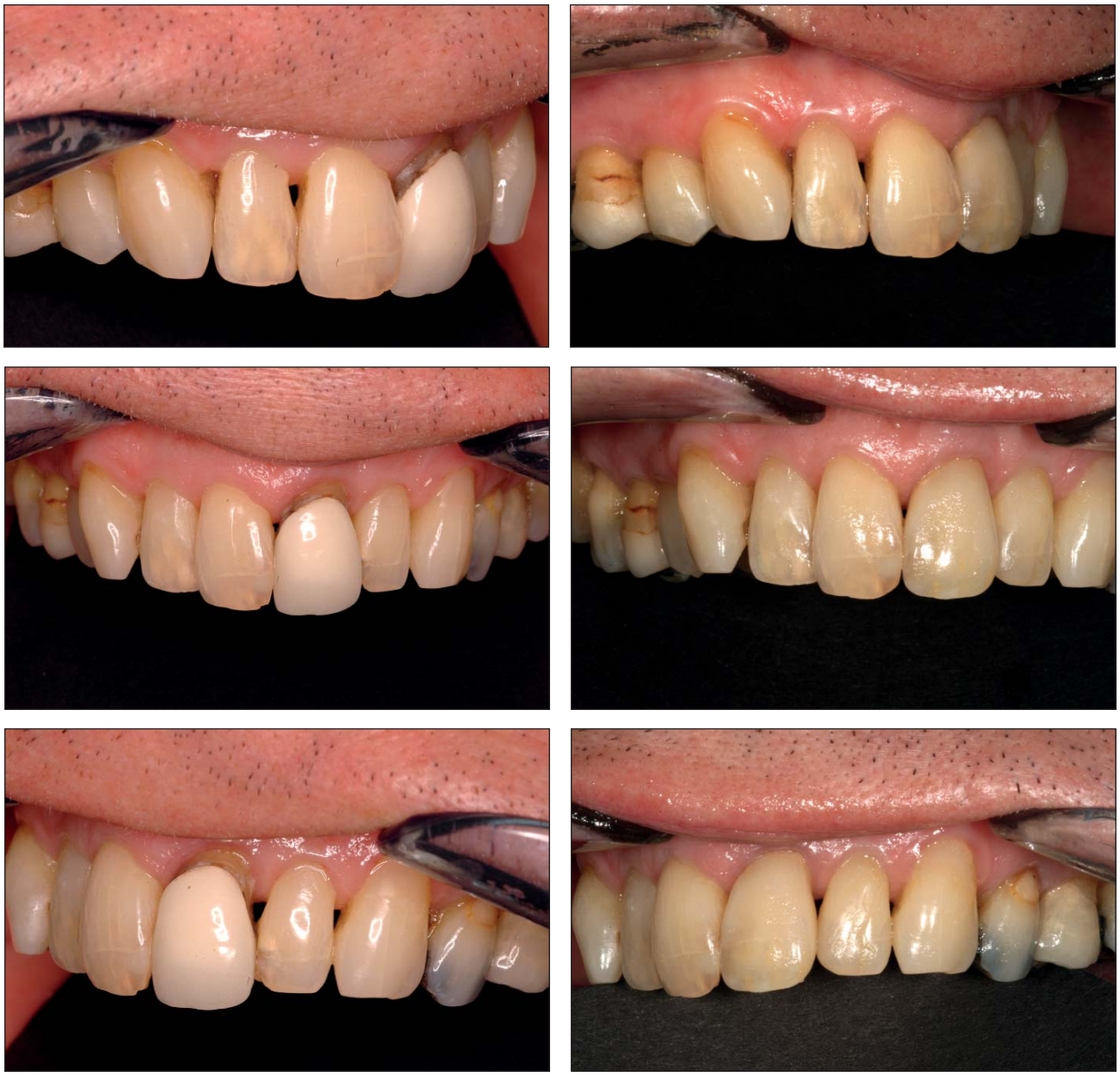


Figure 3: a-d – Smile: *Before (left) and after (right images of the case*

Figure 4: a-f – Anterior: *Before (left) and after (right) images of the case*



cause any trauma to the gingiva. Rubber dam was placed and the crown cemented using Relyx Unicem Cement. Finally, the occlusion was checked and the patient declared his delight with the end result.

