World Journal of Pharmaceutical Science and Research

www.wjpsronline.com

Case Study

ISSN: 2583-6579
SJIF Impact Factor: 6.916
Year - 2026
Volume: 5; Issue: 3
Page: 263-267

# SURGICAL MANAGEMENT OF DISTAL RADIUS–ULNA FRACTURE USING T-PLATING IN TWO NON-DESCRIPT DOGS

**Anjana Patel, Harshal Patil*, G. S. Khandekar, S. D. Tripathi, S. V. Gaikwad**

Department of Veterinary Surgery and Radiology, Mumbai Veterinary College, Maharashtra Animal & Fishery Sciences University (MAFSU), Mumbai, India.

***Article Received: 12 January 2026*** | | ***Article Revised: 02 February 2026*** | | ***Article Accepted: 23 February 2026***

***Corresponding Author: Harshal Patil**
Department of Veterinary Surgery and Radiology, Mumbai Veterinary College, Maharashtra Animal & Fishery Sciences University (MAFSU), Mumbai, India. **DOI:** https://doi.org/10.5281/zenodo.18812241

**How to cite this Article:** Anjana Patel, Harshal Patil, G. S. Khandekar, S. D. Tripathi, S. V. Gaikwad (2026) SURGICAL MANAGEMENT OF DISTAL RADIUS–ULNA FRACTURE USING T-PLATING IN TWO NON-DESCRIPT DOGS. World Journal of Pharmaceutical Science and Research, 5(3), 263-267. https://doi.org/10.5281/zenodo.18812241



**ABSTRACT**

Distal fractures of the radius and ulna are frequently encountered in canine orthopedic practice and are often associated with delayed union or non-union due to limited soft tissue coverage and compromised vascularity. The present study describes the surgical management of distal radial-ulnar fractures in two non-descript dogs using stainless steel T-plate fixation. Both dogs were presented with non-weight bearing lameness following road traffic accidents. Radiographic examination confirmed distal third fractures of the radius and ulna. Open reduction and internal fixation (ORIF) was performed through a standard craniomedial approach. Postoperative radiographs revealed satisfactory implant positioning and alignment. Progressive callus formation was observed at 4 and 8 weeks postoperatively, and both animals achieved complete functional recovery within 8–10 weeks without complications. The study suggests that T-plate fixation provides rigid stabilization and favorable clinical outcomes in distal radial fractures in dogs.

**KEYWORDS:** Distal radius fracture, T-plate, ORIF, canine orthopedics, fracture repair.

## INTRODUCTION

Fractures of the radius and ulna are among the most common long bone fractures in dogs, accounting for a significant proportion of appendicular skeletal injuries (Piermattei et al., 2006). Distal radial fractures are particularly challenging due to minimal muscular coverage, reduced periosteal blood supply, and limited soft tissue support, which predispose them to delayed union and non-union (Anderson and Toombs, 1980).

Conservative management using external coaptation often results in instability, malalignment, and poor functional outcomes, especially in distal third fractures (Fossum, 2019). Rigid internal fixation is therefore considered the treatment of choice, as it provides axial and rotational stability while permitting early weight bearing (Johnson et al., 2005).

Among various plating techniques, T-plates are especially advantageous in distal metaphyseal fractures because the transverse head allows multiple screw placements in the short distal fragment, ensuring improved fixation and load distribution. The present report describes the clinical, radiographic, and surgical management of distal radial-ulnar fractures in two non-descript dogs using T-plate fixation.

## MATERIALS AND METHODS

### Case History and Clinical Examination

Two non-descript dogs were presented to the Teaching Veterinary Clinical Complex with a history of road traffic accident.

- **Case 1:** 7-month-old male dog weighing 12 kg
- **Case 2:** 1-year-old female dog weighing 10 kg

Both dogs exhibited:

- Non-weight bearing lameness
- Pain on palpation
- Swelling over distal antebrachium
- Crepitation at fracture site

Vital parameters were within normal physiological limits.

