



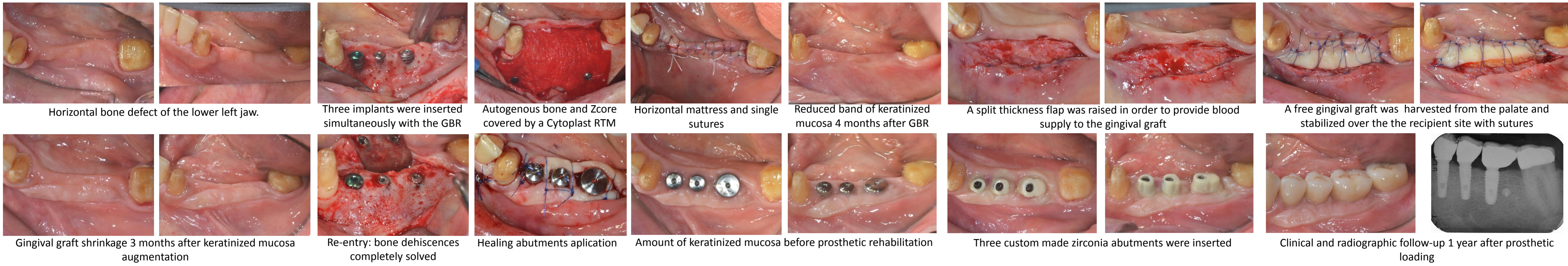
Objectives:

The lack of an adequate keratinized mucosa (KM) around dental implants is often associated with more plaque accumulation, tissue inflammation, mucosal recession as well as loss of attachment. The most predictable way to increase the band of KM is represented by a free gingival graft, harvested from a donor site like the palate or the tuberosity, positioned on a recipient vascular bed. The author proposes a new timeline in which to make the increase of KM to reduce the overall treatment times.

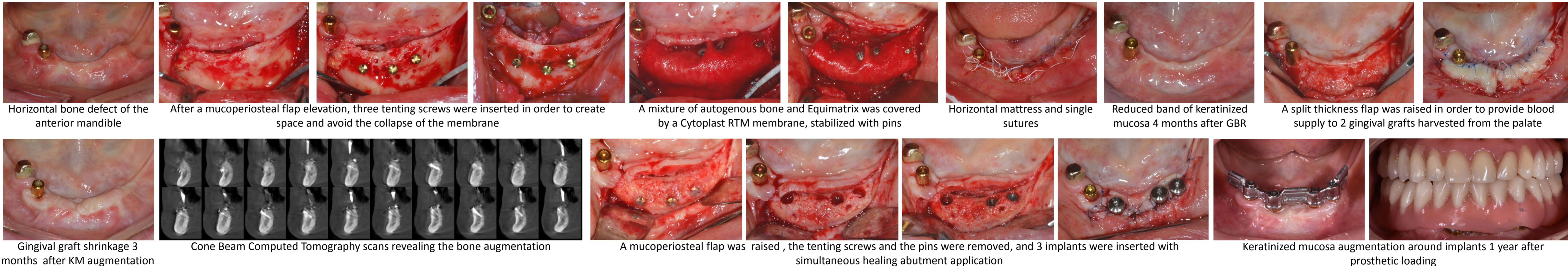
Methods:

Eight consecutive guided bone regeneration (GBR) procedures were performed by the author to correct mandibular horizontal ridge defects. In 2 cases implant positioning was performed simultaneously, while in the other 6 cases it was delayed to the last stage. All the cases were treated with the use of a long lasting collagen membrane (Cytoplast RTM, Osteogenics Biomedical) with a resorption time of 26-38 weeks, and a graft composed by cortical autogenous bone harvested with a scraper in 1 case, autogenous bone mixed in a 1:1 ratio with a porcine xenograft (Zcore, Osteogenics Biomedical) in 4 cases, autogenous bone mixed in a 1:1 ratio with an equine xenograft (Equimatrix, Osteohealth) in the other 3 cases. Since the coronal flap advancement reduced the yet thin band of KM, a free gingival graft was scheduled to be done to increase the width of KM, during the GBR healing time, in order to reduce the overall treatment time. Gingival graft was done after a period of 4 to 6 months (mean 4,5 months), except for 1 patient that was done after 15 months for family problems, from the GBR procedures. A split thickness flap was raised to prepare a vascular bed for a gingival graft harvested from the palate, paying attention not to deepen the incision and disturb the regenerative area below the periosteum. The grafts were properly sutured over the recipient sites. The measurements of the KM after GBR and prior to the gingival augmentation, and at the moment of gingival graft were recorded.

