

REPAIR OF OBLIQUE PROXIMAL DIAPHYSEAL FEMUR FRACTURE USING SIMPLE INTRAMEDULLARY PINNING IN A GUINEA PIG (*CAVIA PORCELLUS*)

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SUMMARY

The article describes the successful surgical repair of an oblique proximal diaphyseal fracture of femur in a 3 month old guinea pig. The pet had the history of fall from height. Simple intramedullary pinning along with the cerclage sutures was done under general anesthesia with xylazine and ketamine. No post-operative complications were observed. The pet started bearing weight on the affected limb after 20 days of surgery.

Keywords: Guinea pig, Femur bone, Simple intramedullary pinning

Guinea pigs (*Cavia porcellus*) are South American hystricomorph, monogastric, herbivorous rodents. Guinea pigs are prone to traumas because of their activeness. Diaphyseal, oblique/spiral/fragmentary tibial fractures (mostly open) are more common in them and fall from height is a common etiology for limb fractures in small mammals. Fracture repair using external fixation and intramedullary pins has been described in small mammals, and local and regional anesthetic techniques are commonly used to provide good analgesia in rodents (Wenger, 2012).

A 3 month old, guinea pig weighing 300 g was presented to Referral Veterinary Polyclinic, Indian Veterinary Research Institute, Izatnagar with the history of lameness in right hind limb. The pet had a history of fall from height 2 days back. Clinical examination revealed crepitation at the proximal right femur. Medio-lateral radiograph of the affected limb revealed complete oblique diaphyseal fracture of the proximal third of the femur bone (Fig. 1). Surgical management using simple intramedullary pin was advised to the owner after explaining the pros and cons of the surgery.

The guinea pig was sedated with inj. Xylazine @ 5 mg/kg body weight, I/M and was induced with inj. ketamine @ 50 mg/kg body weight I/M after 10 minutes. The pet was immediately taken in left lateral recumbency and the surgical site was prepared aseptically. A cranio-lateral approach was made to expose the fracture fragments. The biceps femoris and the quadriceps muscles were separated and the proximal and distal fragments were exposed (Fig. 2). A 1.5 mm K-wire was inserted into the proximal fragment in retrograde fashion (Fig. 3). Then the pin was inserted into the distal fragment while reducing the

fracture fragments. As the fracture was oblique, polyglactin 910 No. 2 was used as a cerclage suture to align the fragments properly. The tensor fasciata of the muscles and the subcutaneous tissue was sutured using polyglactin 910 No. 2-0 in a simple continuous fashion. The skin was closed with 2-0 polyamide in a simple interrupted pattern. Post-operative radiographs revealed satisfactory apposition of the fracture fragments (Fig. 4). Post-operative medication included antimicrobial tablet enrofloxacin 10 mg/kg BW PO for 7 days and analgesic tablet meloxicam 0.1 mg/kg BW PO for 3 days. Skin sutures were removed at 10th postoperative day and complete weight bearing was observed after 20th post-operative day.

The treatment of femoral and tibial fractures in guinea pig has been described by using intramedullary pin alone (Periat, 2008, Macedo *et al.*, 2015) or in association with polydioxanone cerclage sutures (Aguiar *et al.*, 2013). Surgical repair of the fracture with either wire or external fixator has also been recommended (Lorinson *et al.*, 1996). But in this case, intramedullary pinning was chosen for the repair. An intramedullary K-wire was enough to fill the 70% of medullary canal resulting in a greater stabilizing effect and alignment of the bone segment (Denny and Butterworth, 2006). In this report, follow up review using radiography was not possible but clinical photographs sent by the owner were used to assess healing. The premedication done with xylazine, gave satisfactory sedation and the induction and maintenance with ketamine hydrochloride was excellent with no complications during recovery. Kellner (1987) reported safe and adequate surgical anesthesia using xylazine 4 mg/kg body weight and ketamine hydrochloride 60 mg/kg body weight. Kelvin *et al.* (1998) and Rafee *et al.* (2017) used an anesthetic

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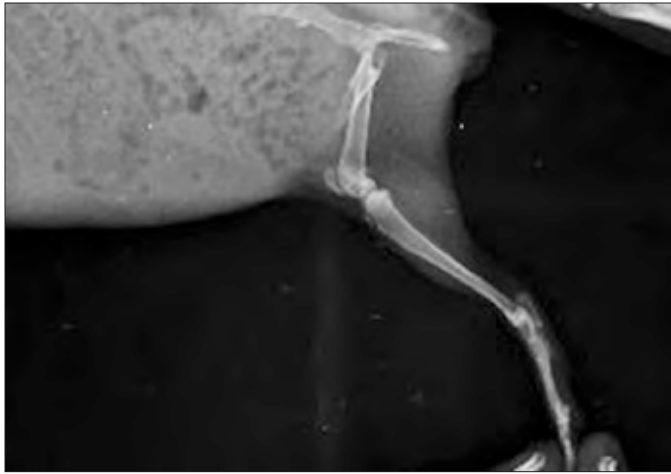


Fig. 1. Mediolateral radiograph showing complete oblique diaphyseal fracture of proximal third of right femur bone.



Fig. 2. Photograph showing the exposed proximal and distal fracture fragments.



Fig. 3. Photograph showing a 1.5 mm K-wire inserted in retrograde manner.

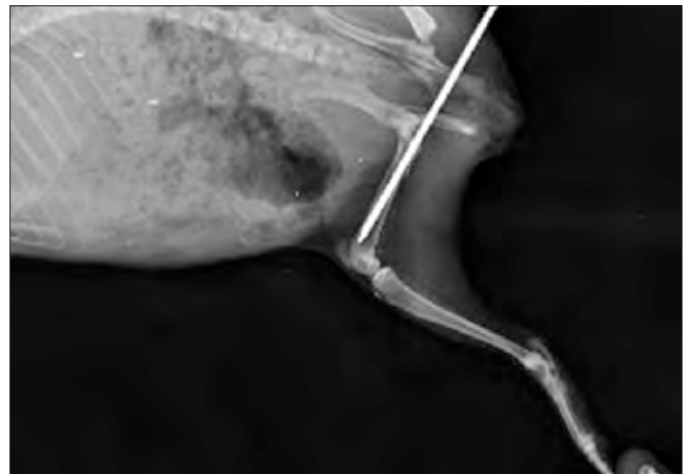


Fig. 4. Immediate postoperative mediolateral radiograph showing proper reduction and apposition of fracture fragments.

regimen of xylazine 5-6 mg/kg body weight and ketamine hydrochloride 40 or 60 mg/kg body for major surgical procedures.

In the present case report, simple intramedullary pinning along with absorbable cerclage suture provided good stability to the oblique diaphyseal proximal third fracture of right femur under general anesthesia using xylazine and ketamine.

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