



## Chronic, Non-Healing Fracture Fixation of Radius and Ulna by TENS (Titanium Elastic Nailing System) in a Dog

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### Abstract

This case review presents the successful treatment of a non-healing transverse fracture of the radius and ulna in a 3-year-old male non-descript breed dog using Titanium Elastic Nailing System (TENS). The fracture occurred due to an automobile accident and failed to heal despite initial external fixation with a Thomas splint. Surgical intervention involving intramedullary fixation with titanium nails resulted in complete healing within 3 months.

**Keywords:** Titanium Elastic Nailing System (TENS); Fracture; Dog

### Introduction

Fractures of the radius and ulna are common orthopedic conditions in dogs, often necessitating surgical intervention for proper healing. Traditional methods of fracture fixation may fail in cases of non-healing fractures, leading to prolonged discomfort and compromised limb function. The Titanium Elastic Nailing System (TENS) has emerged as an effective alternative for fracture stabilization, particularly in cases where traditional methods have been unsuccessful. This paper presents a case where TENS was employed to successfully treat a chronic, non-healing fracture of the radius and ulna in a canine patient [1,2].

**Case History:** A 3-year-old male non-descript breed dog presented with a non-healing transverse fracture of the right radius and ulna at the mid-shaft, following an automobile accident seven months prior. Initial external fixation with a Thomas splint failed to promote fracture healing.

**Materials and Method:** On 30<sup>th</sup> November, 2022, surgical intervention was performed under general anaesthesia using Xylazine and Ketamine. An incision was made on the medial side of the radius and ulna at the mid-shaft, followed by blunt dissection of muscles to expose the fracture ends. Fibrotic material was removed, and the fracture ends were freshened. A 2 mm titanium nail was inserted intramedullary through the olecranon process in the ulna by drilling a hole by bone awl at the top of olecranon process. While a 2.5 mm titanium nail was inserted intramedullary

in the radius by drilling a hole on the medial side of radius using bone awl. The fracture ends were aligned, and the muscles and skin were sutured routinely. A Thomas splint was applied for external fixation. Complete healing was achieved within three months post-surgery.

### Results

The fracture of the radius and ulna in the canine patient healed completely within three months following surgical intervention with TENS. Radiographic evaluation confirmed bone union, and the dog regained full limb function without any signs of lameness or discomfort.

### Discussion

The use of TENS for fracture fixation in this case proved successful in achieving bone union and restoring limb function. TENS offers several advantages over traditional methods, including minimal soft tissue disruption, reduced risk of infection, and improved biomechanical stability. The intramedullary placement of titanium nails provides optimal fixation while preserving blood supply to the fracture site, promoting faster healing. This case underscores the efficacy of TENS in managing chronic, non-healing fractures in canine patients.

### Conclusion

TENS represents a valuable treatment option for chronic, non-healing fractures of the radius and ulna in dogs. Surgical interven-

tion using intramedullary fixation with titanium nails can promote successful fracture healing and restore limb function. Veterinarians should consider TENS as a viable alternative in cases where traditional methods of fracture fixation have failed.

### Bibliography

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