

---

## BILATERAL TRANSVERSE MANDIBULAR FRACTURE AND ITS SURGICAL CORRECTION IN A MONGREL DOG -A CASE REPORT

Sudheesh S. Nair<sup>1</sup>, Deny Jennes<sup>2</sup>, Soumya Ramankutty<sup>1</sup>, Anoop S.<sup>3</sup>  
and John Martin K. D.<sup>4</sup>

*Assistant Professor<sup>1</sup>, MVSc Scholar<sup>2</sup>, Associate Professor, Professor and Head<sup>3</sup>  
Department of Veterinary Surgery and Radiology  
College of Veterinary and Animal Sciences, Mannuthy, Thrissur-680651  
Corresponding author: sudheesh@kvasu.ac.in*

---

### ABSTRACT

A nine month old male mongrel dog was presented with bilateral mandibular fracture caused by a wild boar attack. Clinical examination and lateral radiograph of skull, revealed bilateral transverse fracture of rostral extremity of horizontal ramus of mandible. Surgical correction was performed by bilateral inter-fragmentary compression wiring of both sides and the animal made an uneventful recovery.

**Keywords** : Canine, Bilateral mandibular fracture, Inter-fragmental wiring, Wild boar attack

### INTRODUCTION

Mandibular fractures are most common among dogs. The incidence rate was found higher in male dogs of less than twelve months of age and the common site of occurrence were reported at the mandibular body (Umphlet *et al.*, 1990). As a dog matures, the mineral content

and the density of the bone increases and thus increases the resistance against the external forces (Lorinson *et al.* 2008). Dog fights are the most common cause of this condition and molar region of mandible was identified as most susceptible area for the fracture (Kitshoff *et al.*, 2013).

### CASE HISTORY AND OBSERVATION

A nine month old male mongrel dog weighing 12.5 kg body weight was presented to Teaching Veterinary Clinical Complex, Mannuthy with dropped jaw and was unable to close the mouth. The animal had a history of wild boar attack on the previous night. On clinical examination, the condition was diagnosed as bilateral mandibular fracture. Blood tinged saliva was drooling from the dropped lower jaw (Fig-1). Abnormal mobility, pain and crepitation of injured site was also noticed. Physiological and haematological parameters were within the normal range. Lateral radiographic examination of skull



Fig- 1. Transverse fracture of horizontal rami



Fig-2. Lateral skull radiograph



Fig-3 Inter-fragmental wiring

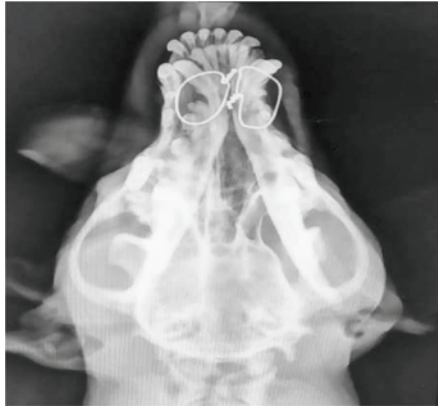


Fig-4 Post-operative radiograph



Fig-5 Seventh post-operative day

revealed complete transverse fracture of horizontal rami just caudal to the canines with intact temporo-mandibular joints (Fig-2). Decided to manage the condition surgically by using inter-fragmentary wiring.

## TREATMENT AND DISCUSSION

The dog was premedicated with xylazine @ 0.5 mg/kg (20mg/mL) body weight and inj. tramadol 2 mg/kg (50 mg/mL) body weight intramuscularly.

The oral cavity and fracture site was thoroughly lavaged with normal saline. The anaesthesia was induced with a combination of ketamine- diazepam 1:1 intravenously to effect. Anaesthesia was maintained with inj. propofol @ 4 mg/kg (10mg/mL) B.W. intravenously. The animal was placed in lateral recumbency and inter-fragmental wiring was performed on both sides with stainless orthopaedic wire (Size 14 G) . The wire was passed in-between the intact 2<sup>nd</sup> and 3<sup>rd</sup> premolars and the 2<sup>nd</sup> and 3<sup>rd</sup> incisors firmly fixing the fracture fragments of hrirami in position (Fig.3). Post surgery radiograph was taken to assess the alignment of the fragments. Perfect alignment of fracture fragments and teeth were noticed in radiograph (Fig.4).

Post-operatively the animal was maintained with dextrose normal saline 250 mL, inj. ceftriaxone @ 20 mg/kg B.W. once daily, inj. pantoprazole @ 1mg/kg B.W. and inj. B complex parenterally and advised to apply chlorhexidine oral gel at injured site for seven days. A liquid diet was gradually introduced to the animal from second post-operative day and semi solid food intake started after one week of surgery. The animal started eating normal food by 14<sup>th</sup> post-operative week and had an uneventful recovery. The owner did not come for wire removal.

The mandibular fractures are more common in dogs as the mouth is the prehensile organ and primary organ of attack. In young dogs this condition is common due to the less density of the bone (Lopes *et al*, 2005). Ramus region of the mandible is the least affected portion because the protective nature of caudal masticatory muscles. The presence of teeth also influences the direction of fracture line following the path of least resistance, resulting the fractures along the tooth roots (Scott, 1998). The surgical management of this condition includes inter-fragmentary wiring, external skeletal fixation, intra oral splints, bone plating and intramedullary pin fixation (Roush, 1989). Mandibular fractures in the dentulous region are open because only a thin layer of gingiva covers these portions orally. The sharp edges of the fracture fragments will damage the adjacent soft tissue structures especially frenulum linguae and extensive fractures with prolonged presentation can led to tongue paralysis (Kitshoff *et al.*, 2013). Tongue was intact in this case. The case was presented for early surgical correction and the inter-fragmentary compression by stainless steel orthopaedic wiring and post-operative management resulted in an uneventful recovery.

## SUMMARY

Successful surgical management of bilateral transverse fracture of mandible using inter-fragmental wiring in an eight months old male mongrel dog was reported.

## ACKNOWLEDGEMENT

The authors are thankful to Kerala Veterinary and Animal Sciences University.

## REFERENCES

- Kitshoff, A. M., Rooster, H. D., Ferreira, S. M. and Steenkamp, G. 2013. A retrospective study of 109 dogs with mandibular fractures. *Vet. Comp. Orthop. Traumatol.* **26**: 504.
- Lopes, F. M., Gioso, M. A., Ferro, D. and Leon-Roman, L. M. A. 2005. Oral fractures in dogs of Brazil- a retrospective study. *J. Vet. Dent.* **22**: 86-90.
- Lorinson, K., Loebcke, S., Skalicky, M., Grampp, S. and Lorinson, D. 2008. Signalment differences in bone mineral content and bone mineral density in canine appendicular bones. A cadaveric study. *Vet. Comp. Orthop. Traumatol.* **21**: 147-151.
- Roush, J. K. and Wilson, J. W. 1989. Healing of mandibular body osteotomies after plate and intramedullary pin fixation. *Vet. Surg.* **18**: 190-196.
- Scott, H. W. 1998. The skull and mandible. BSAVA manual of small animal fracture repair and management. Cheltenham: British Small Animal Veterinary Association, pp. 115-129.
- Umphlet, R. C. and Johnson, A. L. 1990. Mandibular fractures in the dog. A retrospective study of 157 cases. *J. Vet. Surg.* **19**: 272-275.

