

Abdomen: Introductory Cases

Anatomy Module Supplement

Introduction

- The purpose of this module is to present straightforward patient cases in order to:
 - Augment your understanding of the core anatomy
 - Enhance your ability to distinguish normal vs. not normal
 - Provide image interpretation practice
 - Introduce concepts not explicitly taught in the core anatomy module
- We expect pre-clinical medical students to be challenged by some of these cases. It is okay not to know the diagnosis!
 - Even if you are not familiar with the disease presentations, try and use the imaging studies to create an educated guess concerning what may or may not be “pathological.”

Case 1

Patient Presentation - HPI

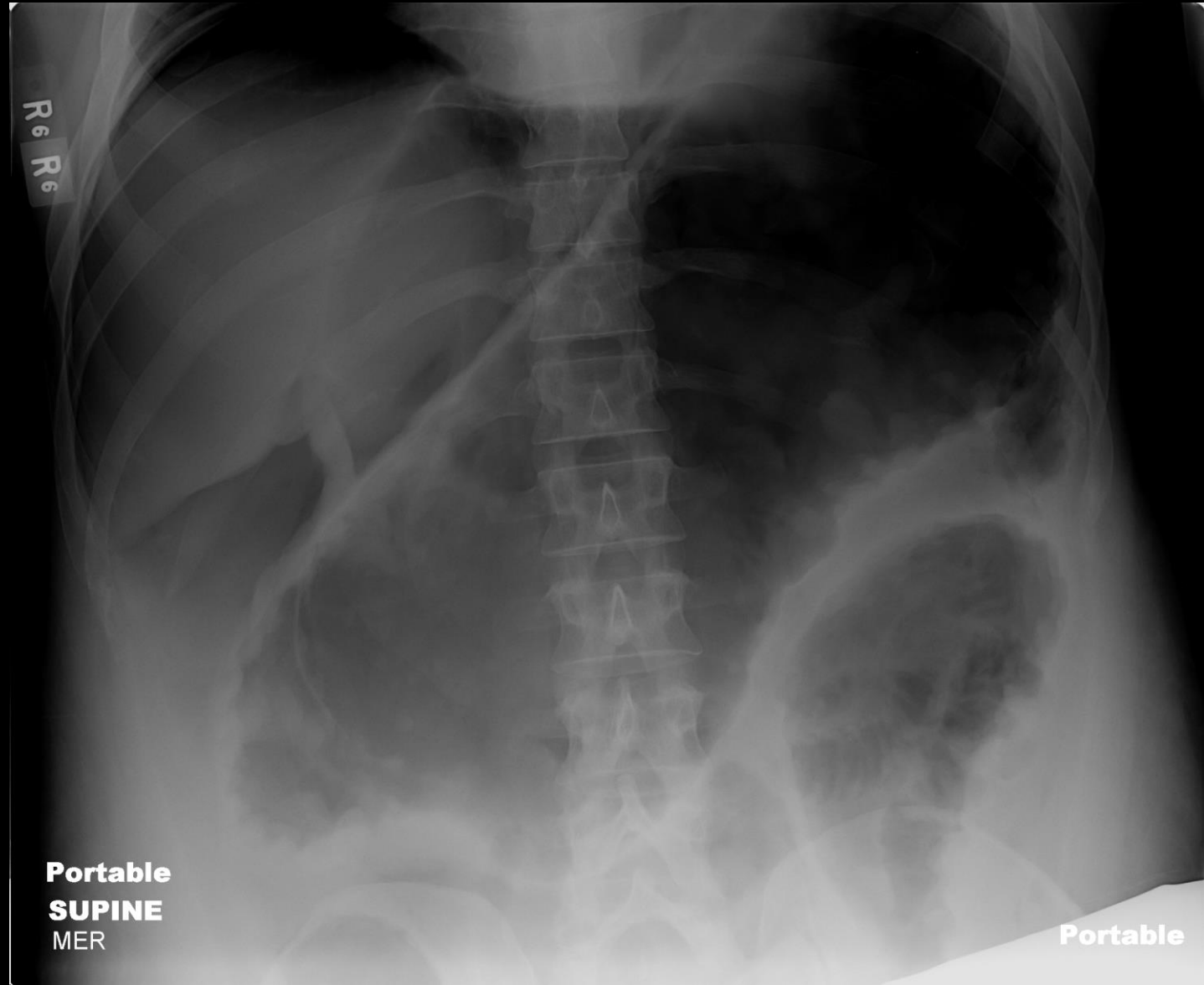
“A 26 year old male presents to the ED with chief complaint of severe diffuse abdominal pain, which began approximately 9 hours ago. This pain has been accompanied by nausea, as well as chills/fever. The patient endorses having multiple bloody bowel movements after the onset of this pain.

