

DISTRACTION OSTEOGENESIS

THE HISTORY OF DISTRACTION OSTEOGENESIS

- 1905 **Codivilla**, 26 lower extremity-elongation
- 1921 **Putti**, first fixator with 2 pins
- 1952 **Ilizarov** worked out the theory of distraction osteogenesis, performed thousands of cases (double ring for fixation).
- 1992 **McCarty** published the first four distraction cases in the maxillofacial region (mandible).
- 1995-97 **Cohen**, the first cases in the cranio-maxillofacial region.

BONE HEALING

Fracture healing:

- impaction (fracture)
- induction
- inflammation
- soft callus
- hard callus
- remodeling (1-1.5 years)

Fracture healing interrupted by distraction:

- osteotomy
- induction (osteotomy)
- inflammation
- soft callus
- distraction
- hard callus
- remodeling

DISTRACTION OSTEOGENESIS

- osteotomy (callus formation)
- latency period (1 week)
- distraction (1 mm/day)
- consolidation (fixation, 8-10 week)
- remodeling (1- 1.5 year)

TYPES OF DISTRACTION IN THE MAXILLOFACIAL REGION

- mandible (corpus, ramus)
- midface
- alveolar process

MANDIBULAR DISTRACTION

INDICATION:

- developmental disorders
(mandibular hypoplasia, hemifacial microsomia etc.)
- reconstruction of operative or traumatic defects
(tumor resections, defect-fractures)

MANDIBULAR DISTRACTION OSTEOGENESIS

DEVICES

- intraoral

 - Tooth-borne

 - Bone-borne

 - “Mixed”

- extraoral

- 2D, 3D

MAXILLARY AND MIDFACE DISTRACTION

INDICATIONS:

- Developmental disorders of midface
(maxillary hypoplasia in patient with cleft palate)
- Craniofacial developmental disorders (craniofacial microsomia, dysostosis, synostosis, Apert, Crouzon sy.)

TPD

ALVEOLAR DISTRACTION

INDICATIONS:

- To create the conditions for oral rehabilitation (implantology)

TYPES:

- horizontal
- vertical
- horizontal and vertical (3D)