

THE TRUE CAPSULE OF THE KNEE-JOINT.

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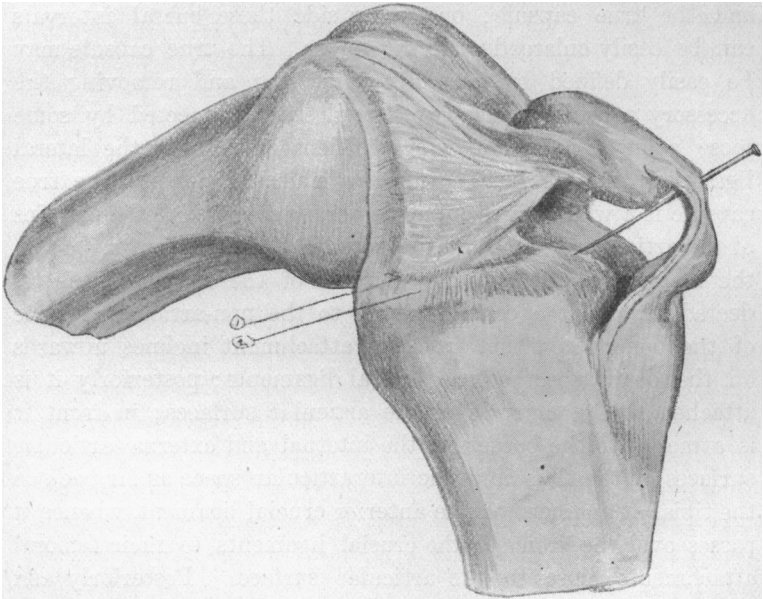
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ON carefully cutting through the fibrous expansions of the two vasti, a multilocular bursa is exposed between the accessory and the true capsule; on either side these bursal intervals can be easily enlarged with the finger. The true capsule may be easily defined by carefully dissecting and removing the accessory capsule.¹ The two capsules are connected by some loose connective tissue, which is densest between the lateral ligaments and the ligamentum posticum Winslowii. The true capsule is a well-defined loose membrane attached to the margins of the articular surfaces of the patella, tibia, and femur. From the margins of the articular surfaces of the condyles it is reflected for about a centimetre on to the non-articular surface of the bone; on either side the attachment inclines upwards on the deep aspect of the lateral ligaments; posteriorly it is attached to the margins of the articular surfaces; in front it is attached to the borders of the internal and external articular surfaces of the tibia, and the interarticular space as far back as the tibial attachment of the anterior crucial ligament, whence it passes over the front of the crucial ligaments to their femoral attachments close to the articular surface. Posteriorly and mesially the membrane is attached to the margins of the articular surfaces of the femur and tibia; between these attachments it envelops the crucial ligaments. There is a *cul-de-sac* lined with synovial membrane covering the hinder surface of the femoral attachment of the anterior crucial ligament; this *cul-de-sac* is opened out when the joint is flexed. The true capsule is attached to the upper and lower borders of the semilunar cartilages in

¹ I look upon the accessory capsule as being all the ligaments derived from extracapsular structures, with intervening tissue distinct from the true or synovial capsule—viz., the lateral ligaments, the ligamentum posticum Winslowii, and the expansions of the vasti. The term "true capsule" has been used without any prejudice to its morphological origin.

such a way as to leave exposed the circularly-disposed fibres which form their basis; between the lower border of each semilunar cartilage and the tibia the true capsule forms the coronary ligament.

The capsule is a fairly thick, well-defined membrane, except where it invests the sub-patellar pad of fat and the crucial ligaments. There are strengthening fibres, some of which are disposed in a triangular fashion passing from the attachment of



The true capsule of the knee-joint, the accessory capsule and the sub-patellar pad of fat removed. (1) Internal semilunar cartilage; (2) Coronary ligament.

the lateral ligaments downwards and forwards, while others are vertically disposed fibres, lying deeply to the lateral ligaments.

In about two per cent. of cases there is no connection between the synovial cavity and the sub-crureus bursa. There is usually an opening varying from a complete obliteration of the septum to a small ovoid deficiency admitting an ordinary lead pencil.

On its superficial surface the tendon of the popliteus enters the true capsule on a level with the short external lateral ligament;

the capsule may or may not be adherent to the superficial surface of the tendon as far as its femoral attachment. The deep surface of the muscle, where it becomes tendinous, is usually intimately adherent to the walls of a bursa, which extends downwards under the muscle to the lower limit of the superior tibio-fibular ligament. This bursa communicates freely with the synovial cavity of the joint.

The ligamentum mucosum, when represented by a septum, consists of two layers which split to enclose the crucial ligaments, and are attached above and below to the periphery of the articular cartilage of the tibia and femur. The septum is bounded above by a free, lunated margin, attached anteriorly to the lower border of the patella, and posteriorly to the lower and mesial margin of the trochlea.

I should look upon the more ordinary form of the true capsule as the remnant of the two capsules limiting the tibio-condylar articulations, the anterior part having become obliterated, while the ligamentum mucosum represents the mesial and anterior parts of the capsules.

It is easy to demonstrate that the anterior cornu of the internal semilunar cartilage, and the posterior cornu of the external semilunar cartilage, are outside the true capsule to the extent of a centimetre; the other cornua are outside to a much less extent. These facts, taking into consideration the extracapsular dispositions of Humphry's and Wrisberg's ligaments respectively, might be used as arguments of an extracapsular origin of the semilunars, if there was any embryological confirmation of the view.