The patient has a PMH significant for ulcerative colitis (UC). He was diagnosed with UC 4 years ago, and currently takes mesalamine 800 mg TID.

Vitals on exam are notable for a HR of 115 bpm, as well as a temperature of 102.5 °F; Physical exam is notable for significant abdominal distention, as well as severe tenderness upon palpation in all four quadrants.”

“Concerned by this patient’s presentation, the ED attending physician orders a supine abdominal radiograph shown below.”

What is the diagnosis?



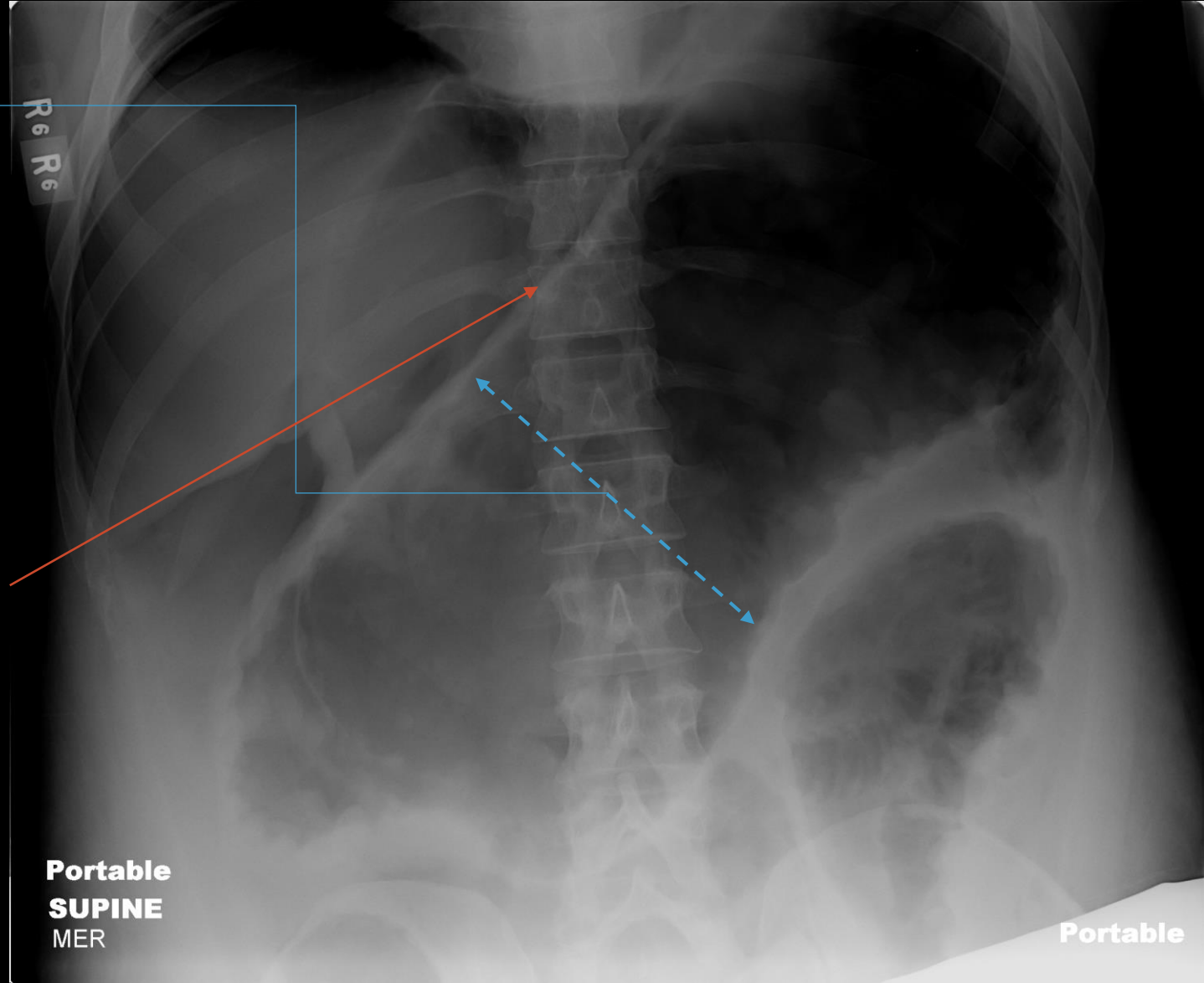
Diagnosis: Toxic Megacolon with Colonic Perforation

