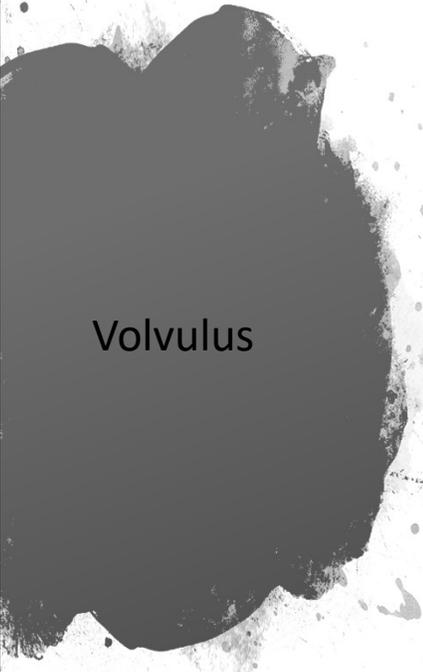


Reading Hospital School of Health Sciences Medical Imaging Program

Abdomen Pathology/Image Analysis
MI133: Clinical Seminar II – Fall 2021

1



Volvulus

Twisting of bowel on itself

- ❖ **Cause:** Idiopathic
- ❖ **Complications:** Obstruction, necrosis
- ❖ **Radiologic Appearance:** Dilated bowel
- ❖ **Technical Factors:** Typically subtractive - may have to decrease technique due to abundance of air. If known opaque obstruction then increase technical factors
- ❖ **Prognosis:** Good if treated
 - Necrotic bowel can be life threatening

2

Volvulus

AP Supine



3

Pneumoperitoneum

Free **air** in the peritoneal cavity of abdomen.

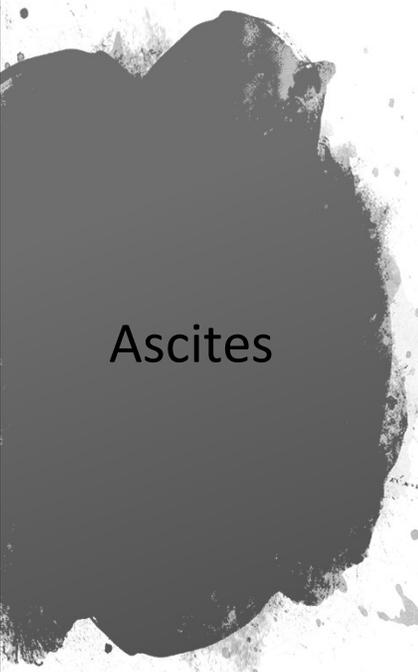
- ❖ **Cause:** Usually from a perforation. Recent abdominal surgery and perforation of hollow abdominal viscera (stomach, small and large bowel, rectum, gallbladder, bladder); trauma to abdominal wall with penetrating injury
- ❖ **Complications:** Bacteria in the bloodstream, lung abscess, pleural effusion, difficulty breathing.
- ❖ **Radiologic Appearance:** Air accumulating at the highest point under the diaphragm.
- ❖ **Technical Factors:** Subtractive--decrease technique due to additional air.
- ❖ **Prognosis:** Dependent on cause; may require surgical repair. May cause life threatening emergencies (perforation, chance of infection).

4

Pneumoperitoneum



5



Ascites

Accumulation of fluid in the peritoneal cavity

- ❖ **Cause:** Idiopathic, complication of trauma, perforated ulcer, appendicitis, or inflammation of the colon. This condition can also develop when intestinal fluids, bile, pancreatic juices, or bacteria invade and inflame membrane that lines the inside of the abdomen (peritoneum). However, ascites is more often associated with liver disease and other long-lasting (chronic) conditions.
- ❖ **Complications:** Migration of fluid across diaphragm causing pleural effusion
- ❖ **Radiographic Appearance:** Plain x-ray – wash out, overall gray
- ❖ **Technical Factors:** Additive - may have to increase technique
- ❖ **Prognosis:** Outlook on ascites primarily depends on its underlying cause and severity.
 - Malignant – poor
 - Cirrhosis – fair
 - Heart failure - fair

6

Ascites
AP Supine



7

Bowel
Obstruction/Adynamic
Ileus

Partial or full blockage that does not allow substances to pass through. Can be large bowel or small bowel blockage.

- ❖ **Causes:** Idiopathic
 - May be 'mechanical' meaning a physical blockage. (Examples surgical adhesions, tumors)
 - May be an 'ileus', meaning peristalsis (contraction of smooth muscle) stops.
- ❖ **Complications:** Necrosis, perforation
- ❖ **Radiographic Appearance:** Dilation of the bowel
- ❖ **Technical Factors:** Depending on blockage, may need to increase/decrease technical factors.
- ❖ **Prognosis:** Dependent on complications. May require surgery.

