

SURGICAL MANAGEMENT OF BILATERAL LATERAL LUXATION OF PATELLA IN A DOBERMAN DOG – A CASE REPORT

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ABSTRACT

A eleven months old male non-descriptive dog was presented to Veterinary Clinical Complex, Veterinary College and Research Institute, Orathanadu with the history of non-weight bearing lameness in both the hind limbs since birth. Animal was active and alert with all vital parameters were within the normal range. Physical examination revealed grade 4 lateral luxation of left patella and confirmed by radiography. Trochlear wedge recession sulcoplasty with tibial tuberosity repositioning was planned. Surgical site was aseptically prepared and under general anaesthesia, a cranial longitudinal incision on the skin and retinaculum was made to mobilize patella. Using osteotome a wedge-shaped bone was cut from trochlear groove and the sulcus was deepened laterally. The wedge was replaced into the sulcus in inverted manner. The tibial tuberosity was transported medially by partial osteotomy and a 1.2 mm Kwire were placed to fix the tibial tuberosity. The patella was replaced in its normal position. The retinaculum was sutured towards medially using synthetic absorbable suture material polyglycolic acid (2-0) by Ford interlocking suture pattern. Skin was opposed with polyamide (2-0) by cross mattress suture pattern. Crepe bandage was applied. Oral antibiotics, analgesics, and antacid drugs were followed for 7 days. The animal made uneventful recovery and able to walk with both the legs.

Keywords: Lateral luxation, trochlear wedge recession sulcoplasty.

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INTRODUCTION

Patellar luxation is one of the most common causes of lameness in the dog.

Large breeds of dogs are most susceptible to patellar luxation, but it does occur in small and toy breeds of dogs (Nunamaker, 1985). The luxation can be medial, lateral or bidirectional (Ness *et al.* 1996). Patellar luxation is an intermittent or permanent displacement of patella from the trochlear sulcus. Most luxation are termed 'congenital' because they occur in early life and not

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associated with trauma (DeAngelis, 1971). Lateral luxation occurs less frequently and is commonly diagnosed in large or giant breed dogs (Linney *et al.*, 2011). The patellar luxation is related to the anteversion and excessive rotation of proximal femur relative to distal femur or coxa valgus an abnormal increase in the angle formed by the femoral neck and shaft in the frontal plane, which shifts the line of force produced by the pull of quadriceps lateral to the longitudinal axis of the trochlear groove. This abnormally directed force pulls the patella from the trochlear sulcus (Bosio *et al.*, 2017). Tibial deformities seen with patellar luxation were the result of abnormal forces acting on the proximal and distal physes of tibia. These include lateral displacement of tibial tuberosity and lateral torsion of distal tibia (Hayes *et al.*, 1994). A system of classifying patellar luxation into four grades has been developed. In grade I, spontaneous luxation of patella during normal joint motion occurs but the patella reduces when the pressure is released. In grade II, angular and torsional deformities of femur occur to mild degree and the patella remains luxated until it is manually reduced. In grade III, patella is permanently luxated and can be reduced manually. In grade IV, patella is permanently luxated permanently and it cannot be reduced manually. Abnormalities of supporting soft tissues of stifle joint and femur are notable. Clinical signs may vary from animal to animal. Lameness may be intermittent or continuous, mild to moderate weight bearing lameness in grade III, non-weight bearing lameness and crouched position of rear quarters in grade IV (LaFond *et al.*, 2002). Radiography reveals laterally displaced

patella from the trochlear groove. Surgical treatment is Trochlear Wedge Recession Sulcoplasty (TWRs) with Tibial tuberosity transposition (LaFond, *et al.* 2002). This case report describes about a clinical case of a dog with bilateral lateral patellar luxation and its surgical management.

CASE HISTORY

A eleven month old non -descript dog was presented to Small Animal Surgery Unit of Veterinary Clinical Complex, Veterinary College and Research Institute, Orathanadu with the history of non-weight bearing lameness in both the hind limbs since birth.

DIAGNOSIS

Animal was active and alert with all vital parameters were normal. Physical examination revealed the patella was luxated laterally away from the trochlear groove and cannot be reduced. Skyline and lateral radiographs of both the patella confirmed the case as grade IV congenital lateral luxation of patella (Figure 1).

