

CASE REPORT

Use of narrow implants in a case of horizontal bone loss

Ms Franca, a 73-year-old woman with no medical history, was referred for a distal empty sella in the posterior mandible (quadrant 3, from tooth 3.3 to tooth 3.6), present for several years, with a request for rehabilitation via a fixed prosthetic implant. An initial assessment (physical examination and panoramic dental X-ray) revealed how the spaces for the prosthesis were suitable for this rehabilitation approach: despite the age of the case, structures in quadrant 2 were not extruded, those adjacent to the distal gap were not distally inclined, the keratinized tissue present was adequate, and there were no periodontal or similar issues that might adversely affect implant rehabilitation. A CBCT scan was therefore selected to plan the correct position for the implant, taking into account the bone volumes and any anatomically critical structures to be preserved.

This scan revealed horizontal bone loss (Fig. 1), which is a problem for the correct positioning of standard-sized implants in native bone. Given the patient's refusal of reconstructive surgery (due to its invasive nature and the time frames and costs involved), the decision was made to pursue rehabilitation by way of narrow implants placed in the native bone, alongside biomaterial and resorbable membrane where necessary.

In order to reduce risks and complications and increase precision when placing the implants, a guided surgery approach was selected. The patient had an initial intraoral scan (Trios 3, 3Shape), on the basis of which a digital diagnostic wax-up was created. Next, the STL files from this scan were mat-

ched to the CAT scan in order to plan the correct implant placement, taking into account the prosthesis to be used, the bone volumes, and the critical anatomical structures to be preserved.

Based on this, a decision was made to place two Dentaorium tioLogic TwinFit implants: one in tooth 3.4 (diameter 3.3 mm, length 11 mm), and one tilted (due to the mental foramen), with the implant coming out of the socket, in tooth 3.6 (diameter 3.3 mm, length 11 mm), in order to create a bridge from tooth 3.3 to tooth 3.6 (Fig. 2). Under antibiotic prophylaxis, a mucoperiosteal flap with a mesial release incision was created in tooth 3.2, and a distal release incision was made posterior to the area where the most distal implant was planned (Fig. 3) (both lingual and vestibular), so as to have a full view of the bone into which the implants were to be placed. The template was designed for use with an osteotome and pilot drill with a view to guiding the position and angle of the implants, before being discarded to allow direct visual contact with the mental foramen and the bone volumes; this approach also ensured greater control of the drills and the implant during the insertion phase, given the extent of the bone loss. In addition, the choice to end guided surgery after the first phase, which required a flap to be cut and the bone uncovered, allowed incremental development of the hard tissues where necessary and preserved the keratinized tissue, a significant amount of which would otherwise have been removed through the use of a mucotome in this type of crest.



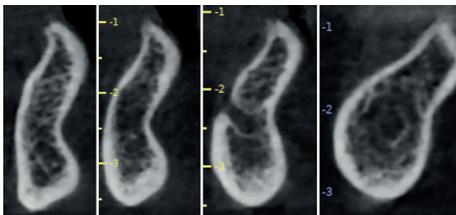
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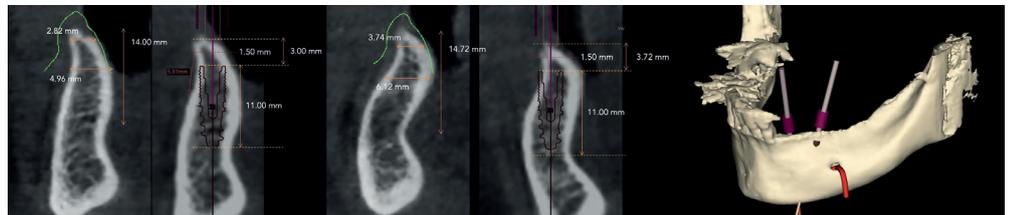
Accordingly, the surgical template was positioned (with dental support) and a portion of the crestal bone leveled which, being thin and flat, could otherwise have compromised the stability of the drill while preparing the implant site (Fig. 4). Subsequently, the pilot drill was used with the help of the surgical template, followed by the last two preparation drills used freehand with stops. Finally, two implants were placed in the prepared sockets, with insertion values of approximately 50 N/cm for both implants (Fig. 5). The Osstell ISQ scale values recorded were 72-75 for the implant in tooth 3.3 and 71-72 for the implant in tooth 3.5.

As was foreseen during the planning phase, the creation of two fenestrations, particularly around the distal implant, required biomaterial to be applied vestibularly (50% heterologous material and 50% autologous material, with a bone sample being taken from the ramus on the same side), with resorbable membrane being sutured to the flap. The flap was closed with non-resorbable 5-0 sutures (Fig. 6), which were removed ten days later. Four months after the implants were placed, they were then exposed (Fig. 7), and two weeks later an impression was taken (Fig. 8) so the prosthesis could be made, which involved multi-unit abutments to correct the angle of the tilted implant, in addition to its delivery (Fig. 9). The case was concluded with a follow-up X-ray one year after the prosthesis was fitted (Fig. 10).

Courtesy of DentalAcademy.it



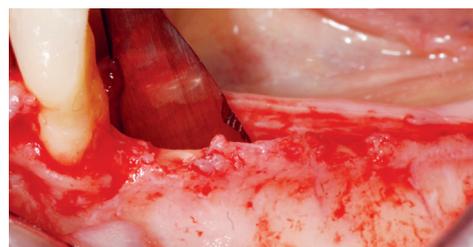
› Fig. 1: Horizontal bone loss



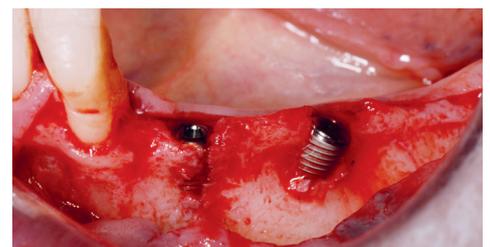
› Fig. 2: Planning of the implant A) Implant in tooth 3.4; B) Implant in tooth 3.6; C) Implant with jaw (3D)



› Fig. 3: Surgical flap



› Fig. 4: Leveled crestal bone



› Fig. 5: Implants in position



› Fig. 6: Suture



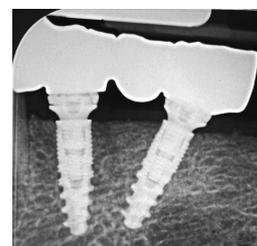
› Fig. 7: Implant exposure 4 months later and X-ray with the healing abutments



› Fig. 8: Transmucosal path at the time of insertion



› Fig. 9: Final prosthesis



› Fig. 10: X-ray follow-up one year after the implant was fitted

VIDEO

