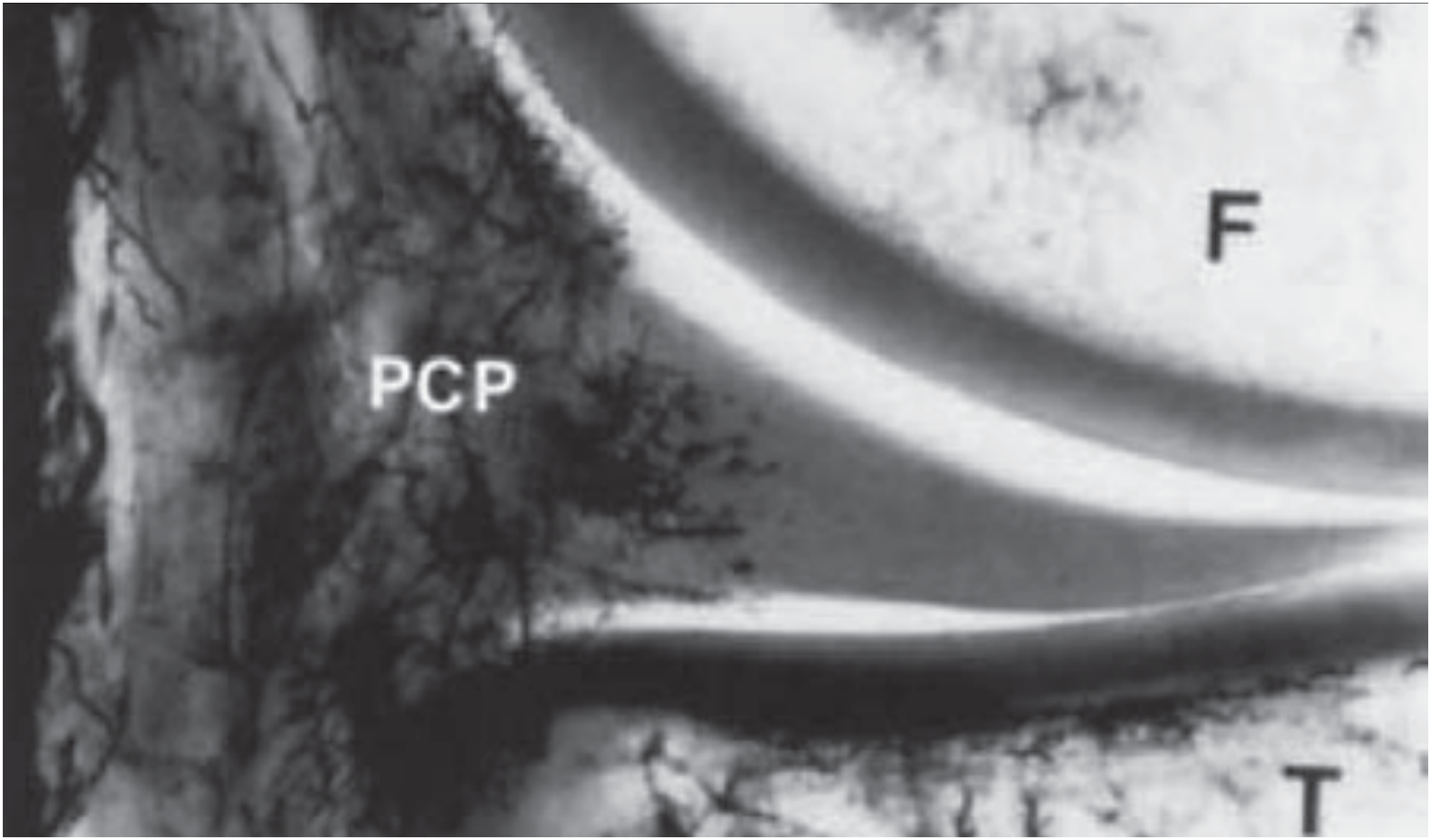

Menisci lesions: Are the clinical signs relevant?

