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Year: 2013

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## **Fixation of a rostral mandibular fracture in a cat with a lingual arch bar**

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Posted at the Zurich Open Repository and Archive, University of Zurich  
ZORA URL: <https://doi.org/10.5167/uzh-90361>  
Journal Article  
Published Version

Originally published at:  
Grundmann, S (2013). Fixation of a rostral mandibular fracture in a cat with a lingual arch bar. *EVDS Forum*, Summer(2):20-22.

## Case report

### Fixation of a rostral mandibular fracture in a cat with a lingual arch bar

by S. Grundmann DVM Dipl. ECVS

Different techniques are described for the treatment of mandibular fractures in cats. For the repair dental occlusion is much more important than anatomic alignment. Biomechanically the fixation should be placed on the tension site of the fracture, which is close to the alveolar border of the mandible. In rostral located fractures there is insufficient space for placement of surgical implants because of the presence of the canine tooth roots. In those cases splinting with composite or acrylic resin reinforcement is the most common used technique which minimally compromises dental structures and surrounding soft tissues.

Çetinkaya et al. (2011) described the application of a lingual arch bar for rostral mandibular body fractures in cats. The fixation is located on the alveolar border on the lingual side of the mandible and is secured with circummandibular cerclage wires.



Fig.1: Lingual arch bar technique

The patient, a 2 years old male European short hair cat showed a bilateral rostral fracture of the mandibular body just distal to the canine tooth roots and an additional maxillary fracture.

The cat was anaesthetized, pharyngotomy was performed for tracheal intubation to assess occlusion. After fixation of the maxillary fracture with a figure eight wire and composite reinforcement the cat was placed in dorsal recumbency. The ventral aspect of the mandible was clipped and aseptically prepared for surgery. The mandibular fracture was treated according to the technique described by Çetinkaya et al. (2011).

Kirschner's wire (1.2mm) was contoured to the lingual aspect of the mandible back to the 1<sup>st</sup> molar tooth. Cutted ends were bent to avoid soft tissue trauma.

Small stab incisions were made into the skin ventrally. Cerclage wire (0.6mm) was placed through the skin incision and advanced through a hypodermic needle into the oral cavity just close to the bone surface.

The wire was placed interproximal between the 4<sup>th</sup> premolar and 1<sup>st</sup> molar tooth, around the arch bar and guided ventrally along the bone surface with the hypodermic needle and twisted on the ventral aspect of the mandible.

Further wires were placed on the opposite site and interproximal between 3<sup>rd</sup> and 4<sup>th</sup> premolar in the same manner.

Rostrally a 0.5mm wire was placed from ventral in the same way around the arch bar then additional twisted around the canine teeth.

The reduction was held in place in occlusion and the wire ends were tightened (Fig.2), cut and bend down underneath the skin.

Skin incisions were closed with simple interrupted sutures.

Postoperative care included antibiotic treatment and pain release. The cat tolerated the fixation well and started eating 24 hours after surgery. X-ray control after 4 weeks showed the implants in place and beginning of bone healing.

Compared to oral splints the fixation does not interfere with occlusion. Mobile and missing teeth or periodontal disease do not limit the application. In our presented case the technique allowed restoration of occlusion, sufficient stabilization and minimal compromise of soft tissues and blood supply. Another advantage was the ease of application and the low costs of material. In our opinion the lingual arch bar is a good alternative for fixation of rostral located mandibular fractures in cats.

Literature:

Mehmet Alper Çetinkaya, DVM, MS, PhD, Cenk Yardimci, DVM, PhD, and Umit Kaya, DVM, PhD, Journal of Veterinary Surgery 40 (2011), pp 457-463



Fig.2: intraoperative situation during tightening the cerclage wire.



Fig.3: Postoperative x-ray (lateral view).



Fig.4: Postoperative x-ray (ventrodorsal view).



Fig.5: Postoperative x-ray (intraoral view).



Fig.6: Lateral view radiography 5 months postoperatively



Fig.5: Intraoral radiography 5 months after surgery after implant removal