Abstract: Postero medial corner of knee has been studied in detail recently and understanding of its role in knee stability has increased. Anatomical reconstruction of the postero medial corner has been undertaken more frequently for traumatic instabilities. A case of non traumatic instability of a knee is rarely encountered. Our case had rotatory instability of postero medial corner of left knee without any traumatic history or features suggestive of generalised ligamentous laxity. In our case the structures of the postero medial corner namely the posterior oblique ligament, semimembranosus and the capsule were intact but found lax. The osteochondroma from the proximal tibia was resected followed by advancement of the posterior oblique ligament more distally and double breasting of the postero medial capsule. The patient had excellent result with no residual instability.

Keyword: postero medial corner knee, posterior oblique ligament, semimembranosus.

Case report: 27 yrs male presented with c/o pain left knee for the past 2 weeks and a sensation of giving way for the past 2 yrs. pain was dull aching, increased on strenuous exercise and relieved by rest. He complained of sensation of giving way on standing for a longer period and while climbing downstairs. He had multiple osteochondromas since childhood. No history of trauma. Examination revealed multiple osteochondromas all over the body with one measuring 10*8 cm on postero medial aspect of left lower thigh and another measuring 7*5 cm on postero medial aspect of proximal tibia. Valgus stress test was positive in extension. Hyperextension of left knee was seen. Valgus stress test was negative in 30° flexion. Posterior drawer test was positive. Rotary stress test was positive for postero medial corner of the left knee. No features suggestive of generalized ligament laxity.

Fig 1: X ray revealed failure of distal femur remodeling with osteochondroma from distal femur and proximal tibia. MRI revealed normal anatomy but lax posterior cruciate ligament.

Fig 2: Instability of left knee

Fig 3: X ray left knee showing osteochondroma of distal femur and proximal tibia

Fig 5, 6, 7: MRI left knee reveals lax PCL and intact posterior capsule and ACL

An Initiative of The Tamil Nadu Dr. M.G.R. Medical University University Journal of Surgery and Surgical Specialties
Under tourniquet control postero medial corner was explored. Extra periosteal resection of the proximal tibial osteochondroma was done. The posterior oblique ligament was found lax. It was released from the tibial attachment and was anchored more distally and medially. The postero medial capsule was reinforced by double breasting. The postero medial corner was found stable. Stress tests were found negative. Knee was initially immobilized with tube cast for 6 weeks. Later active and passive exercises were initiated with range of motion knee brace. 6 months follow up of the patient revealed stable knee and patient was symptom free with normal range of motion.

Fig 8: medial collateral ligament

Fig 9: Excision of osteochondroma from proximal tibia

Fig 10: Semimembranosus insertion

Discussion:
The posteromedial corner of the knee (PMC) is comprised of the structures between the posterior border of the superficial medial collateral ligament (SMCL) and the medial border of the posterior cruciate ligament (PCL). This includes the posterior oblique ligament (POL), semimembranosus tendon (SM), the oblique popliteal ligament (OPL) and the posterior horn of the medial meniscus. These structures are important for knee stability. Posterior oblique ligament has three arms, central or tibial arm, capsular arm and a superficial arm to semimembranosus of which tibial arm is more significant. POL acts as both static and dynamic stabilizer along with the contraction of the semimembranosus tendon.

Uniplanar instability like varus, valgus instability or cruciate ligament injuries are easily identified. Cruciate ligament reconstructions are routinely been undertaken. Complex injuries of multiple ligaments are in rise due to increasing high energy trauma. A case of non traumatic instability of a knee is rarely encountered. Acute tears of the postero medial capsule, posterior oblique ligament and medial collateral ligament are to be repaired to prevent chronic instability. The posterior oblique ligament and the medial collateral ligament can be reconstructed anatomically with autogenous semitendinosus graft or gracilis for a stable and efficient knee function. Medical instability can also be treated by advancing the postero medial capsule along with MCL more distally and anteriorly. MRI of a knee in case of traumatic instability is revealed by torn ligaments or evidence of edema at the postero medial corner of knee. The lax ligaments could not be identified by the regular MRI. MRI of a knee in dynamic mode will be capable of picking up the instability due to lax ligaments, but it was not done due to its non availability in our institution. In our case the structures of the postero medial corner namely the posterior oblique ligament, semimembranosus and the capsule were intact but found lax. The osteochondroma from the proximal tibia was resected followed by advancement of the posterior oblique ligament more distally and double breasting of the postero medial capsule. The patient had excellent result with no residual instability.

Bibliography:
Kurt E. Jacobson, MD and Frederic S. Chi, MD; Evaluation and Treatment of Medial Collateral Ligament and Medial-sided Injuries of the Knee.; Sports Med Arthrosc Rev 2006;14:58–66)

DON H. O'DONOGHUE, M.D.t, OKLAHOMA CITY, OKLAHOMA.; Reconstruction for Medial Instability of the Knee.; THE JOURNAL OF BONE AND JOINT SURGERY VOL. 55-A, NO. 5, JULY 1973

Andre Weimann, M.D., Imke Schatka, M.D., Mirco Herbout, M.D., Andrea Achteich, M.D., Thore Zantop, M.D., Michael Raschke, M.D., Wolf Petersen, M.D., Ph.D.; Reconstruction of the Posterior Oblique Ligament and the Posterior Cruciate Ligament in Knees With Posteromedial Instability.; The Journal of Arthroscopic and Related Surgery Volume 28, Issue 9, Pages 1283-1289, September 2012


Martha A. Norris, M.D.; Posteromedial Corner Injury of the Knee.; MRI Web Clinic - April 2011 radsource.us

J. C. HUGHSTON AND A. F. EILERS.; The Role of the Posterior Oblique Ligament in Repairs of Acute Medial (Collateral) Ligament Tears of the Knee.; THE JOURNAL OF BONE AND JOINT SURGERY VOL. 55-A, NO. 5, JULY 1973