

Surgical Management for Medial Patellar Luxation with Trochlear Block Recession and Lateral Imbrication Methods in Labrador Retriever Dog

Siti Zaenab^{1*}, Ivan Satriawan², Eva Zulfiati¹, Sukmasari Arifah¹, Benda Alifianti Suwito¹

¹My Vets Animal Clinic Kemang Jakarta, ²Gloriavet Bandung,
*corresponding author

Corresponding email: myvets001@gmail.com

Keywords: dog, labrador retriever, lateral imbrication, medial patellar luxation, trochlear block recession.

INTRODUCTION

Medial patellar luxation is a displacement of the patella from the trochlear sulcus^[1]. Medial patellar luxation is one of the common cause of lameness in small-breed dogs, but it also occurs in large-breed dogs^[1]. This case report will reveal how to diagnose and treat medial patellar luxation

CASE REPORT

Signalment, anamneses, and clinical signs. A seven year old male Labrador dog with 43.9 kg came to My Vets Animal Clinic as a referral from another colleague and was diagnosed with medial patellar luxation grade 4.

Physical examination. Gait were observed on physical examination of the hind legs with walking and doing flexor and extension was found disorder in joints and revealed that patellar was not in the trochlear sulcus permanently, tend to be medial, and could not be back to the trochlear sulcus by itself.



Figure 1. Ventrodorsal radiography of right stifle joint

Ventrodorsal and lateral radiographs were taken to evaluate the stifle joint on both hind legs. The results showed tibia tuberosity on the right hind leg rotated and leads to medial compared to the left hind leg.

Differential diagnose. Differential diagnoses include avascular necrosis of the femoral head, coxofemoral luxation, and cranial cruciate

ligament rupture. Careful examination of the hip joint is essential because some patients with patellar luxation also have avascular necrosis of the femoral head or hip dysplasia. Shortening of the limb because of hip luxation or femoral head ostectomy will cause laxity of the quadriceps mechanism, enabling luxation of the patella in some cases. This usually resolves with treatment of the hip luxation and with time after femoral head ostectomy

Diagnose. The diagnose from physical examination and radiographs is Medial Patellar Luxation on right hind leg. Medial patellar luxation is graded on scale 1-4.

Prognosis. Prognosis is dubius-fausta. Recurrent medial patellar luxation was diagnosed in approximately 11% of pomeranian dogs with grade III and in 36% of pomeranian dogs with grade IV luxation.

Treatment. Surgery treatment was required for grade four luxation. Arthrotomy was performed to uncover the knee joint, trochleoplasty with trochlear block recession method, tibia tuberosity transposition, and prevent for rotating with lateral imbrication on patellar ligament with os fabella.

Pre surgery was done by giving intravenous fluid by vena cephalica, ceftriaxone intravenous injection (30 mg/kg BW) and pethidine subcutan injection (2 mg/kg BW). Surgical correction was attempted under general anesthetics using combination of ketamine (10 mg/kg BW) and diazepam (0.5 mg/kg BW) as preanesthetic and isoflurane as inhalation anesthetics.

Arthrotomy was performed by incising the skin about 4 cm craniolateral proximal patellar to 2 cm under tibia tuberosity. Uncover the subcutan with metzenbaum until retinaculum exposed, made an incision to uncover the joint capsule and incision joint capsule to uncover the knee joint

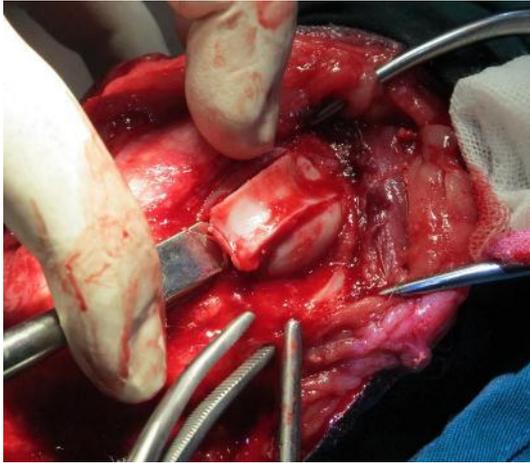


Figure 2. Trocheoplasty with trochlear block recession method

Trocheoplasty was done to deepen the trochlear sulcus to prevent patella from getting out from the sulcus by using trochlear block recession method. Osteochondral trochlear was cut a block shape and lifted up by using osteotome. The ventral part of osteochondral was thinned out. Trochlear sulcus was deepen until half of patella's thickness.

