by **Bernhard Giesenhagen**

Single-session Vertical Grafting of Ring-shaped Bone Transplant

A two-session protocol was formerly selected for repairing three-dimensional bone defects by grafting with autogenous bone blocks. The technique that we present today demonstrates that three-dimensional vertical grafts of bone defects and implant placements can be carried out in a single session with exactly fitted bone ring grafts. The recipient site is prepared and the graft is harvested with trephine drills. The implant site is prepared in the graft before its removal from the donor site and the graft is fixed at the recipient site with absolute rigidity by the implant. The Ankylos implant is particularly suitable for this, because the special thread geometry gives it very good primary stability in the apical region, and therefore the graft can be securely fixed with the upper section of the progressive thread.

The rigid fixation and an accurate a fit as possible of the graft is essential to prevent bone loss in the graft during the healing phase.

Any remaining sinuses are filled with cancellous bone chips, bone replacement material or combinations (mixtures). The grafted area is also covered with a barrier membrane as additional protection against resorption processes. About four years ago the author developed a grafting technique that allows bone grafting and implant placement in one session, even with larger three-dimensional defects. In the meantime this technique has been refined and can be successfully applied for almost all indications.

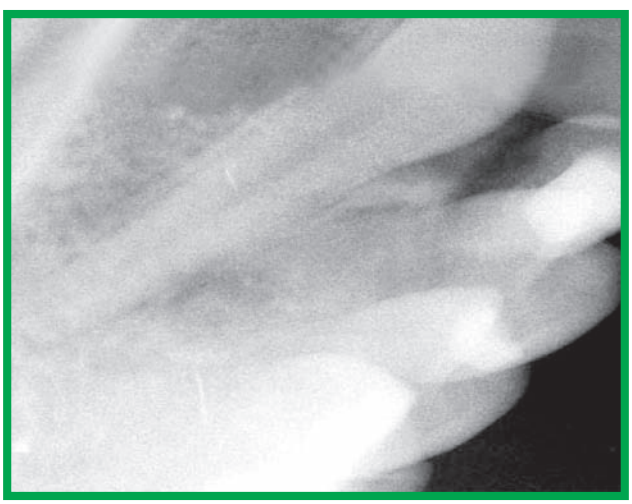

Figure 1

Figure 2

It is important to note the following:

1. Sufficient residual bone is required for anchorage of an implant with primary stability.
2. As many vital cells as possible must be available at the recipient site in close contact with the cancellous bone of the graft.
3. The graft can be positioned rigidly so it is immobile.
4. The implant can also be correctly positioned for the prosthetic restoration.
5. The graft is contoured with slowly resorbable bone replacement material to counteract the volume loss.
6. The wound is closed securely and without tension.

Case Study

A 31-year-old, completely healthy patient came to our practice wanting a solution for her persistent horizontally displaced and impacted top right first cuspid. (Figures 1 & 2)