

True bone regeneration

Utilizing host regeneration of hard tissues for soft tissue success

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As the dental industry continues to recover, it has been encouraging to see clinicians continue the move away from traditional GBR techniques and adopt modern “true bone regeneration” methods within their practices. As we have learnt from our colleagues in the wider medical field, the adoption of a more minimalist surgical approach can lead to dramatically improved outcomes, along with reduced morbidity.

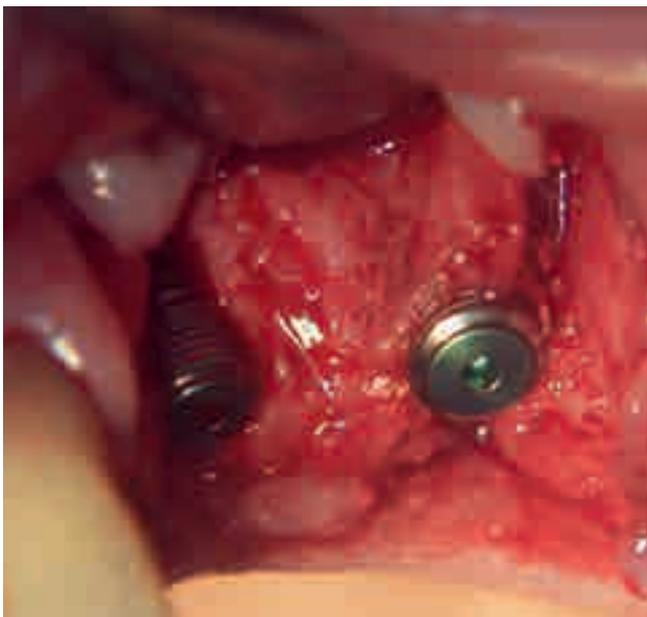
The ideology behind true bone regeneration is relatively simple – we are looking to put the body back in the state it was in before a defect occurred, without the use of unnecessary collagen membranes and slow-resorbing foreign material. Whilst this has been possible using synthetic materials for many years, it is only recently that modern alloplastic graft materials have taken away some of the technique sensitivity and made these procedures more predictable and less complex.

These modern materials – particularly the newer generation of B-TCP – are designed to work with the body, up-regulating the host healing response and resorbing at the same rate as new bone formation. This osteoinductive potential is widely recognised with over 200 papers available on Pubmed.

I have written before about how modern alloplasts, particularly B-TCP and Calcium Sulphate, can help the host regenerate hard tissues. Expanding this

discussion to include soft tissues, in line with the theme of this issue, is a very interesting area.

My personal philosophy is that, in most cases, if you can effectively regenerate the hard tissues then this will provide a sound foundation of the soft tissues, often sorting out any problems without the need for additional soft tissue surgery. This might seem overly simple but I am increasingly finding it highly effective. It is not merely the increased presence



1 | Extensive buccal defect in the premolar region



2 | CBCT scan after four years



3 | Situation after seven years

of keratinised tissue, but attached keratinised tissue which is of critical importance for long-term implant survival.

Despite placing hundreds of implants a year, on average I only perform 4–5 accompanying soft tissue surgeries using this ethos of host regeneration. The more we utilise host healing and the less surgical intervention the better the outcome will be – especially long term.

This is demonstrated well in this case. A 35-year-old male patient presented with vertical fractures on the upper-left second premolar and first molar which necessitated their extraction. The published Protocol (Fairbairn & Leventis, 2015) was utilised and a 3-week healing period allowed post-extraction.

As can be seen, the site exhibited hard and soft tissue loss. A papilla-sparing flap was then raised without extensive releasing and 3.5 mm (pre-molar) and 4.5 mm (molar) implants (Dio SM) placed. The premolar had an extensive buccal defect (Fig. 1) which was grafted with 65 % B-TCP and 35 % Calcium Sulphate (EthOss).

The usual protocol was followed to set the EthOss in situ by holding

a dry sterile gauze against the graft for 5 minutes. No additional membranes were used as the Calcium Sulphate barrier within the graft forms a “pseudo-membrane”.

The case was then loaded eleven weeks later and at no stage was any soft tissue grafting utilised. A CBCT scan was taken at four years (Fig. 2) showing 4 mm of new buccal bone at the site of the premolar defect (all residual graft material will be resorbed at this stage).

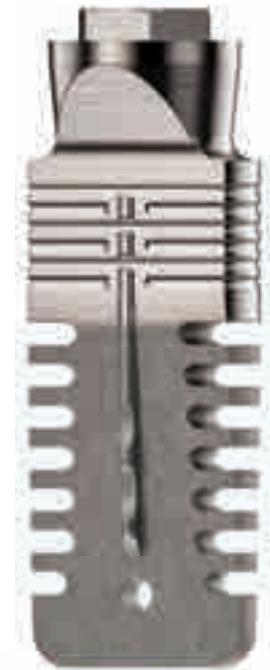
The case is now loaded for nearly seven years and, as we routinely see, the long-term stability of the soft tissues is adequate (Fig. 3).

As has been said many years ago by David Garber, “soft tissue is the issue, but bone sets the tone” and this is the philosophy of EthOss. Post-regeneration, the improved dimensions of the regenerated buccal plate seem to have an advantageous effect on the thickness and condition of the host attached keratinised tissue. As B-TCP is fully resorbed, the long-term absence of residual graft material helps the host turn-over its hard tissue unimpeded, maintaining a long-term, healthy, stable situation.

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