8

SB Obstruction

AP Upright



9

Large Bowel
Obstruction

Supine



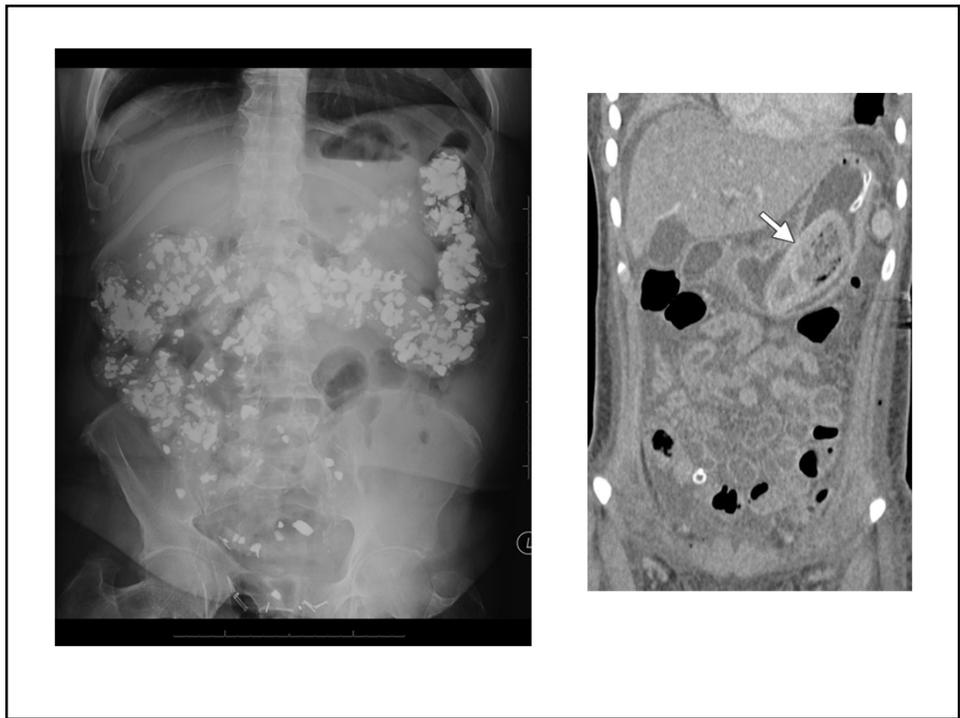
10

Pica

Psychological disorder of intentional and craving consumption of non-nutritive substances over a period of time.

- **Causes:** iron deficiency, malnutrition, pregnancy, obsessive compulsive disorder, schizophrenia, emotional stressors, autism and living in. nations where dirt eating is common
- ❖ **Complications:** anemia, malnutrition, potential intestinal blockages, bowel