

# Introduction to Evidence Based Medicine:

## General Abdominal Examination

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- **Advice from McGee** (McGee S. Evidence-Based Physical Diagnosis. Phil: WB Saunders Co, 2001):
  - **Inspection**
    - Cullen's sign and Grey Turner's sign are indications of intraperitoneal or retroperitoneal hemorrhage. Traditionally, Cullen's sign is an indication of ruptured ectopic pregnancy and Grey Turner's sign is an indication of hemorrhagic pancreatitis. However, these signs are rare, occurring in <3% of patients with pancreatitis and <1% of patients with ruptured ectopic pregnancy. These signs are also seen in a variety of other situations from splenic rupture to perforated duodenal ulcer.
  - **Auscultation**
    - Analysis of bowel sounds only has modest value in diagnosing small bowel obstruction. However, the presence of normal bowel sounds argues against the diagnosis of small bowel obstruction.
    - Abdominal bruits occur in 4 to 20% of healthy people. However, an abdominal bruit can also be an indication of renovascular hypertension.
  - **Palpation**
    - In patients with Right Upper Quadrant (RUQ) pain and suspected cholecystitis, a positive Murphy's sign only argues modestly for cholecystitis. This is possibly because it is difficult to find the exact location of the gallbladder via palpation.
    - Courvoiser's law only argues modestly *for* malignancy and *against* gallstones as the cause of jaundice in patients with a palpable non-tender gallbladder. However, a palpable

gallbladder in a jaundiced patient is a strong indication of extrahepatic obstruction of the biliary system, regardless of its cause.

## Examination of the Liver

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- **Advice from McGee** (McGee S. Evidence-Based Physical Diagnosis. Phil: WB Saunders Co, 2001):
  - **Percussion**
    - Clinicians almost always underestimate the actual liver span. The upper border is marked too low and the lower border too high (Sullivan S, Krasner N, and Williams R. The clinical estimation of liver size: a comparison of techniques and an analysis of the source of error. BMJ. 2:1042-1043,1976). However:
      1. the estimated liver span correlates modestly with the true liver span. This correlation is stronger for patients with diseased livers.
      2. percussed liver span is very dependent on the clinician's percussion technique. The heavier the clinician's percussion, the smaller the estimated liver span and the greater the underestimation of actual liver size.

One study found that experienced clinicians' estimates of liver span on the same patient varied an **average** of 8 cm! (Blendis LM et al. Observer variation in the clinical and radiological assessment of hepatosplenomegaly. BMJ. 1:727-730, 1970)

- **Palpation**
  - If a clinician believes that they have palpated the liver edge below the costal margin, they are almost always correct (Specificity 100%). However:

1. palpating the liver edge is not a reliable sign of hepatomegaly
2. approximately 50% of livers that protrude beyond the costal margin are not palpable. (Zoli M et al. Physical examination of the liver: is it still worth it? Am J Gastroenterol. 90:1428-1432, 1995)

○ **Special maneuvers:**

- there is huge variation in the technique used for the scratch test:
  - various sources recommend the stethoscope be placed over areas ranging from the xiphoid to the umbilicus to directly over the liver itself
  - the direction of the 'scratch' itself has been recommended to be performed in directions varying from the technique described above to left-to-right and even centripetal strokes!
- the evidence supporting the use of the scratch test is extremely mixed. It ranges from the scratch test being of absolutely no value in determining the lower border of the liver to being vastly superior to percussion and palpation.

## **Examination of the Spleen**

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- **JAMA recommendations on the detection of splenomegaly** (Grover SA, Barkun AN, Sackett DL. Rational clinical examination: Does this patient have splenomegaly? JAMA. 1993;270(18):2218-2221):
  - the examination for splenomegaly is most useful when used to rule in the diagnosis of splenomegaly among patients in whom there is a clinical suspicion of >10%.
  - the precision of the percussion of Traube's space is modest at best

- percussion should be performed before palpation. If percussion is not dull, there is no need to palpate because the results of palpation will not effectively rule in or rule out splenomegaly
  - if both percussion and palpation tests are positive, the diagnosis of splenomegaly is established
  - if percussion is positive and palpation is negative, an ultrasound is required to rule in or rule out splenomegaly
- **Advice from McGee** (McGee S. Evidence-Based Physical Diagnosis. Phil: WB Saunders Co, 2001):
    - Traube's space dullness becomes less accurate in overweight patients or those who have recently eaten (Barkun et al. Splenic enlargement and Traube's space: how useful is percussion? Am J Med 87:562-566,1989)
    - palpation of the spleen can be performed by several methods. All those explained above have been found to be equivalent. Therefore, the approach used depends on the clinician's personal preference (Barkun AN et al. The bedside assessment of splenic enlargement. Am J Med. 91:512-518, 1991.)
    - positive percussion signs are much less convincing evidence of splenomegaly compared to positive palpation signs

## **Examination for Appendicitis**

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- **Advice from McGee** (McGee S. Evidence-Based Physical Diagnosis. Phil: WB Saunders Co, 2001):
  - Right Lower Quadrant (RLQ) tenderness in a patient with acute abdominal pain is an effective tool in discriminating between patients with and without appendicitis as it is both highly sensitive and highly specific (Eskelinen M, Ikonen J, and Lipponen P. The value of History-taking, physical examination, and computer assistance in the diagnosis of acute appendicitis

- in patients more than 50 years old, Scand J Gastroenterol 30:349-355, 1995)
- Findings that argue for appendicitis:
    - RLQ tenderness
    - rigidity & guarding
    - McBurney's point tenderness
    - positive Rovsing's sign
  - Psoas sign and obturator sign are highly specific but have little diagnostic value due to their low sensitivity
  - Rebound tenderness is one of the **least** discriminating signs of appendicitis! Many surgeons regard it as **completely unnecessary** and possibly **cruel**.
  - Rectal tenderness has little diagnostic value but a rectal exam should still be performed to detect the <2% of patients with a pelvic abscess or rectal mass (McGee S. Evidence-Based Physical Diagnosis. Phil: WB Saunders Co, 2001) (Dixon JM et al. Rectal examination in patients with pain in the right lower quadrant of the abdomen. BMJ. 302:386-388, 1991)

## **Examination for Ascites**

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- **JAMA recommendations on the detection of ascites**  
(Williams JW & Simel DL. Does this patient have ascites?: How to define fluid in the abdomen. JAMA. 267(19):2645-2648.):
  - The most powerful findings for ruling in ascites are:
    - a positive fluid wave
    - shifting dullness
    - peripheral edema
  - The most useful findings for ruling out ascites are:
    - negative histories of ankle swelling or increased abdominal girth
    - lack of bulging flanks, flank dullness, or shifting dullness

