

## **Repair of Proximal Ulnar Fracture Using Tension Band Wiring Technique – A Case Report**

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The primary aim of fracture is to achieve the most anatomical healing and enable the patient to function as normal as possible by allowing early walking.



### **Case Report and Observation**

A 5 year old Labrador dog was admitted to clinic with a severe lameness in the right forelimb. Careful examination revealed severe pain on the palpation of the elbow joint and the tendon region of the attachment of the triceps. Radiograph revealed a complete hairline fracture of the ulna extending from the coronoid process. The alignment of the fractured ends was attempted using conservative approach by immobilization of the limb using a modified Robert-Jones bandages and the animal was provided complete rest for 15 days.

In spite of the continuous monitoring and persistent pain management, the fracture healing was not up to the mark. Radiograph taken 20 days post fracture revealed the fragments with a little more destruction of the two fragments leading to severe pain and non weight bearing lameness. Therefore to surgically reduce align and immobilize the fractured fragments using a novel technique called “tension band wiring” was adopted which works on the principle of counteracting the tension caused by the triceps on the ulna causing the distraction of fractured fragment.

While the animal was being prepared for surgery, hanging limb technique was used to cause sufficient relaxation of the muscle of the forelimb. A craniomedial incision was taken extending from the distal end of the humerus to the proximal third of ulna. After carefully dissecting the overlying muscle fascia, sufficient working space was created and the fractured fragments were aligned using two K-wires of 1.4 mm. with the help of orthopedic wire a figure eight pattern was created to counteract the longitudinal as well as the rotational forces exerted by the triceps muscle. While tightening the wires the movement of the limb was assessed to assure that free movement of the joint is possible without strain on the fractured site. The overlying tissue was sutured using absorbable suture material (poly glycolic acid 1-0) and the skin with staples.

The fractured limb was further immobilized using a modified Robert-Jones bandage so as to avoid unwanted movement during the initial days of healing. And the dog was provided complete rest for 10

days post operative to ensure proper healing. Massaging of the limb was carried out to avoid any atrophy of the shoulder muscles. Post surgery the dog was kept under complete rest with restricted movement. Slight weight bearing was noticed after the first week; however the animal was advised complete rest for 15 day. Healing has between good and the animal is gradually bearing weight on the affected limb.

### **Surgical Procedure**

The skin on lateral surface of elbow region was prepared for aseptic surgery. The dog was premedicated with atropine sulfate @ 0.045 mg/kg B wt. followed by xylazine @ 1 mg/kg B. wt. General anesthesia was induced by injection of ketamine @ 5 mg/kg B. wt.



### **Post Operative Care**

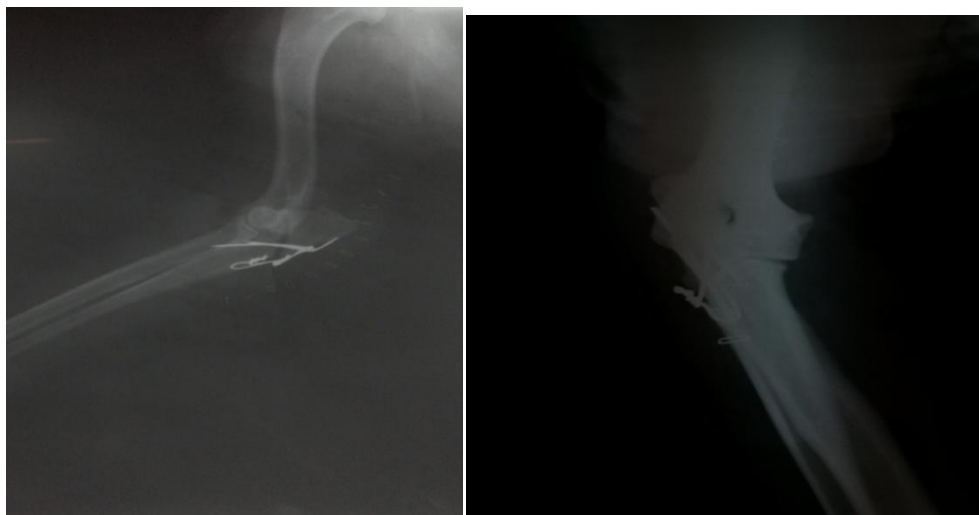
After surgery, a modified Robert Jones bandage typically applied overnight and removed the following morning. Spica splint was applied to the forelimb of a dog to temporarily immobilize the limb after fracture. After internal fixation, the limb was supported for a few days with a soft padded bandage to reduce swelling. Patient activity generally was restricted to leash walking and physical rehabilitation until the fracture heals.

### **Post Medication**

Ceftriaxone @ 20 mg/kg B. wt., serratiopeptidase @ 10 mg/kg B. wt. (BID), and meloxicam @ 0.3 mg/ kg B. wt. was given for 5 days post operatively.

On 5<sup>th</sup> post operative day onwards, the dog started using limbs and daily dressing was carried out using povidone iodine gauge.

### **Post Operative Radiography**



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