perforation, peritonitis, and toxic side effects of substances consumed
- ❖ **Radiographic Appearance:** Dilation of the bowel
- ❖ **Technical Factors:** Depending on blockage, may need to increase technical factors.
- ❖ **Prognosis:** Dependent on complications. May require surgery.

11



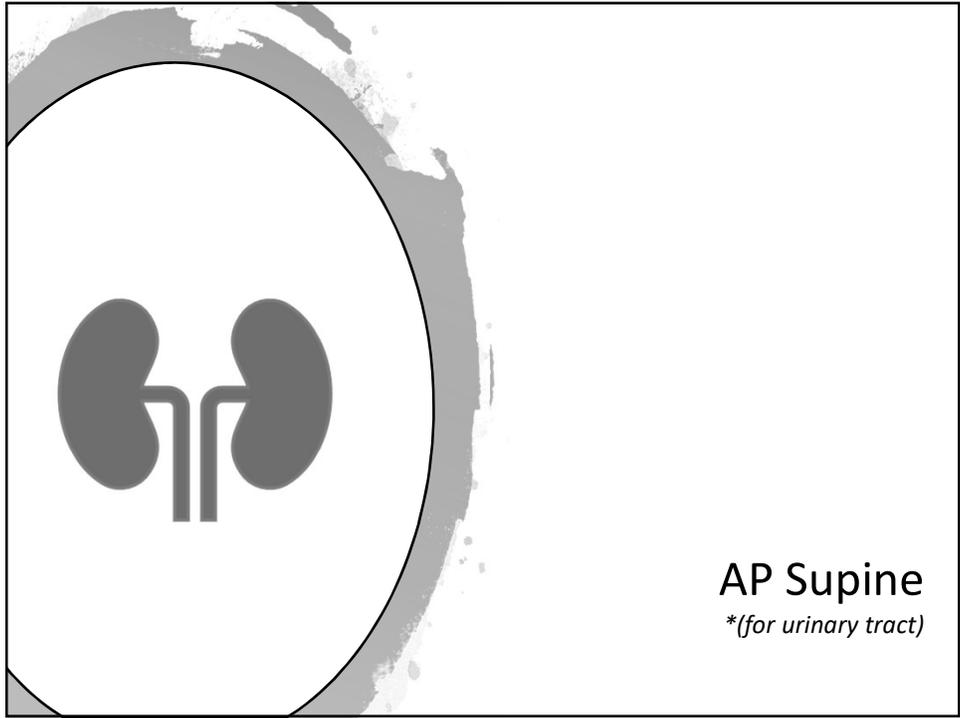
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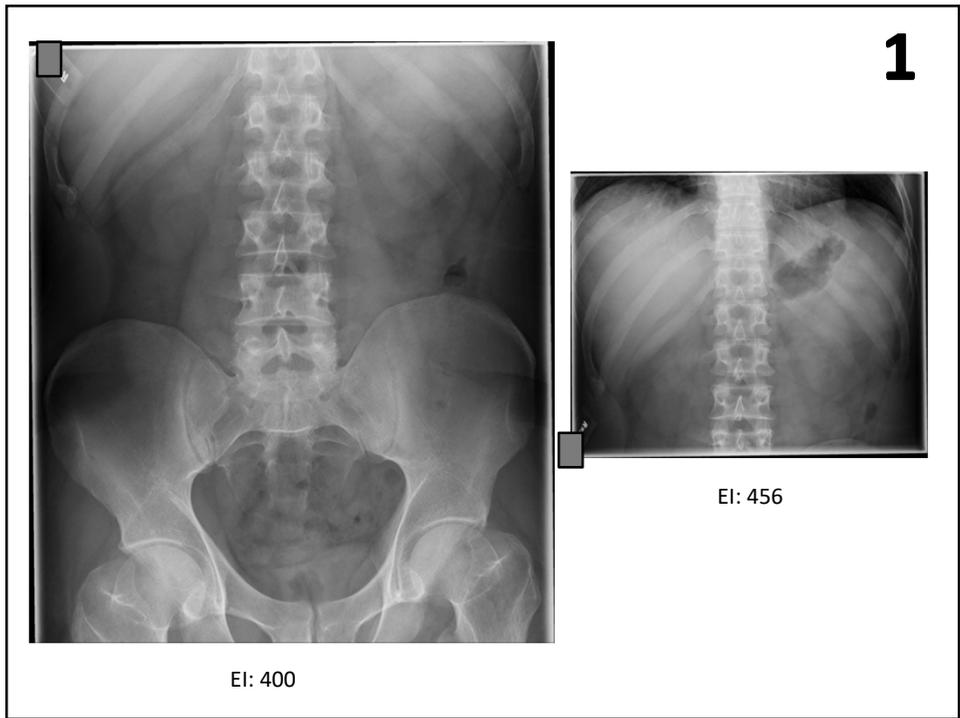
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14



