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EM CASE OF THE WEEK

BROWARD HEALTH MEDICAL CENTER DEPARTMENT OF EMERGENCY MEDICINE

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Abdominal pain is one of the most common complaints in the ED, accounting for ~1/3 of ED visits. It is important to know what imaging and tests are indicated based on initial presentation.

Abdominal pain in a healthy young male

A 27-year-old male presents to the ED with a chief complaint of right upper quadrant pain x 4 hours. He states that he has been experiencing pain radiating to his mid-back since lying down to go to sleep. He states that the pain began this evening after eating pizza. The pain is intermittent and sharp. He denies ever experiencing symptoms before. He is otherwise healthy. On physical exam, he is not obese and tenderness is elicited to deep palpation of the right upper quadrant, which is mildly distended. Labs were significant for elevation in WBC. What is the most appropriate course of action at this time?

A. Explain to the patient that these symptoms are common after eating pizza and discharge him home with simethicone.

B. Get a stat EKG as this is an atypical presentation of MI that is common in this patient's age group and with his comorbidities.

C. Order a gallbladder ultrasound to rule out acute cholecystitis

D. Order a CT-abdomen to rule out malignancy

E. Admit for ERCP

EM CASE OF THE WEEK

EM Case of the Week is a weekly "pop quiz" for ED staff. The goal is to educate all ED personnel by sharing common pearls and pitfalls involving the care of ED patients. We intend on providing better patient care through better education for our nurses and staff.

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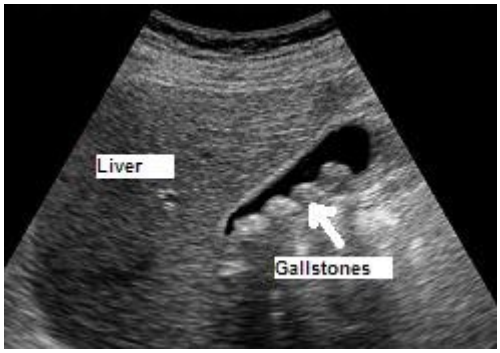

Diagnostic criteria for acute cholecystitis

A. Local signs of inflammation
(1) Murphy's sign
(2) RUQ mass/pain/tenderness

B. Systemic signs of inflammation
(1) Fever
(2) Elevated CRP
(3) Elevated WBC count

C. Imaging findings (gallstones, wall thickening >3mm, pericholecystic fluid)

Definitive diagnosis
(1) One item in A + one item in B is positive
(2) C confirms the diagnosis when acute cholecystitis is suspected clinically

Life threatening causes of belly pain

- Pancreatitis
- Acute cholecystitis
- Ruptured ectopic pregnancy
- Aortic dissection
- MI
- DKA
- Bowel Obstruction

Acute Cholecystitis

The correct answer is C. The correct decision is to order an ultrasound of the gallbladder. While this patient does not have any of the classic risk factors for gallstones (female gender, fertile, forty, obese), he is presenting with signs and symptoms consistent with acute cholecystitis (acute inflammation of the gallbladder). There is no indication for sending this patient home without any imaging as suggested by answer A. An EKG may be warranted, but given his lack of comorbidities MI would be an unlikely diagnosis (B). These symptoms in older patients as well as patients with diabetes would be concerning for MI. A CT of the abdomen may be indicated if the ultrasound of the gallbladder is negative; however, ultrasound has no radiation risk and is the imaging of choice for gallbladder pathology.

Discussion:

Abdominal pain accounts for 1/3 of the chief complaints in the ED. Given how common this complaint is, it is important to consider each case individually as every cohort has specific considerations. Some specific cohorts and considerations include the following: every woman of childbearing age with abdominal pain requires a pregnancy test and if pregnant, a pelvic ultrasound; in older patients and patients with diabetes, abdominal pain is a chest pain equivalent requiring a workup for possible MI; abdominal aortic aneurysm should be considered in an elderly male with abdominal pain; right upper quadrant pain that is reproducible to palpation necessitates a work up for gallbladder pathology.

It was once believed that giving narcotic medication to patients with abdominal pain would mask symptoms and make it impossible to arrive at the correct diagnosis. This line of thinking has fallen out of favor and it is now suggested that abdominal pain be treated aggressively with adequate analgesia.

Gallstones are very common in Western populations with 9% of women and 6% of adult men having gallstones. Only about 1/5 of patients with gallstones will be symptomatic. When evaluating someone with abdominal pain, it is important to differentiate whether the presence of gallstones is the cause of a patient's symptoms or if they are an incidental finding. The reason for this is that cholecystectomy is curative for those with symptomatic gallstones but carries a higher morbidity and mortality than observation for patients who are asymptomatic.

Once a patient presents with symptomatic gallstones, the risk of recurrence of symptoms within 2 years is 1/3. Of those who have recurrence of symptoms, there is a 2-3% risk of serious complications arising per year. For this reason it is advised that patients with symptomatic cholelithiasis undergo prophylactic cholecystectomy.

Disposition

In this patient, a gallbladder ultrasound revealed gallstones without thickening of the walls or pericholecystic fluid. Patients with symptomatic choleliths without other signs of infection can be diagnosed with biliary colic and discharged home with pain medication and a referral to a surgeon for possible cholecystectomy. If the patient has any signs of infection (an elevated white count, SIRS criteria, elevated LFTs), then he/she should be admitted and started on antibiotics, and a surgeon should be consulted for cholecystectomy. In patients with extensive comorbidities who are not candidates for surgery, the gallbladder can be percutaneously drained as a temporizing measure. Some surgeons prefer to wait for the gallbladder to "cool down" before performing surgery on acute cholecystitis patients in order to lower the risk of complications.

▶ **Does surgery reduce symptoms?** Yes. Surgery is often curative for patients with symptomatic gallstones. The risk of surgery is greater than the risk of having asymptomatic gallstones and therefore should only be offered to patients after they have begun to experience symptoms.

▶ **Is it possible to have biliary colic more than once?** Yes. Once a patient has experienced symptoms from their gallstones, the risk of recurrence is 30% at 2 years. The risk of serious consequences from gallstones is 2-3% in patients with multiple symptomatic attacks.

The bottom line is that abdominal pain is one of the most common complaints in the emergency department and should be approached on a case-by-case basis. It is imperative to consider each patient's comorbidities and characteristics when considering diagnostic testing and imaging. If the patient has signs and symptoms of systemic disease or illness, he/she should be admitted for definitive workup and treatment. In patients with apparent gallbladder pathology, a transabdominal ultrasound is the diagnostic imaging of choice, with labs to determine any complications.

Take Home Points

- All patients with abdominal pain should be treated individually as comorbidities direct testing
- Gallstones are very common in Western populations and should be considered in all patients with right upper quadrant pain
- The diagnostic test of choice for gallbladder pathology is a gallbladder ultrasound

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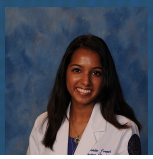

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This month's case was written by Bobby Joseph. Bobby is a 4th year medical student from NSU-COM. She did her emergency medicine rotation at BHMC in