Psoas sign

The **psoas sign** is a classical physical examination maneuver used to detect **retrocecal appendicitis** or other causes of **retroperitoneal irritation** . It elicits pain by stretching or contracting the **iliopsoas muscle** , which lies posterior to the peritoneum, adjacent to the **retrocecal appendix** .

Anatomical Basis

- **Psoas Major Muscle**
  - **Location** : Retroperitoneal, extending from the lumbar vertebrae to the lesser trochanter of the femur
  - **Innervation** : Direct branches of the **lumbar plexus (L1–L3)**
- **Iliacus Muscle**
  - Originates from the iliac fossa and joins the psoas major to form the **iliopsoas**
  - **Innervation** : **Femoral nerve** (L2–L4)

? **High-Yield Tip** : The iliopsoas lies close to retroperitoneal structures such as the appendix (especially if retrocecal), kidneys, ureters, and iliac vessels—explaining the diagnostic utility of this test.

How to Perform the Psoas Sign

Two Methods:

1. **Passive Extension Test** :
   - Patient lies on their **left side**
   - Examiner **extends the right thigh** passively
   - Stretching the psoas muscle causes pain if the appendix is inflamed and retrocecal
2. **Active Flexion Against Resistance** :
   - Patient lies **supine**
   - Asked to **lift the right leg** against the examiner's resistance
   - Pain elicited in the right lower quadrant suggests irritation of the psoas muscle

? **Positive Psoas Sign** : Pain is elicited during either maneuver ? Suggests retrocecal appendicitis or another retroperitoneal pathology

Clinical Significance

Condition	Mechanism of Pain
Retrocecal Appendicitis	Inflamed appendix irritates the psoas muscle
Psoas Abscess	Local infection or TB causing inflammation
Iliac Vessel Hemorrhage	Hematoma compresses retroperitoneal

Condition	Mechanism of Pain
	structures
Retroperitoneal Tumors	Mass effect or infiltration into psoas region

? **Differentiation Pearl** : A positive psoas sign is not pathognomonic for appendicitis. Always interpret in clinical context.

Appendicitis and Psoas Sign

- In **retrocecal appendicitis** (where the appendix lies behind the cecum), classic **right lower quadrant (RLQ)** pain may be **absent or vague**
- Instead, pain may be felt in the **right flank or back**
- In these cases, the **psoas sign may be the only physical clue**

? **USMLE Key Point** : Psoas sign is more helpful in **retrocecal** than **pelvic appendicitis** , where other signs (e.g., obturator sign) may be more useful

Other Physical Signs in Appendicitis

Sign	Description	Interpretation
McBurney's point tenderness	Pain at 1/3 from ASIS to umbilicus	Classic for appendicitis
Rovsing’s sign	RLQ pain with LLQ palpation	Peritoneal irritation
Obturator sign	Pain with internal rotation of flexed hip	Pelvic appendix irritation
Rebound tenderness	Pain when releasing pressure on RLQ	Suggests peritoneal inflammation

Diagnostic Accuracy

- **Sensitivity** : ~16–29% (low)
- **Specificity** : ~89–95% (high)

? **Clinical Application** : The psoas sign is not sensitive but **adds specificity** when combined with other signs. Use it in patients with **atypical appendicitis presentation** or **flank pain** .

Differential Diagnosis for Positive Psoas Sign

- **Retrocecal appendicitis**
- **Psoas abscess**

- **Hemorrhage of iliac artery/vein**
- **Retroperitoneal tumor or hematoma**
- **Vertebral osteomyelitis or discitis**

High-Yield Summary Table

Feature	Detail
Muscle tested	**Iliopsoas** (psoas major + iliacus)
Maneuver	Passive extension or active flexion
Positive sign	Pain in RLQ or right flank
Appendicitis type detected	**Retrocecal**
Other possible causes	Psoas abscess, hemorrhage, tumor
Innervation of psoas	Lumbar plexus (L1–L3)
Innervation of iliacus	Femoral nerve (L2–L4)

Clinical Pearl

? **Do not rely on a single sign.** Combine physical findings, lab tests (e.g., WBC count, CRP), and imaging (ultrasound or CT abdomen) for accurate diagnosis of appendicitis.