Ridge augmentation with Titanium Occlusive Barrier and Periodontal Regeneration: A 7 years follow-up case report
Fimmanò M, Pieriboni S., Batia S., Pederzani M., Mascellaro A., Fama A., Citriniti J., Bellucci G.

AIM
The aim of this case was to demonstrate that the use of a rigid titanium occlusive barrier in combination with autogenous bone graft mixed with xenografts is appropriate in order to correct a localized ridge defect before reaching an ideal implant placement. Additionally, a further aim, was to show that Enamel Matrix Protein, currently used in periodontal wound healing, can improve regeneration and reconstitution of lost periodontal structures.

METHODS
A 45-year-old healthy male was referred for a maxillary implant placement in the maxillary first premolar (site 1.4). Intra-surgical evaluation confirmed a narrow alveolar ridge with insufficient crest width and height for ideal dental implant placement. Hard tissue augmentation was accomplished using guided bone regeneration. A rigid titanium occlusive barrier (Omnia spa, Fidenza, Italy) was customized to desired shape of future alveolar ridge then secured with cortical screws to prevent any micro-movement. Simultaneously, the defect was filled with autogenous bone graft mixed with deproteinized anorganic bovine bone (Bio-oss®, Geistlich, Längenbold, Switzerland) in a 1:1 ratio. A resorbable collagen membrane was placed above barrier (Bio-gide®, Geistlich, Längenbold, Switzerland). Furthermore, Enamel Matrix Protein (Emdogain®, Straumann, Basel, Switzerland) was placed in proximity of the roots of adjacent teeth.

RESULTS
After a 7-month healing period, the barrier was removed and, at the same time, a fixture (4.3x10mm) was placed. After 5 months, the implant achieved successful integration and the abutment connection was possible. A temporary crown was left in situ for 6 months in order to modify and condition soft tissue contour and shape. Then, a definitive crown was delivered and a periodical clinical follow-up was carried out.

CONCLUSIONS
The use of titanium occlusive screwed barrier with autogenous/bovine bone graft, a resorbable collagen membrane and enamel matrix proteins in proximity of the roots of adjacent teeth might be a reliable technique for alveolar ridge reconstruction. An adequate surgery, prosthetic and maintenance planning allowed to achieve a stable 7 years result.

References