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Surgical immobilization of bilateral mandibular fracture in calves

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Abstract

Bilateral mandibular fracture was presented in two cattle calves due to accidental injury. Radiographically the fracture was seen at the proximal horizontal ramus of mandible. The fracture was stabilized with bilateral intramedullary pinning in both cases. Bilateral fracture in both cattle calves can be well managed with intramedullary pinning.

Keywords: Cattle calves, intramedullary pinning, mandibular fracture

1. Introduction

Fractures of the mandible are the most common fractures of the cranium in cattle, usually involving the interdental space and the molar part of the horizontal ramus of the mandible (Lischer *et al.*, 1997) [3]. Severe contusions, traffic accidents can cause mandible fractures (Nuss *et al.*, 1991) [4]. Mandibular fractures usually occur in a unilateral form, but can also occur bilaterally. Fractures may occur in the symphysis, corpus and ramus of the mandible, and in the processus condylaris, which forms the temporomandibular joint (Fessler and Adams, 1996) [2]. Some calves fracture the rostral aspect of both mandibles in the interdental space, resulting in significant displacement that requires treatment. The goal of surgical treatment of mandibular fractures is to achieve temporary stabilization of the main fragments in order to allow pain-free mastication and rumination, until callus formation is sufficient to stabilize the fracture (McIlwraith and Jennings, 1984) [5]. The present case was reported with bilateral mandibular fracture in two cattle calves.

2. Case History and Observations

Two calves were presented to Department of Veterinary Surgery and Radiology, College of Veterinary Science & A. H., KU, Sardarkrushinagar with a history of accidental injury over lower mandible since last three days. Clinical examination found dropped lower jaw, unable to take food, profuse salivation and wound over lateral aspects of proximal end of mandible (Fig 1 A. & B). The hematological parameters were within normal range. Radiographic examination of horizontal ramus of mandible was performed in lateromedial and ventro-dorsal position using computed radiography and its revealed bilateral complete fracture of proximal end of horizontal remi of mandible (Fig. 2). Both cases were confirmed as complete bilateral fracture of mandible and planned for bilateral intramedullary pinning.

3. Treatment and Discussion

The calves were sedated with Inj. Xylazine hydrochloride @ 0.1 mg/kg B.W. I/M. The bilateral mandibular and mental nerve block was performed using 2% Lignocain hydrochloride. The wound at the fracture site were irrigated with mild solution of potassium permanganate. The bandage was applied over proximal mandible for reduction of fracture fragments. The 2.5mm K wires were inserted from second incisor teeth from each side of mandible under C- arm (Fig. 3 A & B). The reaming end of k wire at incisor tooth were cut and rasped to prevent injury to inner mucosa. The lacerated mucosa was sutured in both the case. In one case the skin at the rostral mandibular area was torn and sutured with cotton thread by interrupted suture pattern. The jaw was supported temporary with hard cover in both the cases to minimize the movement. The fluid therapy was given to maintain hydration status of patients. Post-operatively, Inj. Gentavet (Gentamicin) @ 4-5 mg/ kg b. wt, Inj. Melonex (Meloxicam) @ 0.2 mg/ kg b. wt. intramuscularly was given for five days. Owners were advised to drench milk with an infant milk bottle or a syringe.

The post-operative radiographs were taken in both the cases at interval of 15 and 30 days. All the physiological and hematological parameters were within normal range.

On 15th day post-operative lateral radiographs were taken in both the case. It was observed that callus formation started (Fig. 4). But in one case the pus was observed at the fracture site. On 30th post-operative days radiographs shows the complete bridging of fracture fragments indicating no fracture gap and fracture was healed (Fig 5). The K wire was removed from mandible in both the cases (Fig.6).



Fig 1A: Fracture mandible with torn inner mucosa



Fig 1B: Lacerated wound over ventral aspect of mandible with exposed fractured bone



Fig 2: Complete bilateral fracture of mandible

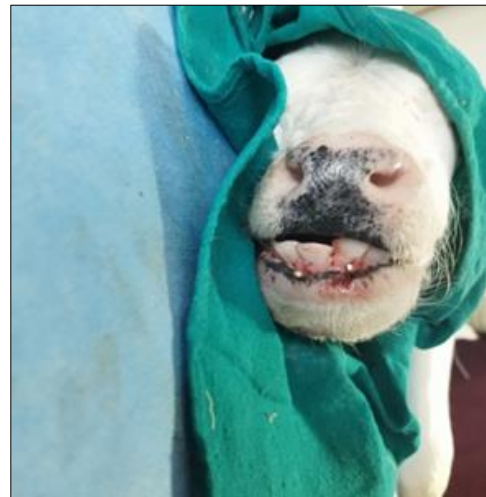


Fig 3A: Rasped K wire after insertion in mandible



Fig 3B: Post-operative radiograph after immobilization of fracture



Fig 4: 15th Day post-operative radiograph showing formation of soft callus

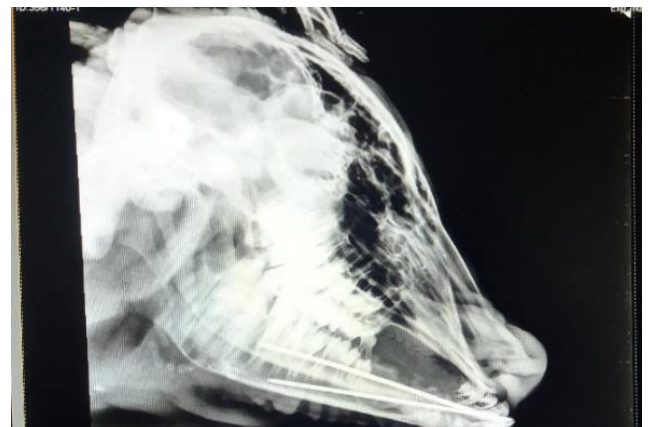


Fig 5: 30th Day post-operative radiograph showing callus with no fracture gap



Fig 6: A 30th Day post-operative radiograph k wire were removed

4. Summary

Mandibular Fractures commonly occur as a result of falls on to hard surfaces or hitting the head on solid objects (Adams and Fessler 1988) ^[1]. In present case, fracture occurred due to accidental injury. Lischer *et al.* (1997) ^[3] treated mandibular fracture in cow by using pinless external fixator but there was osteomyelitis with bone sequestration at the site of the fracture, while in present case, intramedullary pinning was performed in both cases without any complications.

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