By Crawford Bain, UAE

Implant dentistry has evolved dramatically in the 50 years since Branemark’s first patient was treated. The combination of improved micro-roughened implant surfaces and tapered implants offers both enhanced initial primary stability and more rapid osseointegration. This has led to successful treatment of many patients in an accelerated protocol, often offering early or even immediate restoration of the implants. Those who have become involved with implants in the last few years may take this early or immediate loading for granted, and consider it to be the norm for most patients; however only by careful case selection can we ensure predictable success.

Some patients however present with a complex mix of problems that necessitate a slower, systematic approach to implant treatment if optimum results are to be achieved. Professor Dennis Tarnow of Columbia University, one of the world’s leading implant specialists, has a well used maxim... “Let’s do one miracle at a time”. The purpose of this article is to present one such case when only by a stage by stage systematic approach was a good result achieved for the patient.

Case Report
Patient RR was a healthy non-smoking 44 year old male who presented with a complaint of darkened labial root surface. The situation was worsened by a high smile line and a porcelain crown contrasting dramatically with the root colour. He had had periodic swelling at the apical part of the recession over a long period. There was a history of trauma in his teens leading to root canal treatment and a crown, and subsequent apicectomy in his 30s. Clinical examination revealed an otherwise periodontally healthy, well looked-after mouth. (Fig. 1, 2, 5)

Diagnosis was of endodontic failure and possible root fracture leading to loss of labial bone and soft tissue. With a complex situation such as this, it often beneficial to visualize the end result – in this case an implant supported crown, supported by adequate bone and soft tissue providing gain line symmetry – then to work out “how do I get there from here?” In this case the treatment plan was essentially divided into 5 stages:

1. Re-entry was carried out at 6 weeks to check for good graft condensation and to ensure there were no voids in the graft material. The timing of implant placement will also depend on bone available beyond root apex position

2. Underlying bone was curetted with a Rhodes chisel and a round bur was used on the labially-facing surface of bone to ensure bone bleeding (Fig. 8)

3. Endobon xenograft material (Biomet 3i) was substituted after being moistened with blood and saline (Fig. 9)

4. OsseoGuard xenograft membrane (Biomet 3i) was placed after being sutured with 4-0 silk to achieve primary closure over the site. (Fig. 11)

5. The flap was sutured with 4-0 silk to achieve primary closure over the site. (Fig. 10)

6. The partial denture was adjusted and refitted after ensuring there was no positive pressure in the area of the grafted bone.

7. Monitoring of healing. Sutures were removed at 2 weeks and peritapical x-rays taken at 2 and 4 months to check for good graft condensation and to ensure there were no voids in the grafted material. The timing of implant placement will also depend on bone available beyond root apex position

Rebuilding the lost bone

1. Re-entry was carried out at 4 months using a full thickness flap for access.

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Replacing the tooth

1. The graft was left to mature for 6 months then a full thickness papilla preserving flap was used to access the site, revealing excellent regenerated bone

2. A 5mm Full Osseotite straight sided external hex implant (Biomet 3i) was placed with an insertion torque of 45Ncm. Because the implant was largely
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in regenerated bone, immediate restoration was not attempted. No additional grafting material was needed. (Fig. 12, 13)

5. After 4 months exposure was carried out using a punch gingivectomy approach.

4. A temporary cylinder was seated and a clear crown form was used with cold cure acrylic to fabricate a temporary crown. This was Torqued to 20N/cm and cotton wool and Cavit placed in the access hole. (Fig. 14, 15)

5. 6 Weeks healing was allowed for gingival contour to be developed (a little longer would have been preferred however the patient was moving away from the region) (Fig. 16)

6. Pick up coping impression was taken with Impregum injection into sulcus to capture emergence profile developed with the temporary crown. Occlusal records and shade were taken and agreement was reached with the patient on a midline diastema to improve symmetry. (Fig. 17)

7. The porcelain fused to metal, screw retained crown was tried in, and the fit and occlusion were checked then, after aesthetics had been approved by the patient, a square Goldtite screw was torqued to 32 N/cm and access sealed with cotton wool + composite (Figs 18, 19)

8. A final x-ray was taken and oral hygiene instruction and recall advice were given.

9. The patient returned one year later for a recall examination and x-ray and was still delighted with the aesthetic improvement (Figs 20, 21, 22)

This case report illustrates the fact that not all tooth replacement problems can be managed by immediate or rapid implant restoration of the lost teeth. While the concepts of immediate replacement and immediate loading of implant prostheses certainly has a place in our armamentarium, it is not applicable to all situations and is certainly a long way from being a panacea. We may all enjoy fast food occasionally, but generally slower, more relaxed fine dining is preferred. It is perhaps appropriate to consider Dennis Tarlow’s maxim “Do one miracle at a time”.

Crawford Bain
BDS, DDS, Msc, MBA
Professor of Periodontics and Programme Director of Graduate Periodontics
Hamdan Bin Mohammed College of Dental Medicine, Dubai, UAE

About the Author

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