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Management of dystocia induced mandibular fracture in new born calves: A review of 14 cases

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Abstract
Mandible fracture is common sequel of dystocia with head deviations solved by application of rope on lower mandible. Fractures in newly delivered calves showed early healing, only task of clinician is to provide immobilization, hence close unilateral mandible fractures were managed by external immobilization by application of locally prepared muzzle according to shape and size of lower mandible, where as bilateral lower mandibular fractures were immobilized with administration of k-wire to fix the fractured fragment along with external immobilization. Mandible fractures managed within 30 hrs of fracture were showed excellent recovery in closed or open mandible fracture.

Keywords: Mandible fracture, normograde pinning, muzzle

Introduction
Mandibular fractures are seen rarely in ruminants (Ducharme, 2004) [3] but it is occasionally seen as a complication in new born calves due to traction during dystocia. The factors responsible for mandible fracture are excessive and forceful traction of fetus during manipulation of dystocia (Aksoy *et al.*, 2009) [1]. Fractures of the mandible are the most common fractures of the cranium in cattle, usually involving inter dental space and the molar part of the horizontal ramous of the mandible (Lischer *et al.*, 1997a) [4].
Mandibular fractures usually occur in a unilateral form, but can also occur bilaterally (Yaygingul *et al.*, 2018) [8]. The rostral mandible or along the mandibular symphysis are common fractures in calves (Ducharme, 2004) [3]. Several surgical methods are available for corrections of mandibular fracture *viz.*, figure-eight wiring, screw fixation, u-bar, internal plates (Ducharme 2004) [3] and intramedullary pining (Wallace 1971; Ducharme 2004) [7, 3]. Osteomyelitis, alveolar periostitis and bone sequestration are common complications observed in mandibular fracture (Lischer *et al.*, 1997) [5].

Material and Method
Fourteen new born calves of either sex presented with lower mandible fracture (Table:1) followed by dystocia and forceful traction of fetus by tying rope at lower mandible were subsequently brought to Department of Veterinary Surgery and Radiology, College of Veterinary Science and A.H., KU, Anand for fracture repair.

Table 1: Breed, age, sex, type of mandible fracture & it's treatment

Sr.no.	Breed of calf	Age	Sex	Type of mandible fracture	Treatment
1	Gir	24 hrs	Female	Bilateral close	Group A: Internal fixation (Threaded titanium K-wire)
2	Mehsani Buffalo	78 hrs	Male	Bilateral open	
3	H.F.	24 hrs	Female	Bilateral close	
4	Mehsani Buffalo	30 hrs	Female	Bilateral open	
5	H.F.	12 hrs	Male	Bilateral close	
6	Gir	20hrs	Male	Bilateral open	
7	H.F.	22 hrs	Female	Bilateral open	Group B: Internal fixation (Stainless Steel K-wire)
8	Gir	18 hrs	Male	Bilateral close	
9	Mehsani Buffalo	26 hrs	Male	Unilateral open	
10	H.F.	18 hrs	Male	Bilateral open	
11	H.F.	14 hrs	Female	Bilateral open	
12	Gir	144 hrs	Male	Bilateral open fracture with maggot infestation.	
13	Mehsani Buffalo	8 hrs	Male	Unilateral closed	Group C: Supportive bandage
14	Gir	10 hrs	Male	Unilateral closed	

Closed unilateral mandibular fractures were managed by using application of supportive bandage on ventral aspect along with application of muzzle, while K-wire (threaded/plain) was fixed internally in the fractured fragments to facilitate normal alignment of fracture bone in bilateral open/closed mandibular fractures. Closed mandibular fractures were fixed by inserting k-wire under C-arm to facilitate normograde pinning, where 2mm K-wires were found suitable for 20 to 30 kg calves in the present study. Twelve cases of bilateral mandibular fractures were randomly divided in to two groups A (n=6) and B (n=6) for internal fixation; where as unilateral fractures group C (n=2) were managed by using supportive bandage. All cases were belonged to private owners and presented within 12-24 hrs of trauma, except two cases one Buffalo calf presented after 72 hrs and Gir calf after 144 hrs, where 5 calves were belonged to H.F. breed, followed by Gir (4) & Mehsani Buffalo (5).

Clinical examination

On clinical examination, the rectal temperature was recorded between 98-103˚F, the heart rate ranges between 75-95 bpm. All calves showed salivation and drooping of lower mandible from fracture site (Fig. 1A). Physical palpation revealed inflamed and painful (6 cases) of closed manibular fractures, while fresh/infected open fracture wounds (8 cases). Delayed presented cases showed infected open fracture, while maggot infestation observed in Gir calf, which was presented for surgery after 144 hrs (6 days).

Diagnosis

Open mandibular fracture diagnosed by clinical examination, while closed fractures were diagnosed with the help of Digital Radiography (DR System) Radiographic examinations of the mandible was performed in laterolateral and dorso-ventral view (12 mAs – 48 Kv) by a digital X-ray system (Fig. 1B).