15



16

2



EI: 556

17

3

Pediatric
abdomen



EI: 768

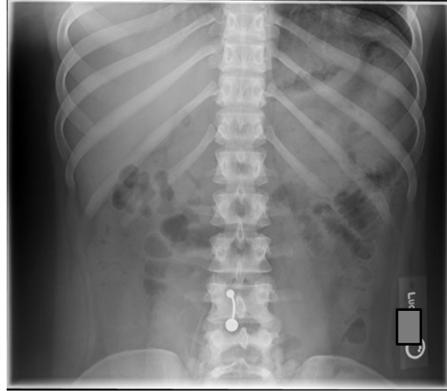
280

18

4



EI: 567



EI: 433

19

5



EI: 446

800

20

6



EI: 665



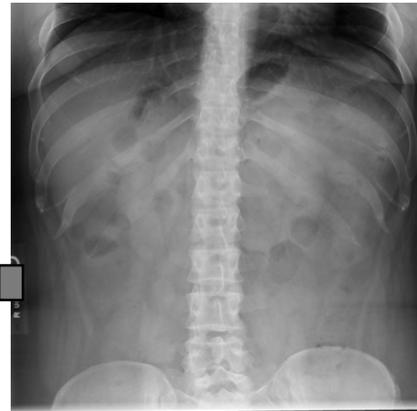
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21

7



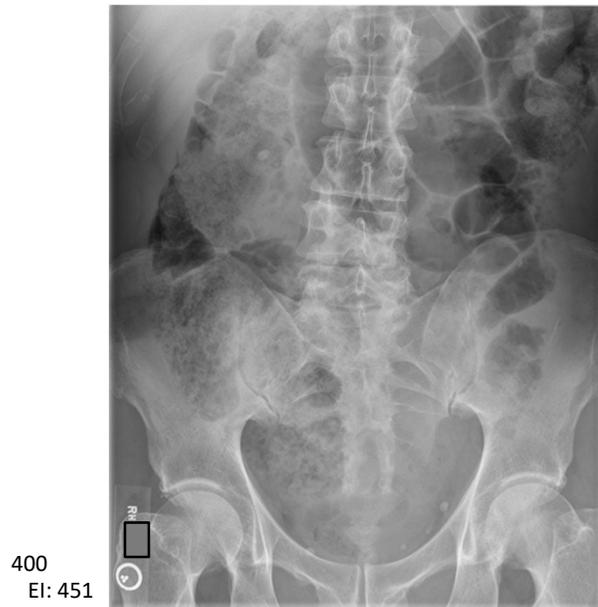
EI: 682 400



EI: 541 500

22

8



23

9



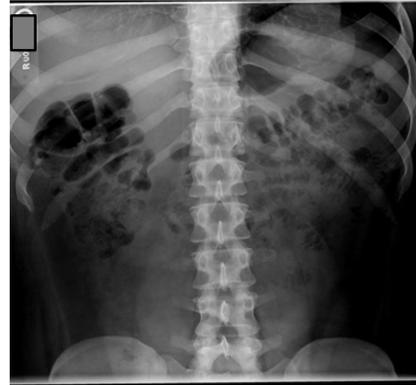
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10



El: 120

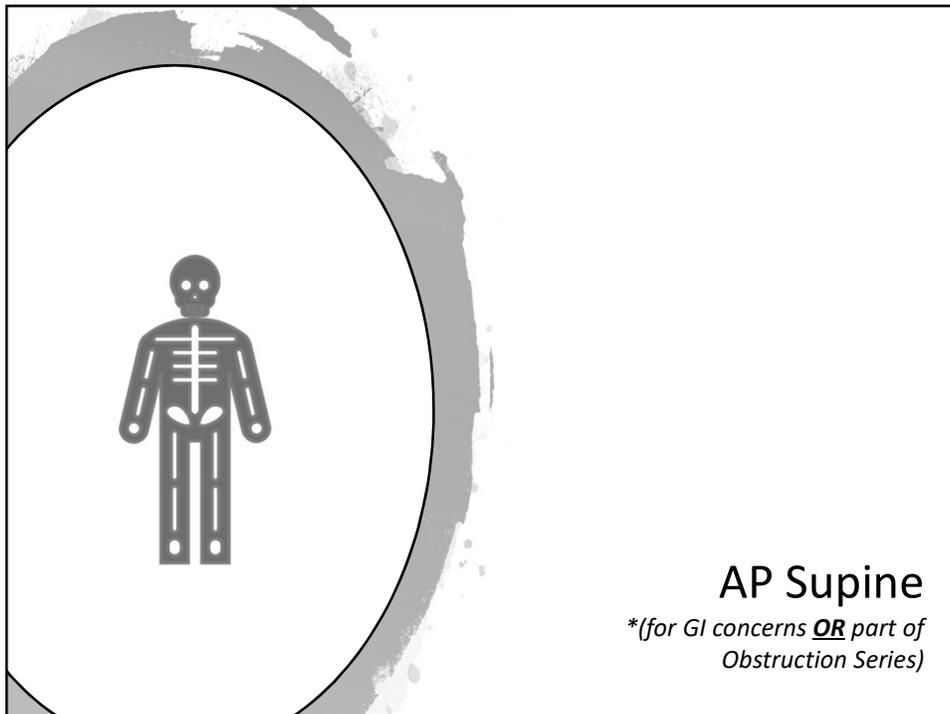
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El: 166

