MANAGEMENT OF OVERRIDING FEMUR FRACTURE IN A CAT: A CASE REPORT

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Long bone fractures are common and account for 50% of all feline fractures (Scott and McLaughlin, 2007) and the femur is one of the most commonly fractured bones in dogs and cats (Maala and Celo, 1975 and Johnson *et al.,* 1989). Harasen (2003) reported that 45% of long bone fractures were femoral fractures and 28% of long bone fractures occurred in the femoral diaphysis. The femur fractures in cat are readily diagnosed by palpation and radiography. In almost all cases, surgical intervention is indicated to reduce the fracture properly and provide stability. A number of fixation methods are available for long bone fracture repair, each of which has advantages and disadvantages. Intramedullary pinning is a popular method of long bone fracture repair in cat because of pin insertion is technically relatively easy and the equipment and implants are cheap and readily available (Scott, 2005). In cats, virtually all types of fracture, even severely comminuted fractures of the diaphysis can be successfully treated by the use of intramedullary fixation used in conjunction with cerclage wires (Denny and Butterworth, 2000). The present case describes the outcome of femur fracture management in a cat.

Case history and observation

A six months old male non-descript cat weighing 2.5 kg was brought to the Small Animal Orthopaedic Out Patient Unit of Madras Veterinary College Teaching Hospital, Chennai with the history of limping in left hind limb with unknown cause for last one day . Clinical examination revealed that the cat was active and alert with mild weight bearing, limping and pain in left thigh hence it was subjected to radiography for confirmative diagnosis. X-rays revealed left overriding oblique midshaft femur fracture (Fig.1) and it was decided to manage the case by surgical intervention with intramedullary pinning and ancillary fixation cerclage wires.

Treatment and discussion

The left thigh region was shaved and prepared aseptically. The cat was placed in right lateral recumbency with the left limb above and contralateral limb drawn caudally. The operation was performed under 0.02 mg/kg body weight atropine sulphate premedication subcutaneously and xylazine hydrochloride and ketamine hydrochloride combination for induction at the dose rate of 1mg/kg and 10 mg/kg body weight intramuscular. Maintenance of anaesthesia was done with ketamine hydrochloride and diazepam at the dose rate of 5mg/kg and 0.5mg/kg body weight intravenous, respectively. Through cranio-lateral approach, a sufficient length of linear skin incision was done and the fascia muscles were separated to expose the bone fragments that revealed overriding midshaft fracture and femur with long hair line fissure in proximal fragment.The fragments were separated from the surrounding soft tissue attachment. A normograde 2.5 mm Steinmann pin was introduced for preventing the bending forces, and small fragments and fissures were stabilized by 3 full cerclage wires fixation with 23 gauze stainless steel orthopaedic wire. Wound was thoroughly flushed with normal saline to remove all clotted blood and wound edges were apposed by standard procedure. Intraoperatively antibiotic Intacef Tazo™ (Cefriaxone and Tazobactam) 20 mg/kg and Melonex® (Meloxicam) 0.2 mg/kg were given intravenous respectively. Postoperatively advice was given to administer oral Taxim-O® (Cefixime) 20 mg/kg body weight for 7 days and followed cage rest. Surgical wound, weight bearing, pain and bone healing were observed at regular intervals.

Surgical wounds healed and mild weight bearing was noticed at 1st week of postoperative period (Fig.2) and functional limb weight bearing was gradually improved without any complications. Bridging periosteal callus was noticed in the radiograph at 5th postoperative week and intramedullary pin was removed at 6th postoperative week without any complications.

Postoperatively, the patient was advised on restricted exercise, controlled weight and daily range of motion exercise to the stifle and hock to help to minimizing joint stiffness muscle atrophy. (Johnson and Boone, 1993).

Selection of the appropriate pin depends on the size of the intramedullary cavity, the bone being repaired, the fracture configuration and whether ancillary methods of fixation are to be used. Pin diameters of 1.6 mm to 4.8 mm are suitable for use in most cats and it should be large enough to fill at least 60 -70 percent of the medullary cavity at its narrowest point. Larger pins provide greater resistance to bending forces and are preferred in straighter bones (Scott and McLaughlin, 2007). Pin migration was not noticed in present case that indicated proper pin selection and good stabilization of fracture fragments.

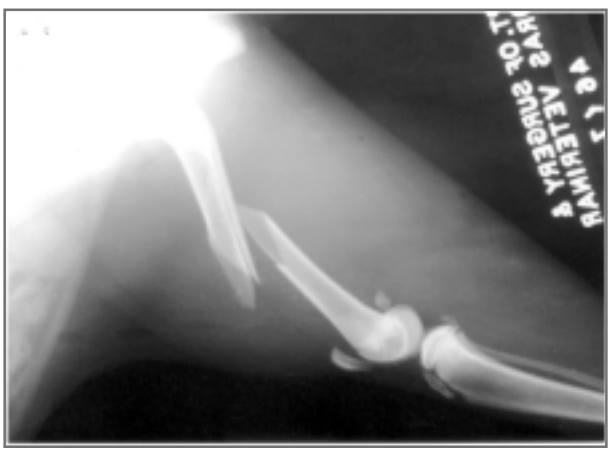

Fig 1 Oblique midshaft femur fracture

Fig. 2 Bridging callus noticed 5th postoprative week

Fixation of bone fragments by cerclage wiring had a deleterious effect on cortical blood circulation, subsequent bone healing and callus bridging (Newton and Hohn, 1974). The other inherent danger of cerclage wiring was that the wire might become loose, break or slippage into the fracture line causing fracture instability. The wire would then rub against the fracture fragments producing an area of devitalisation by preventing the invasion of small blood vessels, which lead into delayed and non-union (Jones,1994). No such complication was noticed in our present case. The cat recovered unevenfully.

REFERENCES

Denny, H R. and Butterworth, S. J. (2000).The femur. In: a guide to canine and feline orthopaedic surgery. 4th Edn. Blackwell Science Ltd, London. pp: 495-510.

Harasen, G. (2003). Can Vet J. **44**:333-334.

Johnson, A.L. and Boone, E.G. (1993). Fractures in the tibia and fibula. In: Textbook of small animal surgery. 2nd Edn. Edited by Slatter, D. W.B. Saunders Company, Philadelphia, Pennsylvania. pp: 1866-1876.

Johnson, J. A., Austin, C. and Bryer, G. L. (1989). Vet. Comp. Orthop. Trauma., **7**: 56-69.

Jones, G.C. (1994). In Practice. **16**: 256-260.

Maala, C.P. and Celo, E. M. (1975). Phillippine J. Vet. Med., **14**: 137.

Newton, D. and Hohn, A.R. (1974). J. Am. Vet. Med. Assoc., **164**: 503-508.

Scott, H.W. and McLaughlin, R. (2007). Fracture fixation methods: principles and techniques. In: Feline Orthopaedic. 1st Edn. Manson Publishing Ltd, London, U.K. pp: 58-86.

Scott, R. (2005). In practice. **27**: 390-397.

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