Anatomy, Function, and Accessibility of the Iliotibial Band in Total Knee Arthroplasty

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The iliotibial band (ITB) often is a deforming force in the valgus knee, and must be released or elongated during total knee arthroplasty (TKA) to establish normal stability. This study was done to delineate the attachments of the ITB about the knee, to determine the function of its parts in flexion and extension, and to establish a safe procedure to release the ITB in the valgus knee.

Methods
Twenty human cadaver knees were dissected. The ITB and its attachments were identified. The ITB has a broad anterior attachment to the quadriceps, patella, and patellar tendon (A). The central portion attaches to Gerdy's tubercle on the tibia (C). The posterior portion attaches to the biceps femoris and fibular head (P).

Results

The posterior portion of the ITB tightens in extension.

The anterior portion tightens in flexion and holds the central portion anteriorly. This gives the ITB some lateral stabilizing effect in flexion.

The posterior portion of the ITB closely overlies the lateral collateral ligament (LCL).
In flexion the posterior portion of the ITB slackens, but remains close to the LCL.

Complete release of the ITB can be done outside the joint without damaging the lateral ligaments.

A clamp has been inserted into the knee to access the posterior portion of the ITB.

Selective posterior release also can be done from outside, leaving the anterior portion intact and the underlying ligaments undisturbed.

Release of the posterior ITB from inside would damage the LCL and the popliteus tendon.

Conclusions

The ITB is a complex structure that functions in flexion and extension. Complete ITB release cannot be done safely from inside the knee joint. Complete ITB release is best done outside the knee joint. Partial ITB release may be done from outside the knee joint.