200

25



AP Supine

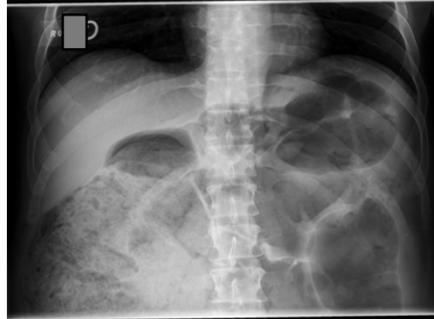
**(for GI concerns OR part of Obstruction Series)*

26

11



EI: 658



EI: 461

400

27

12



EI: 522

500

28

13



EI: 478

500



EI: 486

400

29

14



EI: 873

220



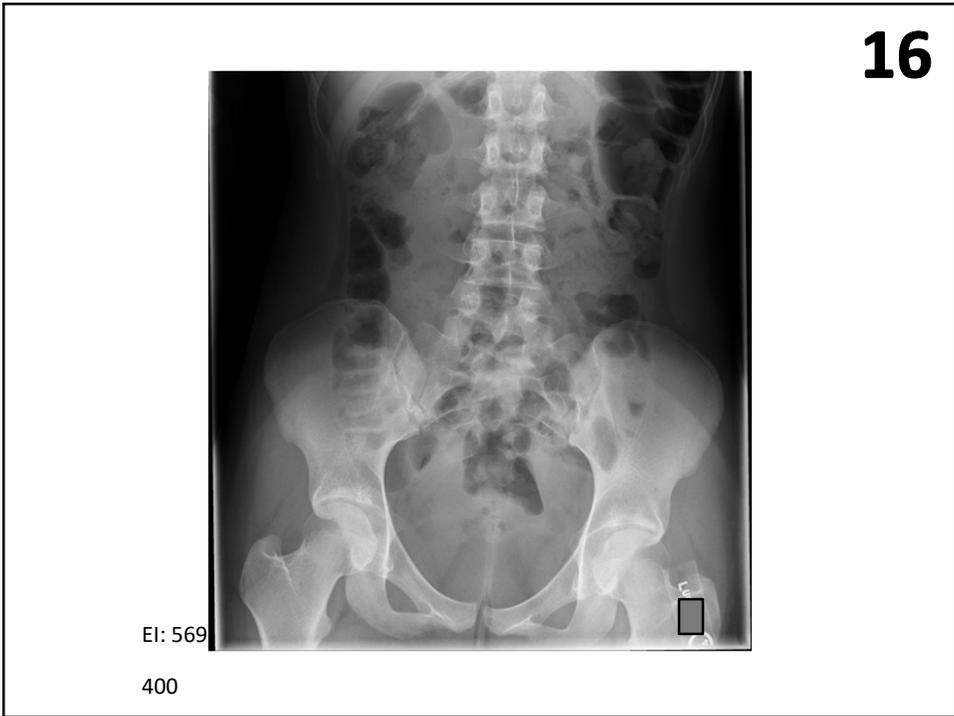
EI: 775

280

30



31



32

17



500

EI: 369

33

18



630

EI: 668

34

19



400

EI: 743

35

20



EI: 327

400



EI: 866

400

36

21



El: 963

630



El: 1000

630

37

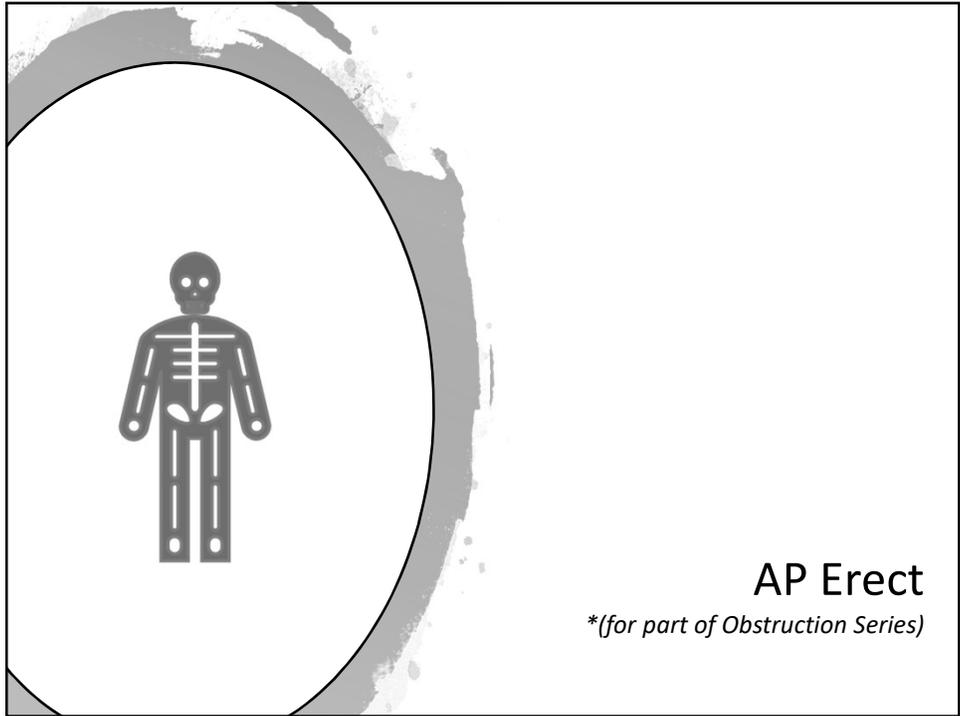
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El: 223

