A RING-SHAPED MEDIAL SEMILUNAR CARTILAGE

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During classroom dissecting, students found an abnormal medial semilunar cartilage in the left knee of a male subject. This man had died at the age of fifty-four of bronchopneumonia. There was no mention in the hospital history of injury to his left knee, but there was a history and anatomical evidence of fracture of his right leg eight years before death. There was no abnormality apparent in the right knee.

Description of specimen—At first glance, it appears that the medial meniscus, instead of occupying its usual position, is reversed or folded over to the intercondylar area. In reality, the medial meniscus forms a ring of fibrocartilage which is much wider and thicker laterally. Posteriorly the ring is firmly attached to the area where a normal posterior horn would be. In front of and behind this attachment the convex edge of the ring is unattached for almost two inches and one inch respectively. In the drawing (Fig. 1) this has been illustrated by the inserted paper strips. The remainder of the convex edge is attached to the capsule, but there is no mooring to bone anteriorly—that is, there is no anterior horn. The concave edge is free and regular and tapers to a sharp edge like normal meniscus. All the joint surfaces of the bones—femur, tibia and patella—appear to be normal.

Discussion—Is the abnormality described developmental or traumatic? If developmental, is it an atavism or is it an arrest of normal human growth? A search of the literature resulted in the following findings and conclusions. Examples of disc-shaped lateral semilunar cartilage, first described by Young in 1889, have been reported by Higgins (1895), Fisher (1924), Duncan (1932), Ellis (1932), Bristow (1935), Jarosch (1935), Fairbank (1937), Middleton (1936) and Smillie (1946). Two papers, the first by Cave and Staples (1941), the second by Dwyer and Taylor (1945), have described single cases of disc-shaped medial semilunar cartilage and a third case was described by Smillie (1946), who also reported nineteen cases of discoid lateral cartilage. In 1937 a case of reversed lateral cartilage was described by Fairbank in a child. The only case of a ring-shaped medial cartilage previously reported was described by Watson-Jones in 1930, and he, too, was uncertain about the etiology. Otherwise there are vague references in the literature to the rare occurrence of the condition with no authentic reports. Undoubtedly, anomalies of the medial cartilage are rare.

Comparative anatomy sheds no light on our problem. This is well demonstrated in the
early work of Parsons (1900), confirmed by Herzmark (1938), Jaroschy (1935) and McDermott (1943). The medial semilunar cartilage in all primates, and in many other mammals, has an appearance very much like that in man, although the lateral cartilage does form a complete ring in various monkeys (macacus rhesus). It is interesting to note that, although no mammal has a plate-like lateral cartilage, writers have invoked teleology in explaining the rare occurrence of this anomaly in man, giving as proof the cartilages of the lizard.

At no stage of the human embryo is the medial cartilage ring-shaped or reversed. McDermott (1943), McMurray (1942) and others have found that the cartilages develop from primitive mesenchyme or blastema which rapidly becomes specialised. One could imagine an anomaly developing in the earliest phases, but surely that is not atavism.

Surgeons would suggest that the abnormality here described is a bucket-handle tear with gross displacement of the fragment into the intercondylar notch. MacAusland (1943), in his analysis of a large series of injured cartilages, described and showed illustrations of such bucket-handle tears. In the opinion of Professor R. I. Harris, the present case "represents a bucket-handle tear which has been completely displaced into the intercondylar notch for a long time—long enough to iron out the anterior and posterior points of junction of the separated free margin with the cartilage proper." Admitting this to be a very real possibility, I cannot locate any good illustration or description of an authentic fractured medial cartilage with the same appearance. The question "is it developmental or is it traumatic?" appears to remain unanswered.

REFERENCES


Parsons, F. G. (1900): The Joints of Mammals Compared with those of Man. Journal of Anatomy and Physiology, 34, 301.