- Toxic megacolon may be a complication of ulcerative colitis (albeit, UC is not the only cause). It generally involves:
 - Patient presentation similar to septic shock (i.e. fever, tachycardia, etc.)
 - Primary complaints of abdominal pain and diarrhea
 - Radiographic evidence of significant colonic dilation
- If left untreated, toxic megacolon can lead to perforation of the colon, releasing free air into the peritoneum
- Please see the next slide for diagnostic clues provided by the previous supine abdominal radiograph

Diagnosis: Toxic Megacolon with Colonic Perforation

Note how the colon is massively dilated, indicative of a megacolon

Note how well defined the colon wall appears. This is due to the presence of gas on both sides of the wall as a result of free air in the peritoneum. This is known as Rigler's Sign, and is important when diagnosing pneumoperitoneum in a supine radiograph.



Case 2

Patient Presentation - HPI

“A 65 year old male presents to your clinic for a general adult physical. He reports that he is feeling well, and denies any current symptoms or concerns.

The patient has a PMH significant for COPD, for which he has a PRN albuterol inhaler that controls his symptoms well. He has been a smoker all his life, with a 35 pack-year history.

Vitals on exam are wnl; Physical exam is also wnl.”



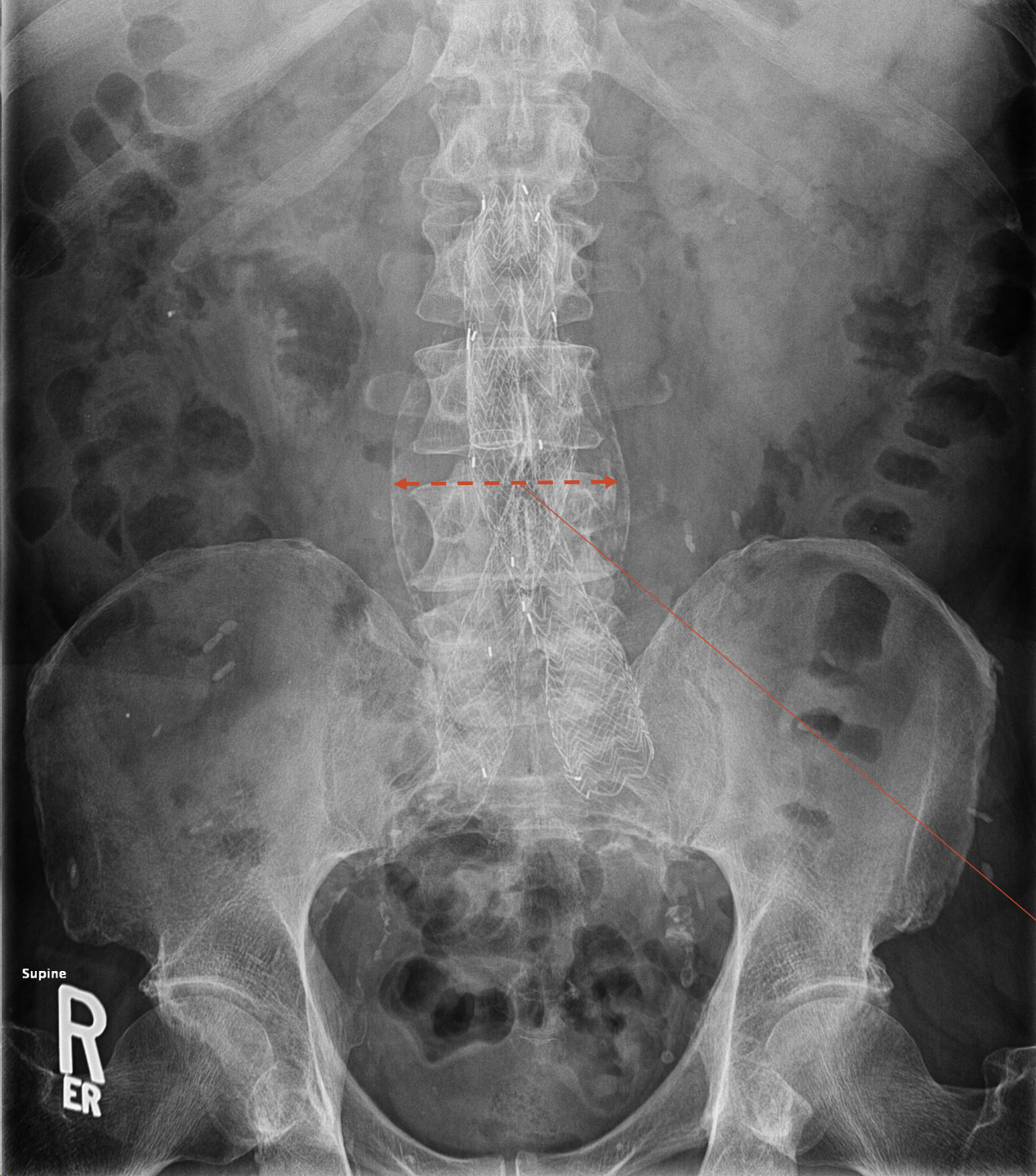
“Per the current USPSTF guidelines, all men ages 65 to 75 with any smoking history should receive a one-time abdominal ultrasound to rule out AAA (Abdominal Aortic Aneurysm).