400

38



39



40

24

• erect



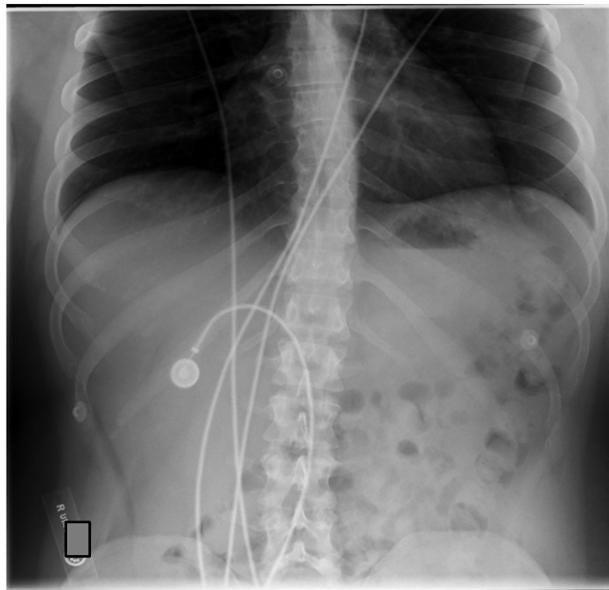
220

EI: 642

41

25

erect



400

EI: 673

42

26

• erect



EI: 553

400

43

27

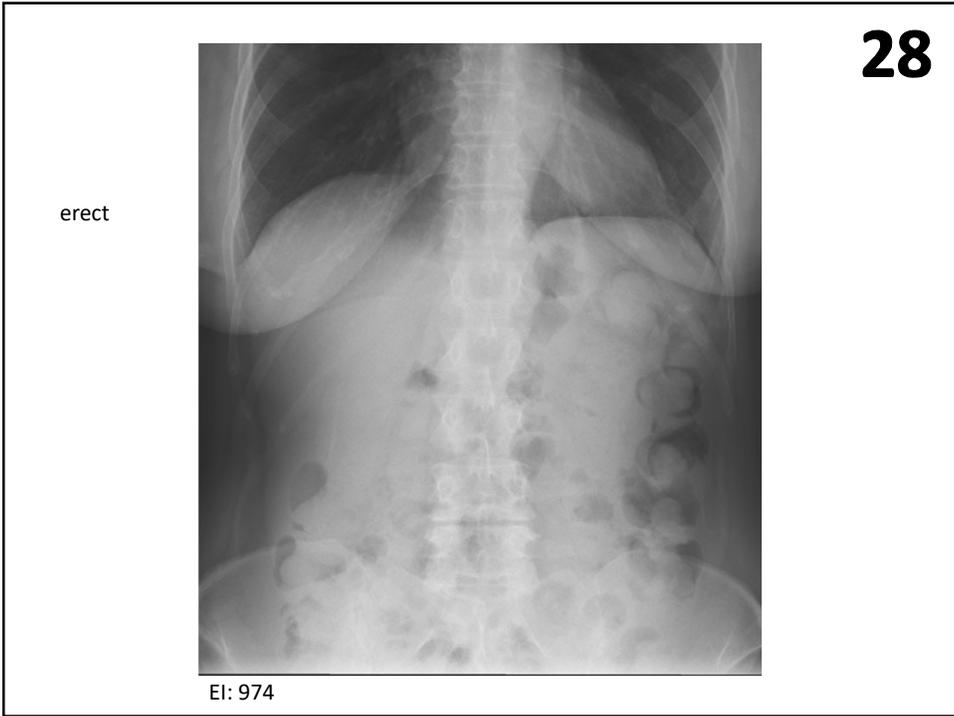
erect



400

EI: 784

44

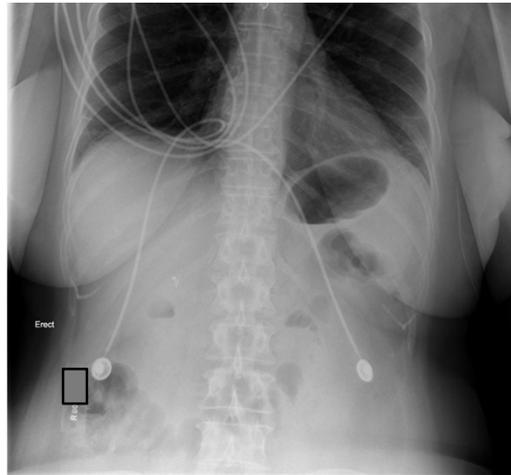


45



46

30

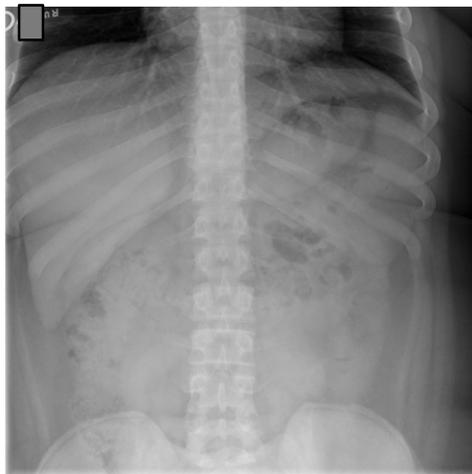


400

EI: 642

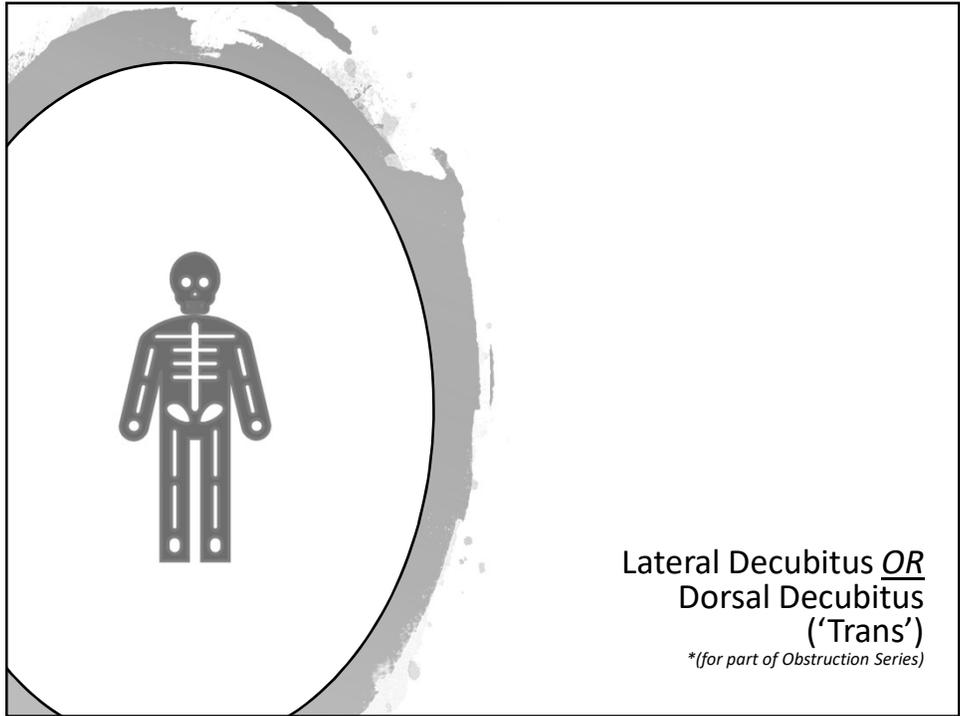
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31

