“Bone Anchored” Surgically Assisted Rapid Maxillary Expansion: A scientific and clinical evaluation.

The “Bone Anchored “surgically assisted rapid maxillary expansion (SARME) is directly issued from the technique of distraction osteogenesis, first developed by the famous Russian orthopedist Ilizarov (1954), to elongate long bones.

In the late 80s it has become very popular for the maxillo-facial complex and has been used in all directions (A-P, vertical, transversal). Because of less technical difficulties, patient discomfort and its frequent indication in adults, the transverse distraction osteogenesis is the only protocol routinely used in orthognatic surgery.

The indications of SARME are the same as for RME:

1) Transverse maxillary deficiency, « buccal corridors »
2) Posterior cross-bites
3) Tooth-size/arch-size discrepancy
4) Preparation for mandibular orthopedic advancement
5) Preparation for maxillary advancement
6) Effect of nasal cavity and breathing

Advantages for bone-borne vs. tooth-borne distraction osteogenesis:

- A more parallel expansion of the maxilla, the device being closer to the center of resistance of the maxilla.
- Less periodontal stress, less effects on the buccal plates, less dental movement
- Does not solicit teeth, can even be used in periodontaly involved situations
- Can be used on edentulous patients to prepare for prosthetic restoration or to reduce buccal corridors.
- It has also some beneficial influence on OSA syndrome (Cistulli 1998, Conley and Legan 2006)
- Hygienic
- Easy to place
- No laboratory preparation
The surgical protocol is:

- A Lefort I osteotomy with pterygoid disjunction and midsagital split is performed.
- The device is directly fixed to the palate.
- Activations are made during the surgical time till 1 mm incisor opening.
- One week of surgical recovery.
- After one week post-surgery: activation of the screw by the patient twice-a-day during one to two weeks.
- Three to six months of stabilization
- Removal of the expander with local anesthesia.
The purpose of my presentation is to give scientific and clinical information to support the indication of bone anchored maxillary expansion as an alternative of the classical tooth anchored technique to develop the maxilla and to prepare for comprehensive orthodontic and maxillo-facial global correction.

I will illustrate that point with clinical cases.

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