The resident seeing this patient in clinic incorrectly orders an abdominal radiograph instead, shown to the left.”

What is the diagnosis?

Supine

R
ER



Diagnosis:

Abdominal Aortic Aneurysm (AAA)

The majority of patients with a AAA, such as in this case, are asymptomatic. This is why screening (with ultrasound) in appropriate patients is critical to preventing dissections, which are associated with significant morbidity/mortality

The enlarged abdominal aortic diameter can be visualized here

Case 3

Patient Presentation - HPI

“A 44 year old G0P0 female presents to the ED with chief complaint of significant right-sided back pain that began the day prior. The patient also endorses dysuria with blood in the urine. She denies any recent trauma.

The patient has no PMH, and is not currently taking any medication.

Vitals on exam are wnl; Physical exam is notable for tenderness to palpation of the right lower back, at the costovertebral angle.”

“The ED Physician orders a supine abdominal radiograph, shown to the right.”

What is the diagnosis?



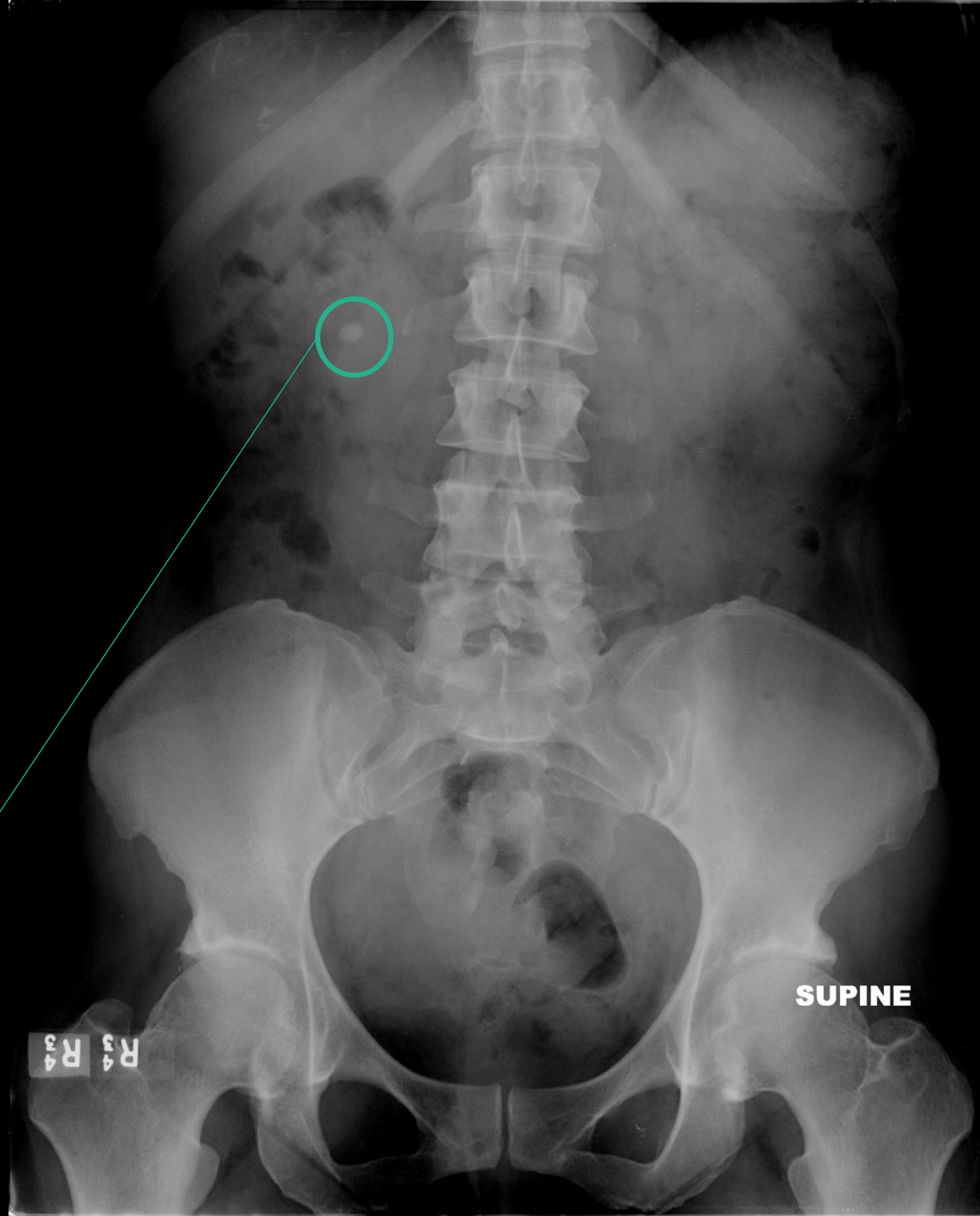
Diagnosis:

Nephrolithiasis

Kidney stones are calculi that can obstruct the outflow of urine from the kidneys, leading to potential complications such as pyelonephritis and even systemic infection.

While some kidney stones may pass naturally, others require surgical intervention.

Note the opacity in the right upper quadrant indicative of a renal calculi. Not all kidney stones are radiopaque.