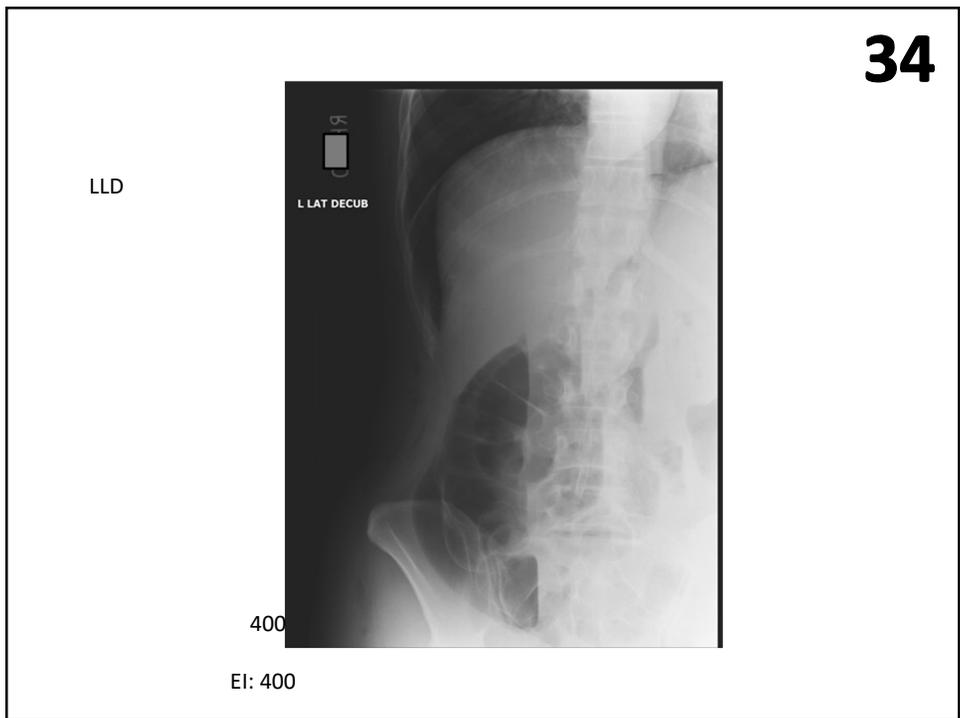


400 EI: 442

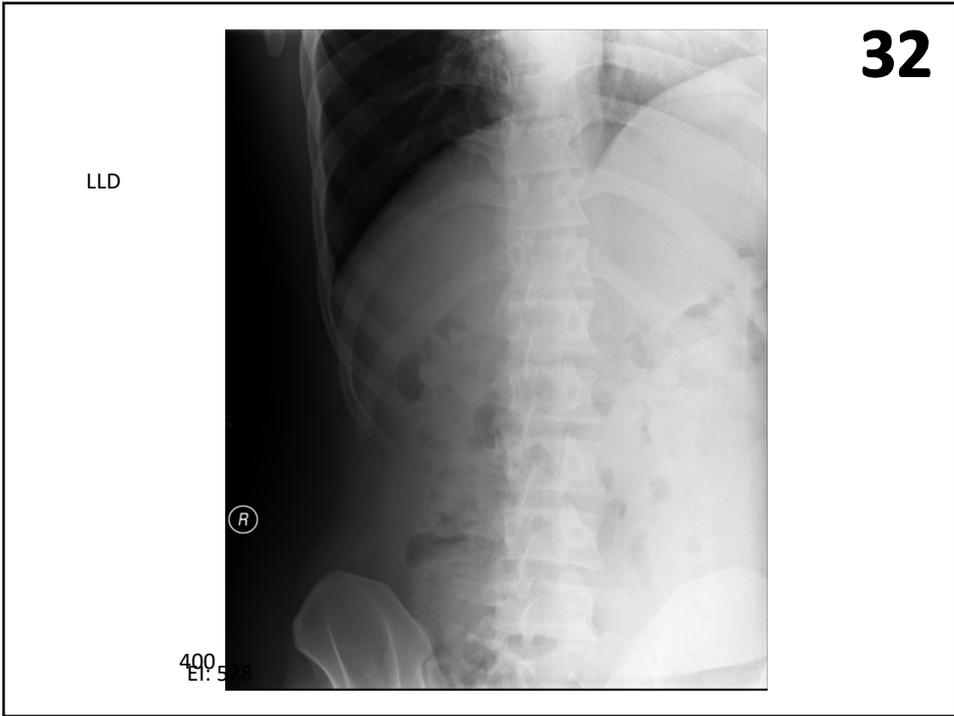
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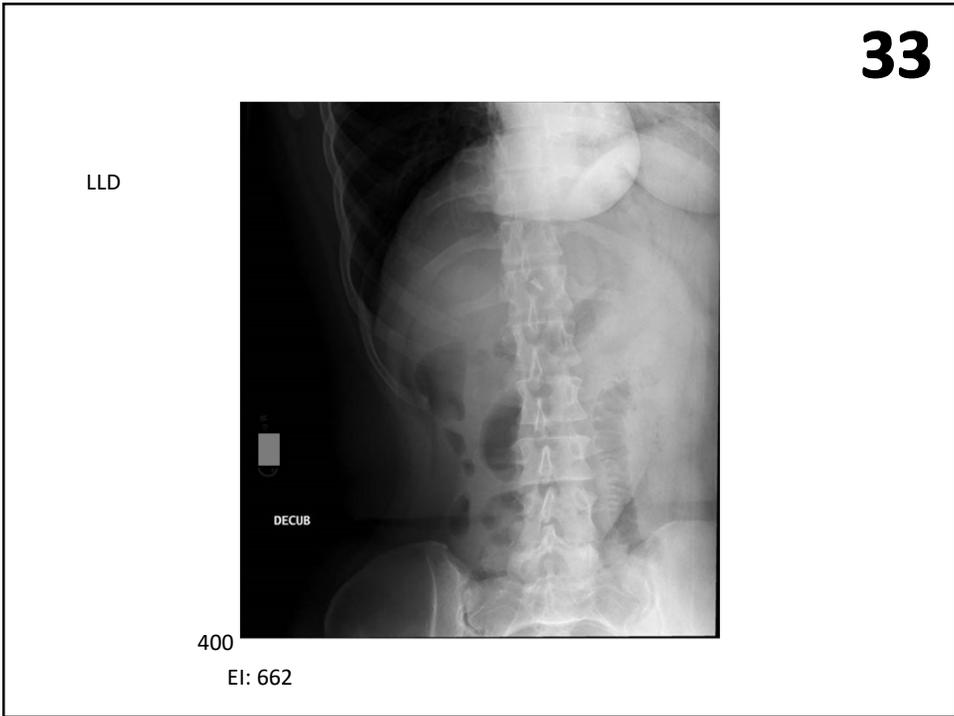
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50