CASE 1

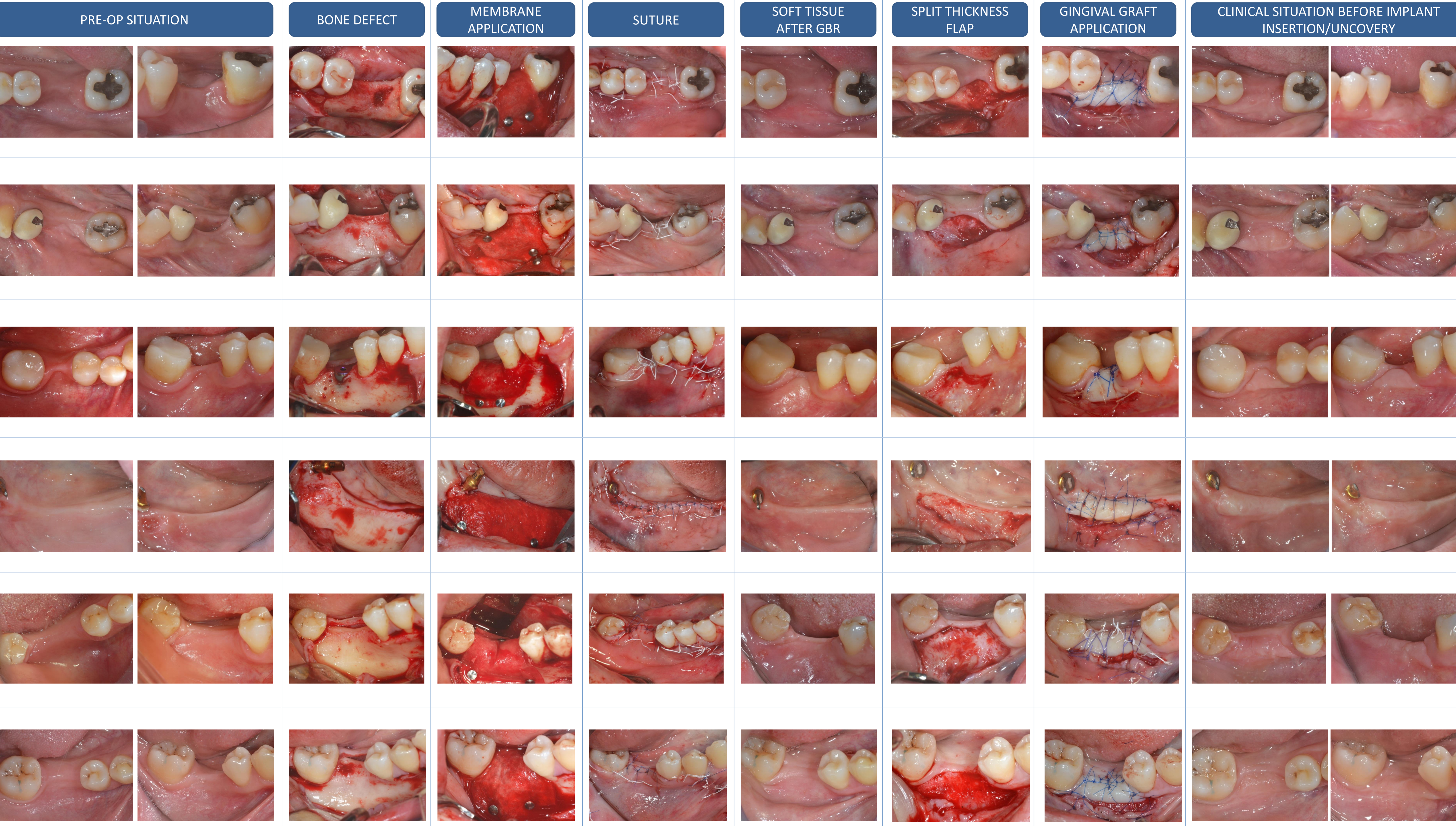


CASE 2



Results:

All the gingival grafts survived. No membrane exposure or graft particles loss happened. The mean width of KM present after GBR and prior to the gingival augmentation was 2,5 mm (range 1 to 4); the mean width of gingival graft taken from the palate was 6 mm (range 5 to 7); the mean volume of KM after gingival graft shrinkage, at the time of re-entry for implant insertion and healing abutment application, was 6,9 (range 5 to 9), the mean contraction of the gingival grafts was 1,7 mm (range 1 to 2) after a mean healing time of 3 months (range 2 to 4), while the mean percentage of shrinkage was 28,3%. Excluding the case that waited 15 months to receive the gingival graft for family problems, the mean time that passed from the GBR procedure to the healing abutment connection (for the 2 procedures with simultaneous implant application) and to implant insertion and healing abutment application (all the other procedures) was 7,7 months (range 7 to 8).



Conclusions:

This study suggests how it is possible to pass from a deficient ridge to an implant with a proper band of KM, ready to receive a prosthesis, in less than 8 months. An horizontal GBR procedure requires an healing time of 6-9 months to have a proper graft maturation, while a gingival graft has a mean shrinkage of 30% during the first 3 months. If the gingival augmentation is performed 4 months after the bone augmentation, paying attention not to interfere with the bone graft below the periosteum, then the gingival graft will have the time to shrink while the graft material will be completing its maturation, reducing the overall treatment time, that normally is 9-12 months, if the gingival graft would be done at the end of bone maturation. The advantage to have a resorbable collagen membrane is that in case of perforation the patient will not undergo the post-operative sequelae linked to the use of a non-resorbable membrane like the exposure or the infection of the bone graft underneath.