

SURGICAL MANAGEMENT OF MANDIBULAR FRACTURES IN DROMEDARY CAMELS (*CAMELUS DROMEDARIUS*) - STUDY OF TWO CASES

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Received: 05.07.2018; Accepted: 19.11.2018

SUMMARY

Two single humped camels aged eight and five years were presented to Veterinary Clinical Complex for examination with a history of accidental fall on the ground. Clinical examination combined with radiography revealed complete bilateral mandibular fracture caudal to the canine tooth in both the animals. Physiological and haematological parameters were found within the normal clinical range. Successful surgical reduction and fixation of the mandibular fractures using interdental wiring under sedation was performed in both the animals.

Key Words: Dromedary camel, Interdental wiring, Mandible fracture

Fractures of mandible is uncommon in bovine and small ruminants but common in camels (Singh *et al.*, 2015) which often occur in rut males following fighting with each other (Rastabi *et al.*, 2017). Mandibular fractures typically involving the rostral third of the horizontal ramus is common in camels and is often associated with poor carrier handling and violent behaviour during rut season (Ahmed, 2011) wherein the animal becomes active, vicious and tend to bite each other leading to abnormal stress on the mandible leading to fracture (Gahlot, 2000). These fractures are seen mainly across the first premolar teeth or at cranial or caudal aspect of interdental space. Presence of mental canal and alveoli of first premolar teeth and relatively small cross sectional diameter make this region susceptible to fractures (Rastabi *et al.*, 2017). Different methods have been employed for fixation of mandibular fractures in camels including interdental wiring, U-bar application, combination of cross pin fixation and tension band wiring and bone plating and depending on the location, time elapsed to referral and severity of fracture, a method or combination of method must be selected (Rastabi *et al.*, 2017). The present article reports two cases of mandibular fracture in single humped camels and their successful surgical management by interdental wiring.

An eight year old male (Fig. 1a) and a five year old female (Fig. 1b) Dromedary Camels (*Camelus dromedarius*) presented to Veterinary Clinical Complex with the complaint of asymmetry of jaw and drooping of mandible respectively along with drooling of saliva, local swelling and protrusion of tongue after an accidental fall on the ground. Clinical examination revealed bilateral crepitus of the horizontal part of the mandible which was further confirmed by radiography that revealed complete bilateral fracture at the caudal part of canine tooth in eight year old (Fig. 2a) and just cranial to the canine tooth in five year old (Fig. 2b). Haematological and physiological

parameters were examined and was found to be within the normal clinical range. Thus it was decided to perform fracture reduction and stabilisation by interdental wiring using orthopaedic wire in both the animals under sedation.

Both the animals were prepared for surgery and sedation was achieved with Xylazine @ 0.3mg per kg body wt by intravenous route and secured in sternal recumbency with head held high upon a table. The upper and lower jaw was secured using a muzzle tape to expose the oral cavity. The oral cavity was washed with diluted potassium permanganate solution (0.5%) copiously to remove the debris, feed material and blood clots. The fracture site was assessed in both the animals, reduced and maintained in proper alignment. Using an electric drill, a hole was drilled between the first and the second premolars at the margin of gingiva and tooth on both right and left mandible. Care was taken to maintain proper distance from the fracture line. A stainless steel orthopaedic wire one on each side ensheathed in a polyethylene tube was passed through the hole (Fig. 3a). Further the end of the wire on the medial side of mandible was passed through the hole drilled between the central incisors and knotted with other end of wire on lateral aspect of respective side and stabilised (Fig. 3b). The same procedure was performed in the opposite mandible as well. No instability or malocclusion of tooth was noticed after fracture reduction.

Post-operative care included irrigation of oral cavity by diluted Povidone iodine solution, and intramuscular antibiotic (60 ml Oxytetracycline) and analgesic (20 ml meloxicam) administration for 5 days. Food was withheld for first 3 days; followed by maintenance of animal on succulent green feed and molasses solution for 30 days.

Camelids are known to tolerate well, orthopaedic surgery and application of various orthopaedic devices (Ahmed and Al-Sobayil, 2012). Healing of mandibular fractures is relatively rapid and time taken for healing has been reported in the range of 7-12 weeks (Rastabi *et al.*,

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Fig. 1a: Eight year old camel with asymmetry of upper and lower jaw. Fig. 1b: Five year old camel with drooping of mandible. Fig. 2a: Radiograph of mandible of eight year old camel showing bilateral mandible fracture. Fig. 2b: Radiograph of mandible of five year old Camel showing fracture in front of canine tooth. Fig. 3: After interdigital wiring of right mandible. Fig. 4: After interdigital wiring of both mandibles

2017). Mandibular fracture stabilisation using interdental wiring is simple, inexpensive and quicker but development of intraoral ulcerations due to wire is a main disadvantage (Ahmed, 2011). Ultimate goal of splinting or surgical stabilisation is to reduce the fracture into normal or near normal anatomic alignment and to provide adequate support to enable comfortable prehension and mastication during callus formation (Fubini and Ducharme, 2017). After interdental wiring, the animals were showing normal movements of the jaw indicating normal anatomical alignment of fracture segments. Since mandible is not a major weight bearing organ, slight movement or imperfect alignment of the fracture fragments does not adversely interfere with prehension and mastication (Singh *et al.*, 2015). Wire loosening, development of submandibular abscess, ventral malalignment, buccal infection, intraoral ulceration and osteomyelitis have been reported as potential complications after surgical repair of mandibular fractures in camels (Rastabi *et al.*, 2017). No such complications

were observed in the above cases.

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