C-arm guided external fixation for management of radial fracture in a dog

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A 3-year-old, male Labrador dog presented with comminuted radial fracture and stable transverse fracture of ulna (Fig. 1) of right forelimb was treated with the application of a bilateral uniplanar (Type II) external fixator using the hanging limb technique. The fracture site was approached through a one inch long medial skin incision to remove free bone fragments. Under Siemens Multimobil 5C portable C-arm guidance, minimal stab incisions were made on the skin using safe corridors for pin insertion. The proximal and distal fragments were predrilled using 2.7 mm drill bit, and 3.5 mm smooth tranfixation pins were inserted, two in the proximal and two in the distal fragment. Postoperative evaluation of the fracture site revealed adequate reduction and alignment of bone fragments and the implants in position (Fig. 2). The tranfixation pins were then connected externally with 4.5 mm connecting rods using K-E clamps. Weight bearing of the operated limb was evident on the first postoperative day. Postoperative radiographs made on the 20th, 40th and 60th day showed gap healing at the fracture site. Dyamization was performed on the 60th and 90th normal postoperative days.

Application of Type II external fixator using the C-arm reduced operative time, minimized tissue and vascular damage and visually aided in pin placement using the safe corridors for pin insertion. Type II external fixation systems are recommended for management of radial fractures (Johnson and De Camp, 1999). Smooth pins of diameter 3.5 mm were found appropriate in the present case. Steinmann pin measuring 20% to 30% of the bone diameter are appropriate for application as tranfixation pins (Corr, 2005). The technique of external skeletal fixation was in accordance with the procedure of Canapp (2004).

References

Fig. 1: Radiograph showing comminuted fracture of radius and ulna.

Fig. 2: Adequate reduction and alignment of bone fragments postoperatively.