Case 4

Patient Presentation - HPI

“A 26 year old G1P1 female presents to the ED with chief complaint of right upper quadrant abdominal pain. The patient indicates that the pain began the night prior, after eating her dinner. Today morning, the patient began to vomit and experience chills + fever, prompting her to seek medical care.

The patient does not have a significant PMH. She gave birth to a healthy child approximately 3 weeks ago.

Vitals on exam are notable for a temperature of 101.3 °F; Physical exam is notable for severe tenderness to light palpation of the right upper quadrant of the abdomen.”



“The doctor staffing the ED orders a CT w/ contrast.

A coronal cross-section is shown to the left.”

What is the diagnosis?

Diagnosis: Acute Cholecystitis

- Cholecystitis, or gallbladder inflammation, generally occurs when the outflow of the cystic duct is blocked
- Patients often present with:
 - Severe right upper quadrant abdominal pain
 - Nausea/Vomiting
 - Chills/Fever
- Both pregnant and post-partum patients, as in this case, are at increased risk of cholecystitis
- While the majority of cases occur due to obstructing gallstones, other causes (i.e. cancer, iatrogenic, etc.) exist
- Usually, a RUQ abdominal ultrasound is preferred to CT as the initial diagnostic imaging



Note the thickened gallbladder wall (blue arrow) with crescentic pericholecystic fluid (red arrow), indicative of active acute gallbladder inflammation

END