TREATMENT AND DISCUSSION

After 12 and 24 hours fasting of water and food the animal was premedicated using inj.xylazine @ 1mg/kg i.m. and inj.butorphanol @ 0.2mg/kg i.m. The anaesthesia was induced using inj. ketamine @ 5mg/kg i.v. and inj. diazepam @ 0.5mg/kg i.v. and the anaesthesia was maintained using 2% Isoflurane with fresh gas flow of oxygen @ 20 ml/kg/minute. Animal was placed in

left lateral recumbency and the right stifle was aseptically prepared using 2.5 per cent povidone iodine, 70 per cent ethyl alcohol and 2 per cent chlorhexidine. A 10 cm long skin incision was made on the cranial aspect of stifle joint starting from the distal femur to proximal tibia to expose the retinaculum. The retinaculum was loosened from its attachment and the trochlea was exposed. Using an osteotome, partial osteotomy was performed on tibial tuberosity for trans positioning of tibial tuberosity to its normal position. A wedge-shaped bone was cut from the trochlear groove and it is placed into the sulcus in an inverted manner after deepening the trochlear groove towards the lateral side (Figure 2). The trans positioned tibial tuberosity was fixed in normal position using a 1.2 mm Kirschner wire. Retinaculum was sutured towards medially using PGA (2-0) by Ford interlocking pattern and skin using polyamide (2-0) by cross mattress suture pattern (Figure 3). Post operative radiography showed patella was in position. Post operative antibiotics and analgesics were followed for 2 weeks. The cutaneous sutures were removed on tenth post operative day and the patellar luxation in the left leg was surgically corrected after a month by trochlear wedge resection sulcoplasty with tibial tuberosity repositioning. The animal made uneventful recovery.

Dogs with grade I patellar luxation are generally asymptomatic. Occasionally “skipping” type lameness typical in dogs with grade II patellar luxation. Grade III and

grade IV patellar luxation are characterized by persistent lameness and abnormal posture (Di Dona *et al.* 2016). In bilateral lateral dislocation, the stifle appears to be close to each other while the distal extremities are abducted. Large breed dogs may have “knocked-in-knee” appearance. Diagnosis is based on clinical signs, orthopedic examinations and radiography (lateral and skyline view).

Surgical correction of patellar luxation includes soft tissue reconstruction procedures (Overlap of medial retinaculum, patellar and tibial antirotational suture ligaments, desmotomy and partial capsulectomy and quadriceps release) and bone reconstruction procedures (Trochleoplasty - trochlear chondroplasty, trochlear wedge or block recession sulcoplasty), Tibial tuberosity transposition, patellectomy and femoral osteotomy (Harasen, 2006). Post operative care includes soft padded bandage for 10-14 days, pain medications and physiotherapy. Prognosis is favorable. Recurrence may occur but always of a lesser grade than preoperative grade. The most common complication includes patellar relaxation, loose or broken implants or fracture of proximal tibia (Dunlap *et al.* 2016).



Fig.1. Skyline view of both the stifle with laterally luxated patella



Fig.2. A wedge shaped bone was cut Patella in right hind limb and replaced in an inverted manner.

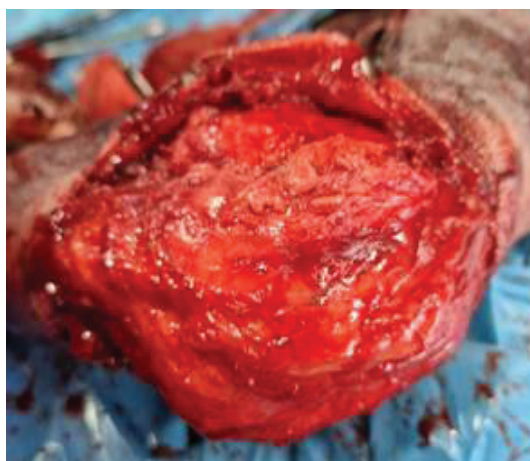


Fig.3. Patella was replaced into its normal anatomical position

CONCLUSION

A case of bilateral congenital lateral luxation of patella in a non-descriptive dog was managed successfully by bilateral trochlear wedge resection with tibial tuberosity reposition. The gait of the dog returned to near normal after three months of surgery and the dog recovered uneventfully without much complication.

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