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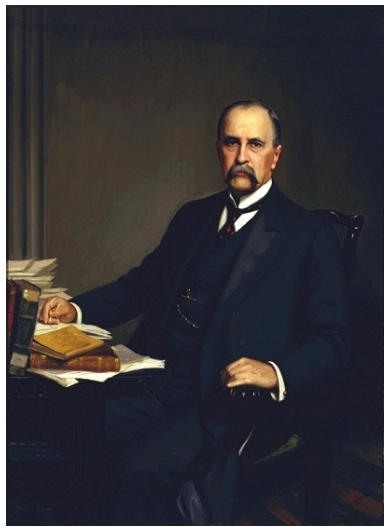
Meniscus Injuries

- Meniscus injuries, both from athletic activities and activities of daily living, are a common reason of referral for orthopedic evaluation.
- Annual incidence: 60 per 100,000 individuals in the general population.
- Meniscus tears are one of the most common injuries to the knee and should often be included at the top of the differential diagnosis for patients presenting with knee pain

Meniscus diagnosis and differential diagnosis

- should be established clinically by:
- history taking,
- physical examination, and
- plain radiographs to provide the basis for informed consent discussions with patients and to determine if special studies, such as
- MRI or arthro CT, are required for further evaluation.



Sir William Osler: "Listen to your patient, he is telling you the diagnosis"

Careful History Taking: Scenario

- Sudden onset of pain in the setting of a twisting injury to the knee —> more likely to require further diagnostic testing and, perhaps, surgical intervention.

- Patients with an insidious onset of pain without preceding injury may have underlying articular cartilage degeneration and joint wear that will more than likely dictate the treatment strategy.

History taking

- Pain localized to the joint-line
- Provocated by: Hyperflexion, directional change during walking, when crossing the legs, when catching one's foot on an irregular surface
- Mechanical symptoms such as "clicking" or "catching,"
- Recurrent effusions
- Complaint of "locking" with a mechanical block to extension
- A traumatic painful knee in a young patient should be distinguished from non-traumatic chronic knee pain in a patient over 40 years of age

Physical examination

- Gait
- Alignement
- Mobility
- Laxity
- Patello-femoral
- Effusion…
- …and meniscus

Joint line palpation

- Pain or discomfort is reproduced by palpation of the joint line.

JD Kelly

McMurray Test

- Patient supine.
- The knee is extended from a fully flexed position while internally rotating the tibia. The test is repeated while externally rotating the tibia.
- Popping and tenderness along the joint line indicate a positive sign

McMurray Test

Apley Test

- Patient in prone position with the knee flexed to 90°.
- The tibia is compressed into the distal femur and rotated externally to assess the medial meniscus and internally to assess the lateral meniscus.
- The test is considered positive if it produces pain, which is less severe or relieved when the maneuver is repeated with distraction of the tibia.

Apley Test

Other tests: Thessaly Test

(Ege's test)

Thessaly Test

Relevance?

- Studies: methodological quality varied from poor to fair among studies, affecting test performance.
- Gold standard: MRI, arthroscopy.
- Number of individuals is variable

Relevance?

- Noble J, Erat K. In defense of the meniscus: a prospective study of 200 meniscectomy patients. J Bone Joint Surg Br 1980; 62: 7–11:
    - Continuing pain greater than one month, effusion, locking and instability to be statistically higher in individuals with meniscal tears.

Relevance?

- Abdon P, Lindstrand A, Thorngren KG. Statistical evaluation of the diagnostic criteria for meniscal tears. Int Orthop 1990; 14: 341–45:
  - A combination of patient-reported symptoms increased the predictive value of identifying meniscal lesion to 70–80%.
  - In that study, the presence of medial joint line tenderness, knee ‘locking’, daily pain and if the patient was on ‘sick leave’ from work accurately predicted 61% of those patients exhibiting a meniscal tear confirmed by arthroscopy.

History relevance

- From history-taking, the determinants “age over 40 years,” “continuation of activity impossible,” and “weight-bearing during trauma” indicated an association with a meniscal tear after multivariate logistic regression analysis.

