Indian J. Vet. Surg. 46(2): 159-160 December 2025

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Surgical management of unilateral temporomandibular joint ankylosis in a cat

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DOI: 10.5958/0973-9726.2025.00044.X *Received: January, 2024*

Ankylosis of the temporomandibular joint (TMJ) may result from intra-articular (true) or extra-articular (false) lesions (Zavodavskaya *et al*., 2020). This report describes the diagnosis and successful surgical management of extracapsular TMJ ankylosis in a cat.

An 8-month-old intact male Persian cat (2 kg) was presented with a one-month history of an inability to open the mouth following a dog-bite injury to the head. The owner reported progressive difficulty in opening the mouth, leading to severe pain during eating and eventual restriction to licking only liquid food. The cat was markedly malnourished (body condition score 4/9). Clinical examination under general anaesthesia revealed a markedly reduced and immobile inter-incisor distance. Radiographs showed indistinct right mandibular joint margins and irregular bone remodelling with a lucent line around the right TMJ, consistent with ankylosis; the left joint was normal (Fig. 1).

Premedication included xylazine (0.5 mg/kg body weight IM), butorphanol (0.2 mg/kg IM) and ketamine (7 mg/kg IM). Anaesthesia was induced with propofol (2 mg/kg IV to effect), and a tracheostomy was performed for secure airway management. Anaesthesia was maintained with isoflurane (2%) in oxygen (200 mL/kg/min; Bain system).

Fig. 1: Ventro-dorsal radiographic projection showing increased radio-opacity (arrow) around the right temporom-andibular joint.

With the cat positioned in lateral recumbency, a lateral surgical approach to the TMJ was performed as described by Arzi (2020) and Aghashani *et al*. (2020). After elevating the periosteum over the zygomatic arch, coronoid and condylar processes, and the mandibular fossa, ostectomies were carried out using a burr. Burr was used to perform the ostectomies, avoiding damage to blood vessels and nerves. The first ostectomy consisted of removing most of the zygomatic arch (zygomectomy) just caudal to the orbital ligament and extending caudally to the mandibular fossa. The second ostectomy involved excision of the coronoid and condylar processes at a level just above the mandibular foramen. The third ostectomy was performed on the medial aspect of the mandibular fossa of the squamous part of the temporal bone, at the level of the retroarticular process. The osteotomy margins were smoothed with rongeurs, and intraoperative manipulation confirmed restoration of mouth opening. Routine lavage and three-layer wound closure were performed.

Recovery from anaesthesia was uneventful, and the tracheostomy site was closed surgically. Postoperative care included IV lactated Ringer's solution (60 mL/kg body weight/day), discontinued once voluntary eating resumed. Amoxicillin-clavulanate (21 mg/kg IM, BID for 7 days), butorphanol (0.2 mg/kg IM for 5 days) and meloxicam (0.05 mg/kg SC, once daily for 3 days) were administered. Nutritional support was initiated with a liquefied, high-calorie diet to meet the daily Resting Energy Requirement (130 kcal), followed by a transition to softened food for one week. The only postoperative complications, mild exophthalmos and

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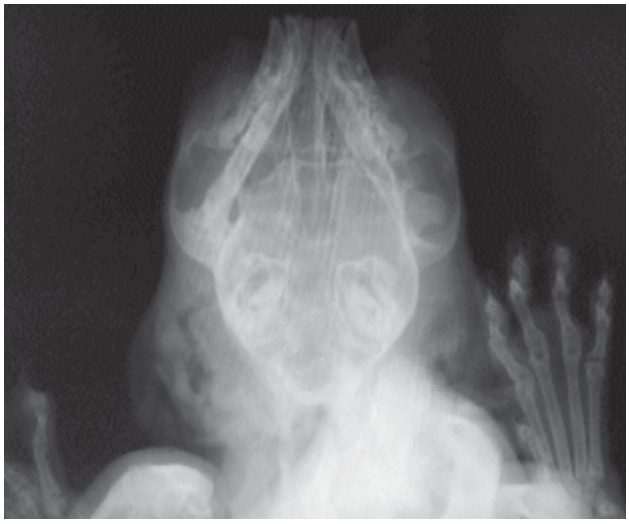

Fig. 2*: Ventro-dorsal radiographic projection showing loss of zygomatic arch, coronoid process and condylar part in the right temporomandibular joint.*

serosanguinous discharge, resolved spontaneously within a few days. A 10-day postoperative radiograph confirmed the absence of bony lesions (Fig. 2). At one-year follow-up, the owner reported complete recovery and normal function.

TMJ ankylosis is challenging to diagnose because several oral and maxillofacial disorders can produce similar signs. Radiography, dental radiography, and CT are the main imaging modalities (Heney *et al*., 2019), though patient handling must be minimized to avoid worsening injuries.

Surgical intervention is the definitive treatment for TMJ ankylosis. Excisional arthroplasty and mandibular condylectomy have been described (Okumura, 1999). Adequate creation of a postoperative gap and early initiation of jaw activity are key to preventing recurrence (Ma *et al*., 2015; Strom *et al*., 2016; Arzi, 2020). In this case, jaw function was encouraged by transitioning the cat early to hard food, allowing natural masticatory movements to serve as physiotherapy.

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