Conclusion

This was an extremely challenging case due to the level of pigmentation present. It would have simplified matters if the patient had agreed to the prescribed degree of whitening. However, the time invested by the triad of technician, clinician and patient, resulted in a successful outcome and a delighted patient. In fact he tells me his 'party trick' is asking people to guess which tooth has the crown!

Acknowledgement

Ceramic work carried out by Mr Tony Knight of Knight Dental Design (London)

Further reading

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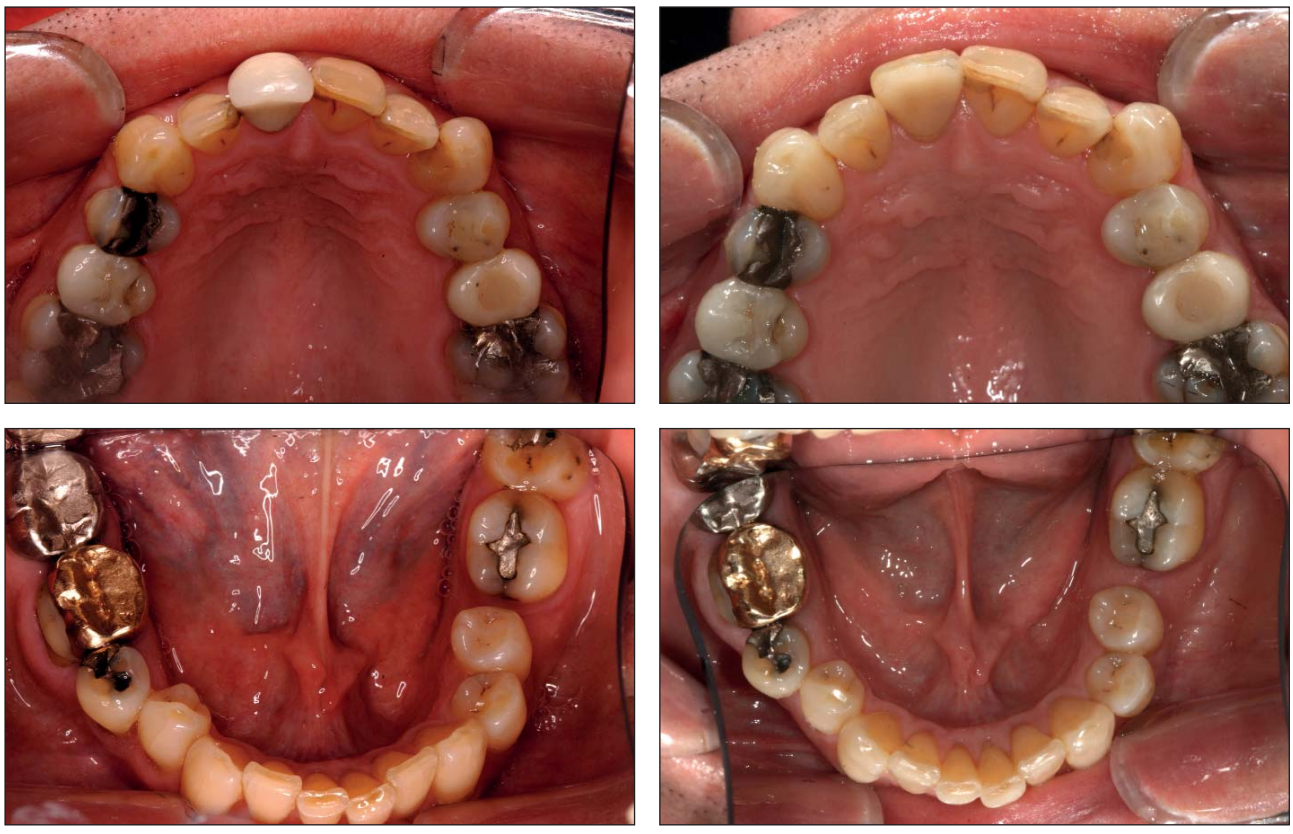

Figure 5: a-d – Upper and lower occlusal: *Before (left) and after (right) images of the case*