

## **MAXILLARY AND MANDIBULAR FRACTURES IN CATS**

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**Incidence:** There is a high incidence of mandibular and maxillary fractures in cats secondary to vehicular trauma, falls, kicks, gunshots, and crushing bites. Frequently the fractures are open with significant soft tissue trauma to the face and oral mucosa. Fractures often involve the multiple injuries to the maxilla, mandible and temporal mandibular joints.

**Diagnostics:** Radiographs are challenging to position and interpret due to the superimposition dental arcades, teeth, tooth roots and TMJ. Standard radiographic views include VD, lateral, left and right lateral oblique and open mouth lateral views. The open mouth bulla view is the best for evaluation of the temporomandibular joint integrity. Examination of the oral cavity under anesthesia is the best tool for pre-operative planning.

**Objectives:** The primary objective for repair is a return to normal function. The majority of fractures are open which compromises blood supply to the healing fragments. Anatomic reduction and perfect alignment of bone fragments is not always the best approach. Early repositioning to anatomic alignment and restoration of dental occlusion permits early return to function. Jaw fractures will heal in the presence of fracture gaps and some mobility as long as the blood supply to the tissues is preserved and infection is prevented. The fixation method must allow immediate restoration of function and be light and comfortable for cats to tolerate.

**Teeth:** Dental trauma results in loose or damaged teeth in the fracture lines. All teeth should be replaced to contribute to alignment and stability of the fracture line. Premature extraction of teeth causes disruption of the blood supply and iatrogenic trauma to the soft tissues, displacement of the fracture fragments, loss of occlusal landmarks, removal of structures for fixation, and creation of large bony defects.

### **Repairs**

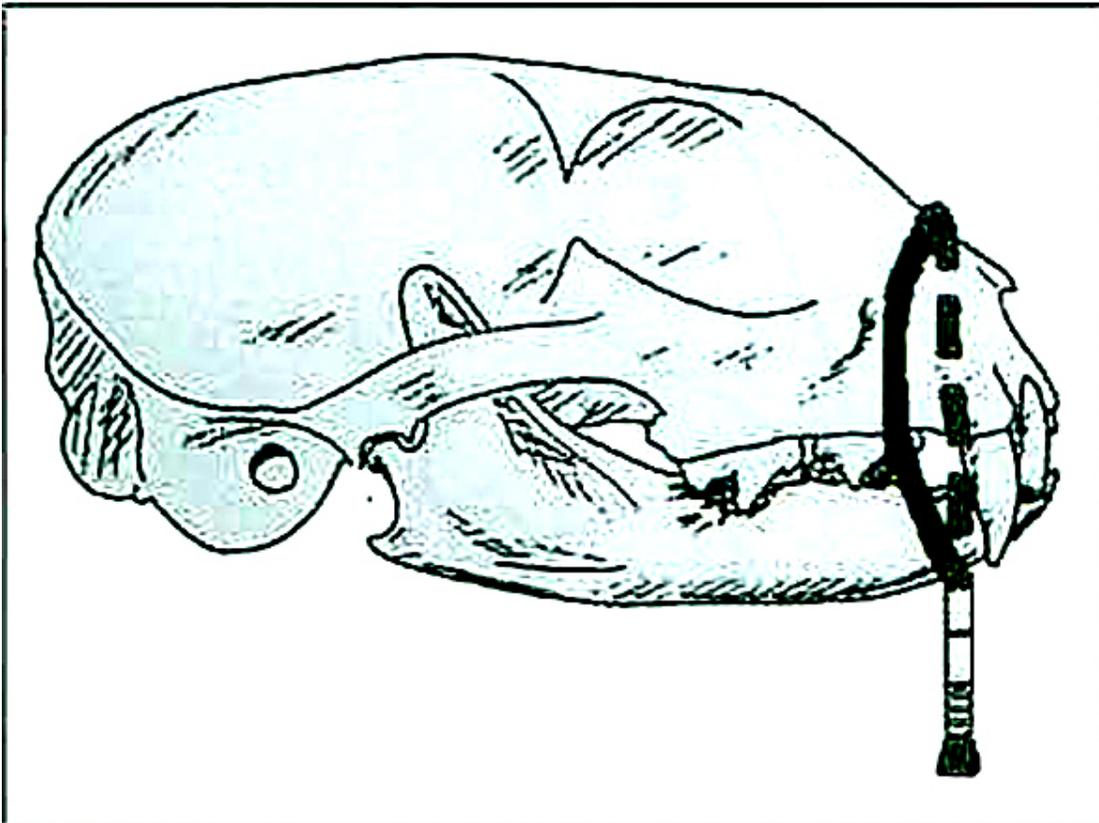
Mandibular symphyseal fractures are the most common fracture seen in cats and can be managed with a loop cerclage wire fixation. This can be performed using an 18gauge hypodermic needle and 24gauge stainless steel orthopedic wire. The wire ends can be twisted and folded down in the mouth to facilitate easy removal. This is an easy and inexpensive procedure with minimal to no disadvantages.

Pre-maxillary and maxillary commissure separations can also be treated with loop cerclage or substituting non-absorbable suture in a simple mattress suture around the PM4 or canine teeth from a hole drilled in the gum line and fed through a tunnel under the palate mucosa.

**Complex Mandibular Fracture Luxations:** Fractures of the caudal mandible, vertical ramus, and mandibular luxation fractures are difficult to treat. Conservative management is frustrating in cats, as they do not tolerate tape muzzles. Traditional techniques such as inter-arcade wiring, dental bonding, intraoral splints, braces, external skeletal fixation, plate fixation or partial mandibulectomy require special equipment can disrupt soft tissues and result in variable success. Stabilization of such fractures requires a mixed, creative and sometimes non-traditional approach to repair in order to achieve a good, pain-free recovery and short healing period for the patient. A simple new technique for the indirect treatment of caudal mandibular fracture/luxations in cats called the BEARD.

**BEARD: (Bi-gnathic Encircling And Retaining Device):** A subcutaneous loop of nylon leader line is tunneled around the maxilla, incisive and nasal bones and under the mandible placed caudal to the canine teeth and crimped ventral to the mandibular skin.

Advantages are ease of application, inexpensive, easy to perform, noninvasive, preservation of the existing blood supply and usually well tolerated by the patient. Disadvantages include development of moist contact dermatitis, post-treatment malocclusion (although usually not clinically significant enough to interfere with function).



**Summary:** Mandibular and maxillary fractures are common injuries in cats resulting from trauma and can result in severe functional disabilities and gross disfigurement. The special challenges of jaw fractures in cats involve the realignment of dentition, cosmetics and ability to eat after surgery. The BEARD is easy, flexible, inexpensive and surprisingly well tolerated.

#### Additional references

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3. Nicholson I, Wyatt J, Radke H, Langley-Hobbs J. Treatment of caudal mandibular fracture and temporomandibular joint fracture-luxation using a bi-gnathic encircling and retaining device. *VCOT*; 2010;2;102-108