BONE EXPANSION IN DELAYED IMPLANT PLACEMENT
Surgical procedure

Two, three months later tooth extraction it possible to remodeling new tissue in previous defect with osteotomes and create a new implant site.8,9.

A The bone crest is exposed with a modified partial thickness flap with the tip of the No. 64 Beaver blade. The edentulous bone crest is covered by the preserved suprabony connective tissue and the underlying periosteum.

B Bone incision and bone expansion are performed by blade directly attached and pushed by electrical mallet. Mallet is set to apply FORCE NUMBER 3 120 daN applied in 120 µs

Fig 1 Blade used for bone incision.

C The implant site is created expanding the bone tissue both laterally against the preexisting lateral walls and apically moving up and compressing with a progressive series of bone expanders.9 Osteotomes are directly attached and pushed by electrical mallet.

Mallet is set to apply different forces of different strength, depending on local bone density
FORCE NUMBER 3 120 daN applied in 120 µs
FORCE NUMBER 4 260 daN applied in 120 µs

Fig 2. Types of osteotomes for bone remodeling
The osteotomy is gradually expanded in 0.5-mm increments using osteotomes inserted to the working depth. The final diameter of the osteotomy is 1.2 mm less than the anticipated implant diameter, depending on local bone density. Such mechanical sequence of osteotomes progressively condensed internal bone wall of initial hole radially outward with respect to central axis to create high density bone tissue along substantial portion of length of implant site preparation. The platform of the implants is inserted at the level of the alveolar crest. A minimum insertion torque of 30 Ncm is considered. Subsequently, the soft tissues are sutured.

The buccal flap is apically repositioned and stabilized with sutures tied to the margin of the palatal flap and anchored buccally with a loose loop to the periosteum at the level of the alveolar mucosa. This suture design avoids tissue traction in the repositioned buccal flap. The gap between the superficial margin of the buccally repositioned tissue and lower part of the palatal tissue, healed by secondary intention in order to increase the size of keratinized mucosa.
Fig. 3. Cone beam scans before tooth extraction. Note the absence of buccal bone plate. (a-c). Clinical photographs three months after surgical procedure (d). Cone beam scans three months later. After three months it is possible to observe the bone volume increase (e,f). Bone incision and bone expansion are carried out followed by implant placement (g). Gingival flap is positioned (h). clinical case 6 months later (i). Cone beam computed tomogram scans obtained after 3 years of implant placement from the site illustrated in figure a-c. Note bone maintenance around dental implants (l,m)