Complication involving vertical bone augmentation

Vertical bone augmentation can be challenging. When using non-resorbable membranes in particular, complications such as wound dehiscence and infection have been widely reported.

In the following case, vertical bone augmentation was performed using a titanium-reinforced d-PTFE membrane and a xenogenous bone substitute simultaneous with implant placement (Figures 1–4). Six months after implant placement and bone augmentation, the clinical situation presented intact (Figure 5); the peri-apical radiograph, however, revealed a failed augmentation with additional bone loss around the implant fixture (Figure 6). After flap reflection, major bone loss was revealed in the area around the implant fixture (Figures 7–8).

After membrane removal and thorough decontamination of the implant fixture using air abrasion and hydrogen peroxide gel (Figure 9), bone augmentation was performed with a resorbable collagen membrane and a xenogenous bone substitute (Figure 10). Six months after secondary bone augmentation, a provisional was placed. The peri-apical radiograph suggests bone regeneration to a certain extent; however, the prognosis of the implant remains critical (Figure 11).

Removing the implant and re-grafting the clinical situation could also be a suitable approach to this complication. The surgeon believed that it was a ‘sterile’ infection, and therefore chose to preserve the implant and use a long-term provisional to monitor the situation. In the surgeon’s opinion, the reason for this complication was that the cover screw attaching the membrane in the coronal position had become loose, and had disturbed hard tissue healing.

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