Diagnostic Value of History-taking and Physical Examination for Assessing Meniscal Tears of the Knee in General Practice

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(*Clin J Sport Med* 2008;18:24–30)

Tests relevance

Physical examination tests for the detection of meniscus injury

Physical exam test	Technique	Significance	Reliability
Joint-line tenderness	Direct palpation over medial and lateral joint line	Tenderness can indicate a meniscus tear, collateral ligament injury, or DJD	Sensitivity: 55–85 % Specificity: 29.4–67 %
McMurray test	Range knee from full flexion to 90° of flexion first with full tibial IR and then with full tibial ER	Positive test produces "click" in association with torn meniscus and reproduces patient's painful sensation	Sensitivity: 16–58 % Specificity: 77–98 %
Apley grind test	Strong ER force applied to knee flexed at 90° at rest, with distraction, and with compression	Joint-line pain with distraction is concerning for ligamentous injury. Joint-line pain with compression is concerning for meniscal pathology	Sensitivity: 13–16 % Specificity: 80–90 %
Bounce home test	Passive full knee extension from flexed position	Loss of terminal extension indicates mechanical block, such as a meniscus tear	
Finochietto test (jump sign)	Anterior proximal tibial translation with knee in 130°–140° flexion	Positive test produces "jump" of torn posterior horn of meniscus with anterior displacement	
Boehler test	Varus and valgus stress applied to knee in almost complete extension	Pain on side of compression is suggestive of meniscus injury	
Thessaly test	Patient internally and externally rotates his or her knee and body while keeping one foot planted with the knee flexed at 5° and then 20°	Joint-line pain with maneuver indicates possible meniscus tear	20° Thessaly test Sensitivity: 89–92 % Specificity: 96–97 %
Childress test	Patient "duck walks" by moving forward with maximal knee flexion	Joint-line pain with maneuver indicates possible meniscus tear	

Tests relevance

- Meserve BB, Cleland JA, Boucher TR. A meta-analysis examining clinical test utilities for assessing meniscal injury. Clinical Rehabilitation 2008 ; 22: 143-161.

- Ryzewicz M, Peterson B, Siparsky PN, Bartz RL. The diagnosis of meniscus tears: the role of MRI and clinical examination. Clin Orthop Relat Res 2007; 455: 123–133.

- Scholten RJ, Deville WL, Opstelten W, Bijl D, van der Plas CG, Bouter LM. The accuracy of physical diagnostic tests for assessing meniscal lesions of the knee: a meta-analysis. J Fam Pract 2001; 50: 938–944.

- Solomon DH, Simel DL, Bates DW, Katz JN, Schaffer JL. Does this patient have a torn meniscus or ligament of the knee? Value of the physical examination. JAMA 2001; 286: 1610–1620.

Tests relevance?

- Meserve BB, Cleland JA, Boucher TR. A meta-analysis examining clinical test utilities for assessing meniscal injury. Clinical Rehabilitation 2008 ; 22: 143-161:

- Joint line tenderness is the best ‘common’ test, followed by McMurray’s and Apley’s.

- Thessaly’s test reported the strongest, but samples were smaller (n.410), than those for joint line tenderness (n. 1354), McMurray’s (n.1232) and Apley’s (n.479)

Which test?

- A single clinical test is not sufficient to establish a correct diagnosis. Diagnostic accuracy is improved if the results of more than one test are combined.

- Generally, all clinical tests tend to be less reliable in the presence of concomitant ligamentous injury (ACL).

- Furthermore, physical examination is less accurate in patients with degenerative tears than in young patients with acute injuries.

Menisci lesions:
Are the clinical signs relevant?

- Difficult to answer
- Combination of history and different tests
- Joint line tenderness, McMurray test, Apley test
- Thessaly test?
- Future studies should, where possible, utilize larger samples of individuals without meniscal lesions to better estimate test specificity and thus more accurately identify optimal clinical tests.

Thank You