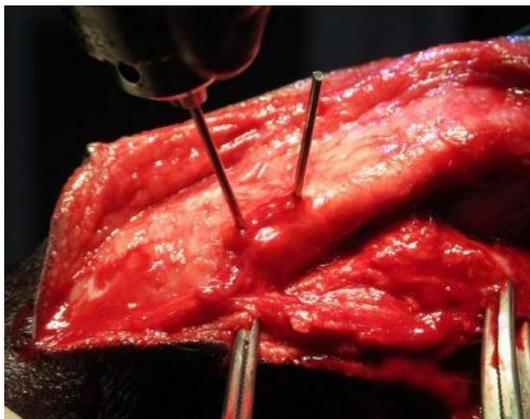


Figure 3. Fixation of patellar ligament and tibial tuberosity by inserting intramedullary pins

Transposition of the tibial tuberosity to the normal position is carried out by separating the medial joint capsule and retinaculum. Medial joint capsules in patients with medial patellar luxations grade 3 and 4 will be thicker than normal. The medial joint and retinaculum capsules must be separated so that the patella can return to its original location. Incision uses an osteotomy from the medial parapatella through the medial fascia and the joint capsule to the tibial tuberos. Ligaments and tibia tuberosity are fixed by inserting 2 Intramedullary pins. Pins can be planted for life unless there are complications afterwards.

Lateral imbrication method was done to prevent tibia rotation and to strengthening retinaculum. Preventing tibia rotation could be done by linking the lateral part of fabella to ligament patella or patella itself. Fascia lata was opened along the cranial side of the biceps muscle

to expose lateral fabella with caudal retraction and biceps elevation. Stitches was linked through fabella lateral and around patella.



Figure 4. Lateral Imbrication

Stitching was done in sequence capsule and muscles by using simple continuous with absorbable suture, subcutan, and cutaneous by using lock and stitch with nonabsorbable suture.

Post treatment. Ceftriaxone (30 mg/kg BW) combined with metronidazole (10 mg/kg BW) was given for 2 weeks. The use of painkiller was important to reduce the pain after surgery. Pethidin (2 mg/kg BW) was given in 5 days. Dexamethasone (0.16 mg/kg BW) was given to reduce and prevent the swelling.

Radiographs examination was done postsurgery to confirm the position of patella. Based on the radiograph result, the patella was in place.



Figure 5. Ventrodorsal radiography of stifle joint after surgery

DISCUSSION

Most luxations are termed "congenital" because they occur early in life and are not

associated with trauma. Although the luxation may not be present at birth, the anatomical deformities that cause these luxations are present at that time and are responsible for subsequent recurrent patellar luxation. Medial luxation is much more common than lateral luxation in all breeds [2].

Roush divided patellar luxation into 4 grades. Grade I: patella can be manually luxated but returns to normal position when released. Grade II: patella luxates with stifle flexion or on manual manipulation and remains luxated until stifle extension or manual replacement occurs. Grade III: patella luxated continually, and can be manually replaced but will reluxate spontaneously when manual pressure is removed. Grade IV: patella luxated continually and cannot be manually replaced [3].

All patellar luxation grade could be repaired by surgical technique. The purpose of surgical technique was to bring patella to its sulcus and to restore the alignment between patella, trochlear, and tibial tuberosity.

In geriatric, trochlear block recession should be done so that the patella is fixed and proper. Another thing we should pay attention is the direction and degree of slope of the depth of the trochlear groove.

The outcome of surgical correction was good with mild gait abnormality. The dog was still limping at the first week after surgery. The abnormal gait reduce on the second week and has not cause any further abnormality until now. The operation was lead the dog to be more active, painless and have a good gait.

CONCLUSION

Surgery treatment of medial patellar luxation could decrease the degree of lameness further than that early treatment could decrease further complications.

REFERENCES

- [1] Fossum, T.W., Dewey, C.W., Horn, C.V., Johnson, A.L., Macphail, C., Radlinsky, M.G., Schulz, K.S., dan Willard, M.D. 2013. *Small Animal Surgery*, Fourth Edition. Mosby Inc., USA. 1354.
- [2] Piermattei, D., Flo, G., dan DeCamp, C. 2006. *Handbook of Small Animal Orthopedics and Fracture Repair*, Fourth Edition. Saunders Elsevier, USA. 562.
- [3] Roush, J.K. 1993. Canine patellar luxation. *Vet. Clin. North Am. Small Anim. Pract.* 23, 855-868