Case Report

CONGENITAL UNILATERAL PATELLAR LUXATION AND ITS CORRECTION BY WEDGE RESECTION SULCOPLASTY AND TIBIAL TUBEROSITY TRANSPOSITION IN A DOG – A CASE REPORT

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ABSTRACT

A 3 year old Spitz- Pomeranian mixed breed was presented with a history of bilateral hind limb lameness and walking in abnormal gait since birth. Radiographic diagnosis revealed bilateral lateral luxation of patella with deformity of both stifles. Surgical correction of congenital deformity was done on right hind limb using the technique of trochlear wedge resection sulcoplasty (TWRS) and transposition of tibial tuberosity (TT) which showed normal weight bearing and good functional outcome on 50th post-operative day.

Key words: Patella Luxation, Spitz-Pomeranian, Trochlear, Wedge resection sulcoplasty

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Non-ambulating pets are a major challenge to handle and investigate. Many causes lead to varying degrees of affection in mobility of dogs. Luxation of patella is one among them and is a condition where patella moves out of its normal location and is positioned towards medially or laterally. Although, this orthopedic condition is commonly observed in both small and large dog breeds (Linney *et al*., 2011 and Dona *et al*., 2016), the prevalence appears to be increasing in large breeds. The majority of patellar luxation is congenital and hereditary, although the mode of inheritance was not described clearly (Roush, 1993). The incidence of bilateral patella luxation accounts for about 46 % in small breed dogs and about 36 % in large breed dogs.

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CASE HISTORY AND DIAGNOSIS

A female Spitz crossbred dog aged one year was presented to the Veterinary

University Peripheral Hospital, Madhavaram Milk colony, Madhavaram, Chennai - 51 with a history of partial lameness, intermittent weight bearing of both the hind limbs and crouched position. On clinical examination, the physiological parameters were found to be normal. Physical examination of limb revealed inability to extend the stifle joints fully with laterally luxated patella. Based on physical and radiographic examinations (Fig. 1), the case was diagnosed as grade IV bilateral lateral luxation of patella. It was decided for surgical correction by trochlear wedge resection sulcoplasty (TWRS) and tibial tuberosity transposition (TT) on right limb. Pre-operative clinical and laboratory assessment were found to be normal.

Dog was prepared for aseptic surgery and premeditated with Atropine sulphate @ 0.02 mg/Kg body weight subcutaneously, followed by Xylazine hydrochloride @ 1 mg/ Kg body weight intramuscular and general anesthesia was induced and maintained with Ketamine and Diazepam @ 5 mg/ Kg and @ 2 mg/ Kg body weight respectively by intravenous route. The site was prepared for aseptic surgery and a craniolateral incision was made on right stifle. The joint capsule was opened and the femoral trochlear groove was deepened by trochlear wedge resection sulcoplasty using a BP blade no.22 and osteotome. Further the groove was deepened by making a parallel cut with osteotome. The trochlear block, which contains articular cartilage, was replaced after deepening the groove (Fig.2). Later transposition of tibial tuberosity medially was performed so that the patella and patellar tendon lie in the axial plane of the femur and tibia. Tibial tuberosity was stabilized using a 2 mm Kirschner wire**.** Longitudinal incision relieved tension by using placement of lateral retinacularcapsule on lateral side. Retinacular-imbrications sutures were placed on medial side using Polyglactin 910 No. 1 in simple interrupted pattern. Muscle and skin were sutured as per standard protocol**.**

Postoperative care was instituted with Tab. Cefpodoxime @ 5 mg/Kg body weight once daily for 7 days. Tab. Meloxicam @ 0.5 mg/Kg was administered orally for three days and multivitamin syrups were administered orally twice daily for 7 days. Soft-cotton bandage was applied for 12 days to reduce swelling, decrease pain and prevent self-trauma to the incision. The dog showed good recovery and a proper weight bearing after a series of physiotherapy measures over a period of 5 weeks. Mild flexion and extension of stifle joint was performed after 4 week post operatively to restore the range motion which got restored gradually.

RESULTS AND DISCUSSION

Congenital luxation of the patella represents one of the most common condition and was frequently observed to be grade III or IV of lateral luxation which happens as a result of under-development of the trochlear groove (Dona *et al.,* 2016). The incidence of medial luxation accounts for 75 to 80 % of cases

in all breeds and majority of patients were small breed dogs and include miniature and toy poodles, Yorkshire terriers, Pomeranians, Chihuahuas, Boston Terriers, Pekingese, and Cavalier King Charles Spaniels (Roush, 1993; Piermattei and Flo, 1997). Lateral patellar luxation (LPL) occurred less frequently than the medial patellar luxation (MPL). Lateral luxation of patella is commonly diagnosed in large or giant breed dogs, especially the St. Bernard; while, it seems to be an unusual occurrence in small breed dogs (Hayes *et al.,* 1994; LaFond *et al.,* 2002). The case in the present study was a small breed dog, which is infrequently observed and the same was previously reported by Dona *et al.* (2016). Most of the reports mentionthe same incidence of patella luxation in large breeds. Hayes *et al.* (1994) observed a patella luxation incidence of 39 % in large dogs suggesting an increase in appearance of patella luxation in large dogs over the years significantly.

The tibial tuberosity transposition is a vital component of surgical management of patellar luxation as quadriceps mal-alignment is animportant feature in the development of all grades of patellar luxation (Robins, 1990). Early return to weight-bearing and light activity is encouraged for proper healing and the same was observed in this case too. Exercise should initially be limited to short, slow walk and range-of-motion exercise. Return to full activity is generally not permitted for approximately 2 months (Beale, 2005). This dog successfully recovered and restored its good ambulation.

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Fig.1. X ray - lateral deviation of patella (bilateral)

Fig.2. Placement of Trochlear block in trochlear groove