### Radiographic Examination

Mediolateral and craniocaudal radiographs revealed:

- Distal third transverse/short oblique fracture of the radius
- Associated fracture of ulna
- Mild displacement
- No articular involvement

### Preoperative Management

Animals were fasted for 12 hours prior to surgery.

Premedication and anesthesia protocol:

- Atropine sulphate – 0.04 mg/kg SC
- Xylazine – 1 mg/kg IM
- Ketamine – 5 mg/kg IV
- Maintenance with Isoflurane inhalation anesthesia

The affected limb was clipped and prepared aseptically.

### Surgical Technique

A standard craniomedial approach to the radius was performed. Care was taken to preserve soft tissue attachments and periosteal blood supply.

The fracture fragments were exposed and reduced anatomically using bone-holding forceps. An appropriately sized stainless steel T-plate was contoured and placed on the cranial surface of the radius.

- Minimum three cortical screws were placed proximally
- Two to three screws were placed in the distal fragment

The ulna was not plated, as adequate alignment was achieved following radial stabilization. Routine closure was performed in layers.

**Postoperative Management**

- Ceftriaxone 20 mg/kg IV twice daily for 5 days
- Meloxicam 0.2 mg/kg SC on first day followed by 0.1 mg/kg orally for 5 days
- Soft padded bandage for 10 days
- Restricted exercise for 6 weeks
- Sutures removed on 12th postoperative day

**RESULTS**

Immediate postoperative radiographs confirmed proper fracture alignment and correct implant positioning.

At 4 weeks

- Early periosteal callus formation observed
- Mild weight bearing initiated

At 8 weeks

- Radiographic evidence of bridging callus
- Complete weight bearing
- No implant loosening or infection

Both dogs recovered uneventfully with normal limb function within 8–10 weeks.


**Case 1** **Case 2**

**Preoperative radiograph**

**Case 1** **Case 2**

**Post-operative radiograph**

## DISCUSSION

Distal radial fractures in dogs are predisposed to complications due to poor vascularity and limited soft tissue envelope (Anderson and Toombs, 1980). External coaptation alone is often insufficient in distal fractures because it fails to counteract rotational and axial forces (Fossum, 2019).

Rigid internal fixation using plates provides superior mechanical stability and promotes primary bone healing by minimizing micromotion at the fracture site (Johnson et al., 2005). T-plates are particularly beneficial in distal radial fractures because the widened distal portion allows placement of multiple screws in short distal fragments, thereby improving stability and preventing fragment collapse.

Similar favorable outcomes with plate fixation in distal radial fractures have been reported by Piermattei et al. (2006), who emphasized the importance of rigid stabilization in preventing delayed union and non-union.

In the present cases, no postoperative complications such as implant failure, infection, delayed union, or angular deformity were observed. The satisfactory healing and early return to function highlight the effectiveness of T-plate fixation in such fractures.

## CONCLUSION

T-plate fixation is a reliable and effective method for managing distal radial-ulnar fractures in dogs. It provides rigid stabilization, promotes uneventful bone healing, and ensures favorable functional outcomes with minimal complications. Early surgical intervention combined with appropriate postoperative care significantly improves prognosis in distal radial fractures.

**REFERENCES**

1. Anderson MA, Toombs JP. Evaluation of external skeletal fixation and plating for distal radial fractures in dogs. *Journal of the American Animal Hospital Association,* 16: 825–832.
2. Fossum TW (2019). *Small Animal Surgery*. 5th ed. Elsevier, St. Louis.
3. Johnson AL, Houlton JEF, Vannini R (2005). *AO Principles of Fracture Management in the Dog and Cat*. Thieme, Stuttgart.
4. Piermattei DL, Flo GL, DeCamp CE (2006). *Handbook of Small Animal Orthopedics and Fracture Repair*. 4th ed. Saunders Elsevier.