Surgical procedure: Following 3hrs fasting of group A & B patients were premedicated with Xylazine Hydrocloridrate (Xylaxin, Indian Immunologicals Ltd. India) 0.03 mg/kg i.v. and bilateral mental nerve block was performed in 11 cases, while mandibulo-alveolar nerve block was performed both side in one buffalo calf, according to (Semieka and Misk, 2003) [6].

Normograde pinning were performed in the closed fractures to fix the fracture site, while retrograde pinning along with wound closure were carried out by absorbable suture material (Vycril 3-0) in the open mandibular fractures. Threaded titenium K- wires (2mm) in Group A cases and S.S. K-wire (2 mm) were used in Group B with the help of T- handle with chuck (Fig. 2A) in all 12 casess, where C-arm guided pinning was performed in closed fractures(Fig. 2Ab).

Fresh open fracture wounds were closed with the help of 2-0 Vicryl (PGA-910), while chronic open wounds were kept open for daily dressing and allowed to heal by second intention. Application of locally fabricated muzzle was made up from plastic bottles with round opening in the centre for airway and liquid feeding (Fig. 2B), till recovery. Medical management was carried out by Inj. Ceftriaxone 10mg/kg i/m & Inj. Meloxicam 0.3 mg/kg i/m for 5 days, except in case no. 12 antibiotic given up to 8th post operative day. Antiseptic dressing carried out with Liq. Povidone iodine (Betadine) in all cases till removal of k-wires with muzzle (Self prepared from plastic bottle) support for external immobilization. Bilateral mandibular fracture in a newborn crossbred calf in India and its treatment with stainless steel wiring and restriction of jaw movements through cup feeding was recommended by Ansari, *et al*., (2006) [2].

Result and Discussion

Soft callus formation at fracture site started from 7th post operative day and pins were removed from 14-21 days based on healing in all close mandible fractures, where as open fractures required 12-14 days for soft callus formation and pins were removed after 24-28 days.

Complete recovery was observed in 83.33% (5 cases) without any complication in group A, while similar 83.33% recovery was observed in group B cases with small out ward migration of S.S. K-wire in 40% (2 cases), which was not observed in group A cases.

Twelve cases recovered uneventfully without any complication/ tooth problems followed up to 6 months. Failure of mandible fracture healing was recorded 16.66% (1 case) in each group. Group A case no.2, Buffalo calf was presented after 78 hrs with infected bones, while in group B case no.12, Gir calf was also presented after 144 hrs with maggot wound infestation; where skin and mucosa get healed but fracture fragments failed to recovered even after 45 days post operatively due to osteomyelitis followed by osteoporosis.

Summery and Conclusion

Unilateral mandible fractures were showed 100% recovery by using supportive bandage with manually prepared muzzle from plastic bottles till healing, where as bilateral open or closed fractures were showed 83.33% recovery in group A and B cases by using k-wire fracture fixation, where threaded K- wire provides better stability as compared to plain K-wire as plain k-wires showed pin migration in few cases (Fig.2C). Failure of mandible fractures repair was recorded in those cases reported after 48 hrs (2 days), while mandible fracture cases presented for surgical intervention up to 30 hrs of mandible fracture were recovered 100% in both the groups A, B & C.

References

1. Aksoy O, Ozaydin I, Kilic E, Ozturk S, Gungor E, Kurt B, *et al*. Evaluation of fractures in calves due to forced extraction during dystocia: 27 cases (2003-2008). Kafkas. Univ. Vet. Fak. Derg. 2009;15:339-344.
2. Ansari MM, Bachoo BA, Peer FU, Bahttacharya HK, Mir AQ. Surgical management for the repair of bilateral mandibular fracture in a new born calf. North-East Veterinarian. 2006;5(4):13.
3. Ducharme NG. Surgical diseases of the oral cavity. In: Fubini SL, Ducharme NG (eds): Farm Animal Surgery. Saunders, Philadelphia. 2004;161-175.
4. Lischer CJ, Fluri E, Auer JA. Stabilisation of a mandibular fracture in a cow by means of a pinless external fixator. Vet. Rec. 1997a;140:226-9.
5. Lischer CJ, Fluri E, Kaser-Hotz B, Bettschart-Wolfensberger R, Auer JA. Pinless external fixation of mandible fractures in Cattle. Veterinary Surgery. 1997;26(1):14-19.
6. Semieka MA, Misk NA. Radiographic studies on the mandible of buffaloes and camels with special reference to mandibuloalveolar nerve block. J Camel Practice Res. 2003;10:9-16.
7. Wallace CE. Repair by open reduction of fractured mandible in a Stallion. Australian Veterinary Journal. 1971;47(2):57-60.
8. Yaygingul R, Kilic N, Kibar B. Surgical treatment of a mandibular symphyseal fracture in a calf using a continuous wire-loop technique: a case report. Veterinarni Medicina. 2018;63(05):248-250.