Condylar External Fixator.

KEYWORDS

- ❑ CONDYLAR EXTERNAL FIXATOR
- ❑ CONDYLAR FRACTURE
- ❑ CONDYLAR FRACTURE TREATMENT
- ❑ MAXILLOFACIAL SURGERY

AREA

- ❑ BIOMEDICAL

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Patent Type
Patent for invention.

Ownership
Sapienza University of Rome 100%.

Inventors
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Industrial & Commercial Reference
Is a semi-rigid fixation system that finds its specific application in the market of rin maxillofacial surgery fixation.

Time to Market
The product has been fully developed tested and is now available on the market for its clinical applications.

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Fig. 1 Condylar external fixator.

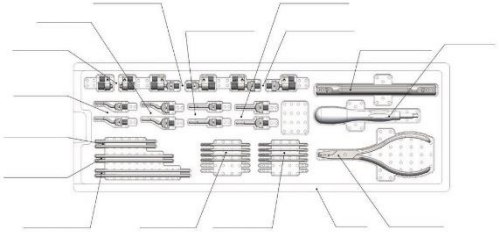

Fig. 2 Surgical Kit.

Fig. 3 CT Scan of a displaced condylar fracture.

Abstract
Mandibular condyle fractures account for about 30% of mandibular fractures.
Their treatment is much debated in relation to numerous factors such as the patient's age, compliance and characteristics of his dentition.
Several therapeutic approaches are reported that include titanium plate restraint or intermascellar locking.
The external condylar fixator is intended as a semi-rigid containment medium for treating condylar fracture as an ideal device as it is completely removable at the end of treatment.
It immediately allows the resumption of the functional activity and is simple and quick to position.

Publications

- ❖ Cascone, P. et al. External Fixator System in Treatment of Mandibular Condylar Fractures. J Craniofac Surg. 2017 Jul; 28(5):1230-1235. doi: 10.1097/SCS.0000000000003669. PubMed PMID: 28570407.
- ❖ Cascone, P. et al. Mandibular Condylar Fractures inChildren: Morphofunctional Results After Treatment With External Fixation. J Craniofac Surg. 2017 Oct; 28(7):1742-1745. doi: 10.1097/SCS.0000000000003914. PubMed PMID: 28872509.

Condylar External Fixator.

Technical Description

The external fixation system consists of stainless steel pins with self-tapping and self-drilling pins, which are implanted on the bone by means of a dedicated screwdriver.

This system is called semi-rigid; ensures considerable stability and immediate recovery of functional activity, fundamental moment of therapy.

Moreover, his relative elasticity allows minimal adaptations of the fragments, which reduce the risk of pathological phenomena of bone resorption both on the condyle and on the glenoid cavity due to excessive compression, complication possible internal rigid fixation.

In the physio-mechanical field, since the fixation system and the fractured bone constitute a functional unit, the forces applied in the rigid fixation are completely discharged onto the plates, while the forces applied in the semi-rigid fixation are partially discharged even on the bone, with important stimulation of its trophic and reparative potential.

Technologies & Advantages

Quick and easy application of the device:

- the ability of the self drilling pins to pierce the bone without the aid of the drill;
- easy removal of the device itself at the end of the procedure that avoid to the patient;
- a further general anesthesia
- Rapid mobilization of the temporomandibular joint with considerably reduced hospitalization time
- the fact that the fixation device is completely removed allows the patient's jaw to be
- totally free from metal already a month after the intervention.

Applications

The external condylar fixator finds its application in the displaced condylar fracture with dislocation of the condylar fragment.
For the particular anatomy of the district these fractures cover about 30% of the mandibular traumas.

The high frequency requires a methodology of treatment that is economic, easy to use and that reduces hospitalization times.
The device meets these criteria because most of the material is reusable except for the pins that are single-use.
The traumatology in maxillofacial surgery benefits from the introduction of this device for ease of use and speed of treatment.

Fig. 4 Patient with the device.

Fig. 5 CT Scan control and outcome.

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