SURGICAL MANAGEMENT OF PROXIMAL TIBIAL FRACTURE IN A SPITZ: A CASE REPORT

B.C. Das, A. Arun Prasad and R.Suresh Kumar

Department of Veterinary Surgery and Radiology
Madras Veterinary College
Chennai -600 007, Tamilnadu, India.

Fractures of the tibia and fibula are fairly common injuries in small animal practice (Denny and Butterworth, 2000) and the tibial diaphysis is the most common location for a fracture (Zaal and Hazewinkel,1996). Gorse (1998) stated proximal fractures of the tibia are least common (7%). A number of fixation methods are available for tibial shaft fracture repair, each of which has differing advantages and disadvantages. The chosen method of fixation should achieve adequate alignment and stability of the fragments for the duration of the healing period. In puppies and kittens under 6 months of age crossed Kirschner wires are used for fixation of distal femoral fractures (Sumner-Smith and Dingwall, 1973). The present case study successfully managed by cross pinning of proximal tibial fracture in a dog.

Case history and observation

A six month old male Spitz dog weighing 6.8 kg was brought to the Small Animal Orthopaedic Out Patient Unit of Madras Veterinary College Teaching Hospital with the history of limping in left hind limb after jumping from the bed a day back. Clinical examination revealed mild weight bearing limping , pain and crepitation in left proximal tibia. The animal was subjected to orthogonal radiography for confirmative diagnosis. X-rays showed left transverse proximal tibial and fibula fractures (Fig.1) and it was decided to manage the case by surgical intervention with cross pinning. Haematological examination revealed normal range of value for various parameters viz. Hb 16 g/dl, PCV 35%, RBC 5.68 million/Cumm, WBC 15,700 /Cumm, N 74%, L 18%, M 4%, E 4%.

Treatment and discussion

The surgical site was prepared aseptically. The dog was placed in right lateral recumbency with the affected left limb above in flexed position. The surgery was performed under atropine sulphate and xylazine hydrochloride premedication at the dose rate of 0.02 mg/kg and 1.0 mg/kg body weight intramuscularly at 10 minutes interval and ketamine hydrochloride and diazepam combination induction at the dose rate of 4mg/kg and 0.1 mg/kg body weight intravenously and maintenance by half of the induction or as required dose. A craniomedial linear skin incision over the left stifle joint was made to sufficient length and the fascia, muscle were seperated and exposed the bone fragments. The fragments were separated from the surrounding soft tissue attachments and then after fragments were reduced and stabilized by cross pin fixation technique. 1.8 mm two K-wires were introduced diagonally, at an angle of about 30-40° to the longitudinal axis from proximally to distally by using the power drill as described by Denny and Butterworth (2000). After placement of each pin, movement of stifle joint was checked so that if an implant was compromised joint function. Wound was thoroughly flushed with normal saline and was apposed by standard procedure. Intraoperatively, Intacef Tazo™ (Cefriaxone and Tazobactam) antibiotic was given intravenously at the dose rate of 20mg/kg body weight.

Postoperatively oral Taxim-O® (Cefixime) 20 mg/kg was advised for 7 days and followed cage rest with external support in the form of modified Robert Jones bandage for 2 weeks. Fracture healing was evaluated at regular intervals of taking the orthogonal radiograph (Fig.2). Surgical wound healed within 1st postoperative week but dog showed non weight bearing. In 2nd postoperative week dog showed mild weight bearing and it was gradually improved without any complications. During 6th post-operative week, one cross pin was migrated and fall down, might be due to pin loosening because of uncontrolled activity of the dog after 4th post-operative week as reported by owner. The remaining pin was removed at postoperative 8 week and fluoroscopic evaluation of healing revealed bridging callus formation and excellent bony union . Animal exhibited full functional weight bearing. Postoperatively, the owner was advised to put the animal on restricted exercise, controlled weight bearing and daily range of motion exercise for the stifle and hock to help to minimize stiffness as described by Johnson and Boone (1993) and as a result dog showed no muscle atrophy and joint stiffness.

The technique used the cross pinning in femur, pins are usually started in the proximal metaphyseal area and extend distally into the opposite condyles (Piermattei and Flo, 1997). Hardie and Chambers (1984) observed that cross pin fixations cause more complications than did single Steinmann pin or modified Rush pin fixation in the dog and cat. Cross pins may be driven from the articular surface and this method has the disadvantages both of having the pins protrudes into the joint and often less stable fixation (Piermattei and Flo, 1997). In the present case no such complications were noticed and the animal recovered unevenfully.

REFERENCES

Denny, H R. and Butterworth, S.J. (2000). The tibia and fibula In: a guide to canine and feline orthopaedic surgery. 4th Edn. Blackwell Science Ltd, London. pp: 554-574.

Gorse, M.J. (1998). Vet. Med. **93**: 463-467.

Hardie, E. M. and Chambers J.N. (1984). J. Am. Anim. Hosp. Assoc. **20**: 927-931.

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.

Piermattei, D. and Flo, G. L. (1997). The hip joint In: Handbook of small animal orthopaedics and fracture repair. 3rd Edn. W.B. Saunders Company, Phladelphia, Pennsylvania. pp. 506 -507.

Sumner-Smith,G. and Dingwall J.C. (1973). J. Small Anim. Pract. **9**:171.

Zaal, M. D. and Hazewinkel, H.A. (1996). Tijdschr Diergeneeskd. **121**: 218-223.

❑