OBJECTIVE:
Ridge splitting techniques are used in resorbed ridges. They are difficult to perform and highly technique sensitive. In this case report we present our mini-invasive protocol for a safe and reproducible single implant rehabilitation in resorbed anterior sites. The rationale of our technique is increasing crest thickness with a controlled bone expansion and achieving optimal esthetic with a safe and simple protocol.

METHODS:
a 18 years-old patient had a traumatic avulsion of the right central incisor due to a maxillofacial trauma. Surgical debridement of the contaminated alveolus and socket preservation using deproteinized bovine bone were performed. An epithelial connective graft was sutured to size to cover bone graft and promote healing by first intention. A Maryland bridge was realized as interim restoration during the healing period using a woven polyethylene fiber, the lost tooth and a flowable composite to define an ovatic pontic profile (Beautifil®, Shofu, Japan). After 4 months the site healed: the proximal papillae were maintained and a moderate resorption in the bucco-lingual direction was clinically evident. A mini-invasive partial thickness flap was performed to access the bone crest. The insertion axis was determined using a pilot drill. A series of 6 (1.80mm, 2.15mm, 2.50mm, 3.30mm, 3.75mm, 4.50mm) hand screwable bone expanders (BTLock expanders kit, BTLock International s.r.l., Vicenza, Italy) were inserted to increase peri-implant bone density and crest thickness. Bleeding was induced by scratching site walls with the 3.30mm expander and a 4.50mm wide implant was inserted (BTLock International s.r.l., Vicenza, Italy). A connective graft was inserted to reproduce the iugum alveolare and to improve soft tissue esthetics. The flap was sutured around a composite-custom healing-cup reproducing the iugum alveolare and the Maryland affixed to the adjacent teeth. After 6 months the implant was functionalized with a provisional screwed restoration.

RESULTS:
Clinical evaluation of soft tissue healing was positive after 4 month from socket prevervation. The combination of bone expansion and connective graft was successful in restoring bucco-lingual dimension and achieving a natural aesthetic. The use of bone expanders allowed to reduce patient discomfort as they do not need a cooling system and to improve implant primary stability through their compacting action on peri-implant bone. A continuous tissue conditioning action of interim restorations (ovatic pontic profile of Maryland bridge and tooth-like custom composite healing cap), and the surface properties of the material they were made of that minimizes plaque adhesion (Surface Pre-Reacted Glass, Giomer®, Shofu, Japan) helped in achieving adequate pink aesthetic: proximal papillae were adequately represented during all treatment phase.

CONCLUSIONS:
Bone condenser should be object of future studies as their use provide a predictable solution to cases that often come to general dentists’ attention that otherwise would be difficult to treat even by experienced surgeons. As they don’t need cooling they could be useful in patients with pronounced gag reflex. They can be used in maxillary posterior region to increase bone density around implant sites. In this case report they were able in combination with routine periodontal and prosthodontic procedures to treat a mild transversal crest resorption in a highly aesthetic area.

BIBLIOGRAFIA