

Morphometry And Intra-Articular Landmark Of Anterior Cruciate Ligament In Indian Population- An Anatomic Cadaveric Study

Abstract

Background: 1- To understand the Morphometry of the ACL for its anatomical reconstruction and restoration to its native dimensions, collagen orientation and insertion sites. 2- To provide quantitative data about the ACL dimensions & morphology to bony as well as soft tissue landmarks in knee joint (like resident's ridge) and the foot print area of ACL in Indian population.

Methodology: The shape and positions of the femoral and tibial footprints of the ACL relative to different bony retro- eminence ridge (RER) and soft tissue landmarks (PCL) were measured by Vernier caliper in 30 knees of 18 fresh embalmed cadavers including 14 male and 4 female cadavers.

Results: Mean value of the Length of ACL was 31.98 ± 1.16 with p value < 0.002 . Mean value of ACL width in coronal plane was 10.60 ± 1.79 (p value < 0.001) and in sagittal plane was 2.98 ± 1.56 (p value < 0.009). Mean ACL diameter 10 mm proximal to tibial foot print was 8.07 ± 1.25 (p value < 0.001). The mean distance between anterior most fibres of tibial foot print of PCL to centre of ACL tibial foot print in disarticulated knee (Z) was 19.84 ± 1.85 (p value < 0.323), between mid-point of resident's ridge to posterior articular cartilage of femur over lateral femoral condyle (Q) was 12.07 ± 1.68 (p value < 0.085), between anterior margins of tibial plateau to centre of ACL (C) was 19.54 ± 2.22 (p value < 0.001), and between posterior margins of tibial plateau to centre of ACL foot print over tibia (D) 26.92 ± 1.22 (p value < 0.011).

Conclusion: The retro- eminence ridge (bony landmark) and PCL (Soft tissue landmark) provides an easily identifiable and accurate reference points that can be used to determine the length and width of the femoral and tibial footprints in both sagittal and coronal plane as well as the diameter which can help in the accurate tunnel placement, graft choice .

Key words: ACL attachments, ACL Morphometry, Reference landmarks,