

A Field Oriented Immobilization Technique for Mandibular Fracture in Camel: A Clinical Study

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ABSTRACT

A clinical study on a new, simple, practical and field oriented technique for the repair of mandibular fracture in 18 camels using Plaster of Paris bandage and a wooden plate as a splint, was carried out and discussed. The recovery after one and a half-month was uneventful.

Key words: Dromedary, Fracture, Mandible, Camels.

INTRODUCTION

Mandibular fracture in camels is common during rut season due to fighting with other male camels. Mostly the horizontal fused rami of the mandible get fractured because the other male breeding camel easily grasps the part during the fight. Presence of mental canal and alveoli of tusks make this area more weak and susceptible to fracture (Gahlot and Chouhan, 1992). Different surgical techniques (Wiring between teeth, Bone plating, transfixation of bone pin with plaster of Paris bandaging), have been used for the repair of mandibular fracture. This study presents and discusses a relatively simple, practical and field oriented technique for the repair of mandibular fracture with an aim of maintaining perfect immobilization of fractured ends during the healing period.

MATERIALS AND METHODS

Eighteen male breeding camels (*Camelus dromedarius*) between 8-12 years of age weighing about 400-600 kg suffering from mandibular bilateral compound fracture were treated from 1987 to

date. All these camels got fractures of the fused horizontal rami of mandible while fighting with other male camels during rut season.

Camels were restrained in sternal recumbency under xylazine 2% solution (Rompun-Bayer) analgesia with a dose rate 1.0 ml/100 kg B.W. Intravenously. The fractured segment of the mandible was kept in normal alignment with the help of a 6" wide cotton bandage. Passing it under the affected part of mandible and tying the knot over the bridge of nose while leaving the mouth open for about 8 cm at the inter dental space. Plywood of about 4-5 mm thickness was used as a splint for giving support to the fractured part of mandible. The length of this wooden plate was measured from the body of the mandible to the rami to an extent that the lesion remained almost in the middle. It measured 5-6 cm wide for resting the body of the mandible, 8-9 cm wide for the area towards rami and 16-18 cm length. A Plaster of Paris bandage (Gypsona-Smith and Nephew Ltd.) 4" wide was applied with 2-3 rounds at first circling over the bridge of nose and the posterior part of the wooden plate kept under the mandible. It was then passed along one side of lateral border of the wooden plate to the anterior border and then turning to its other side lateral border. It was then passed obliquely, posterior to the labial commissure, along the cheek to the bridge of the nose then to the other side of the cheek, continuing obliquely to the lateral border of the wooden plate and all around it as before.

Thus Plaster of Paris bandage encircled 5-7 times the bridge of the nose involving the wooden plate. While applying the plaster bandage along the border of the wooden plate, it was also passed from one side of the face to the pole behind the ears then to the other side continuing over to wooden plate borders. The Plaster of Paris bandage was passed over the pole about 4-5 times. The bandage over the wooden plate borders was applied in such a way that about 3-4 cm width part of the bandage remained above to the borders of the plate all along the lower lip. The edges of the bandage were made smooth by partly bending them inward and the remaining width of the bandage was fixed over the exposed horizontal part of wooden plate. Two to three rounds were wrapped all around the junction formed behind the labial commissure, by bandages passing from the wooden plate over to the bridge of nose and the other to the pole.

Lastly, the cotton bandage, which wrapped the fractured mandibular segment in the beginning and knotted over the bridge of nose, was cut off on either side at the margin of Paris plaster plate.

The lip all around the lower jaw was left free from the plaster bandage. The wound at the site of fracture in the buccal cavity was dressed with Oxytetracycline hydrochloride 5 gm and Gentian Violet 400 mg, volume to 156 ml (Alamycin-Norbrook Lab. Ltd.) spray daily after the final meal and watering. Amoxicillin trihydrate L.A. (150 mg/ml) 25-30 ml was administered intramuscularly on the day of Paris plaster bandaging.

Animal was allowed to feed, under supervision, only the semisolid food like wheat gruel mixed with seedless dates and milk. The camel took it by sucking without any help. In a few cases occasionally green succulent lucern was provided by hand to eat. The Paris plaster bandage was removed after one and half months.

RESULTS AND DISCUSSION

Analgesia achieved by xylazine 2% solution with the said dose was satisfactory enough for allowing Plaster of Paris bandaging by the breeding bulls. An additional advantage was that the lower jaw remained hanging down during analgesia, which helped in maintaining the required space between the jaws while bandaging with Plaster of Paris.

Different techniques such as wiring between incisors and 1st premolars (Gahlot *et al.*, 1984; Manfield and Tinson, 1996), bone plating (Kumar *et al.*, 1979). Transfixion of bone pins along with plaster of Paris bandaging (Bhatia *et al.*, 1978; Gahlot and Chouhan, 1992); and amputation of the irreparable fractured mandibular segment (Purohit *et al.*, 1983) have been used with variable results.

In this study a relatively simple, practical and field oriented technique was used, by using Plaster of Paris bandage and a wooden splint. The bandage remained in position throughout the healing period without any complications in all cases except in one camel, which was not cared for and allowed to eat hay. In this case the camel dislodged the splint together with Plaster of Paris bandage on 4th postoperative day either by striking it with a hard object or by vigorous efforts in eating the bulk of hay. This camel was treated again with the same technique and recovery was achieved.

Thin plywood plate, being very light in weight, was used as a splint (Fig.1). This not only gave a support to the fractured mandibular segment; it also provided a base to the Plaster of Paris bandage in the effected region. The Plaster of Paris bandaging from

the wooden splint, passed over the cheek, bridge of nose and then to the other side on to the splint. While another round from one side of the wooden splint to its other side lateral border passing through the pole behind the ears, gave a good support to keep the plastered mass under the affected mandible in position without any complication.

Further, wrapping the Plaster of Paris bandage all around the junction formed by the bandages, one way passing to the bridge of nose and the other to the pole locked them from separation and avoided the risk of loosening the plastered splint (Fig.2).

Maintenance of about 4 fingers' space between the jaws (Fig. 3) and the free lower lip from the plaster mainly anteriorly, helped the camel to suck gruel and in a few cases to eat green succulent lucern under supervision, without any difficulty.

There was no complaint of the health or digestive disorder against the diet fed to the camels. The healing of the open wound together with the fracture was uneventful.



Fig. 1 Plywood plate used as splint for the repair of mandible fracture



Fig. 2 Camel with fracture of mandible bandaged with plaster of Paris along with splints (1st postoperative day).



Fig. 3: Camel with fracture of mandible bandaged with plasters of Paris along with splint showing space between the jaws (one-month post-operative day).

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