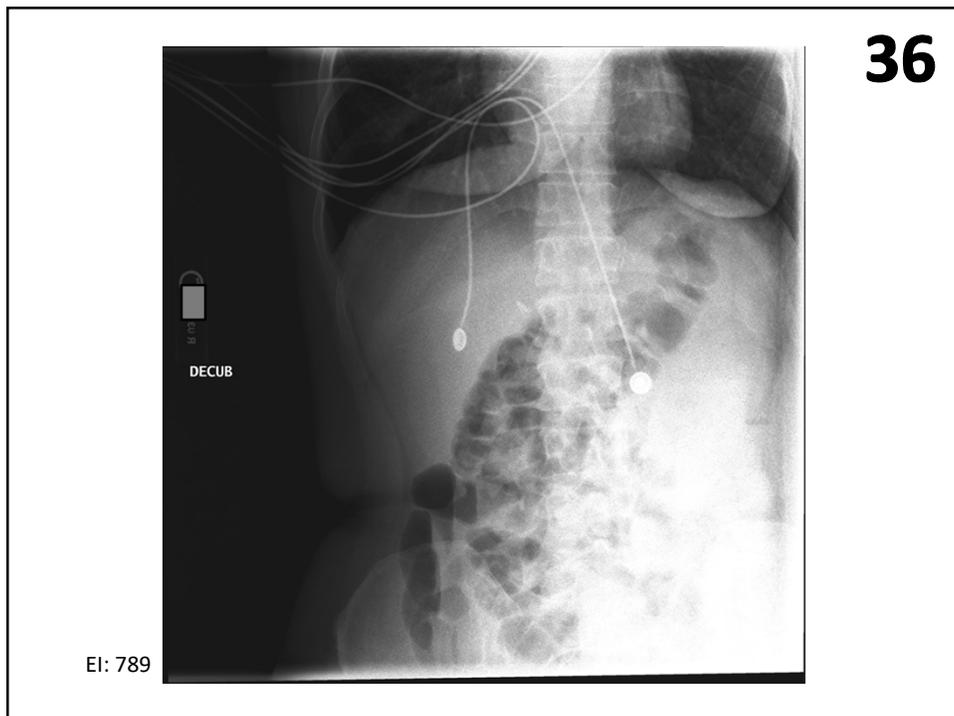
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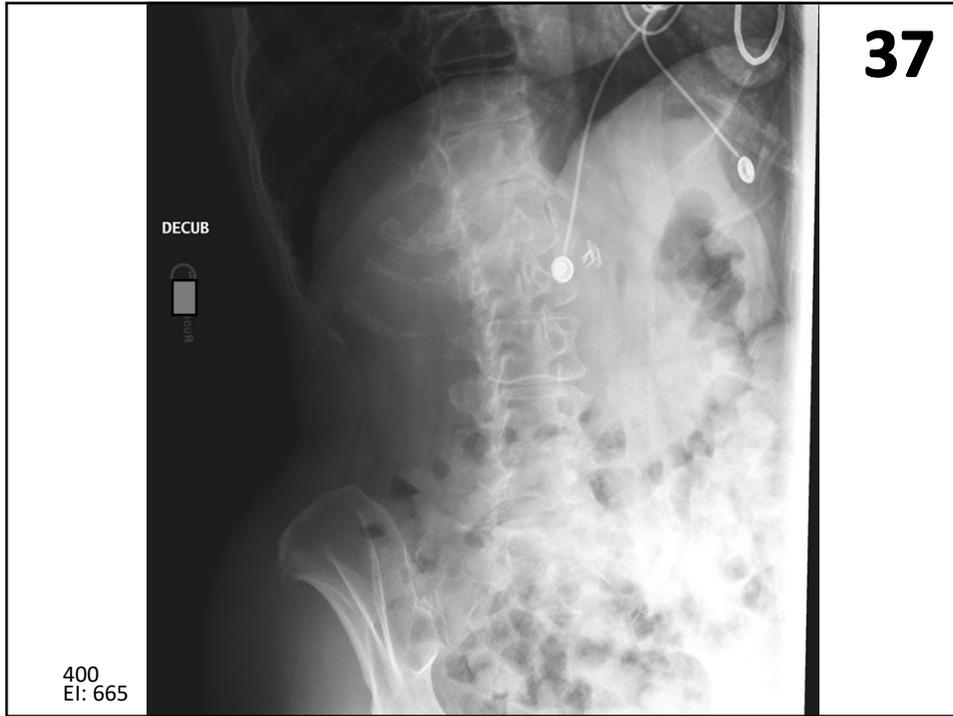
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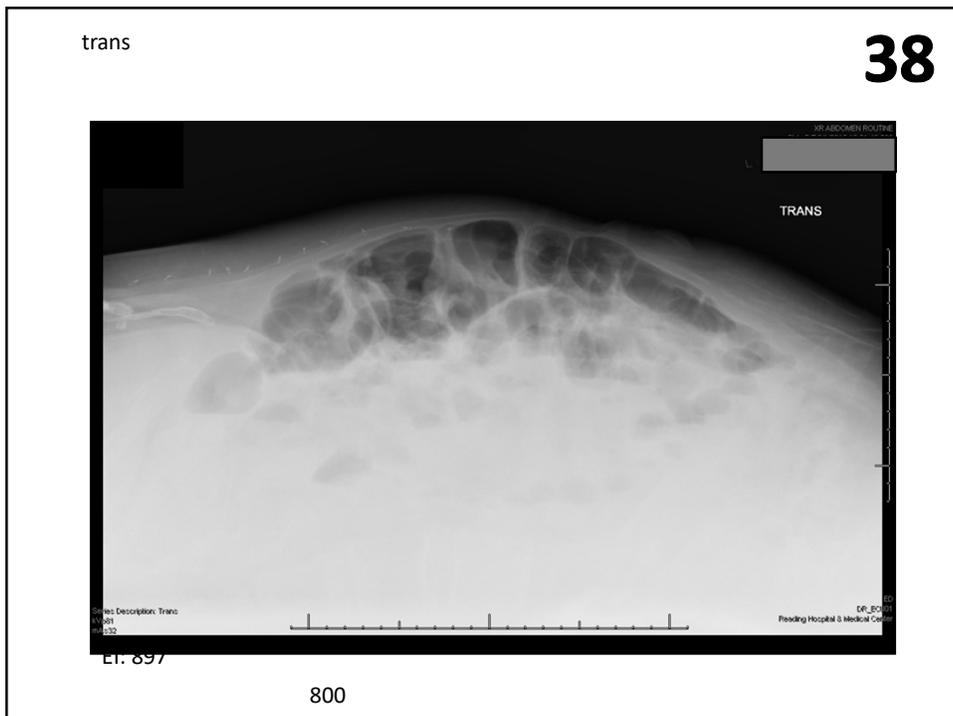
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54



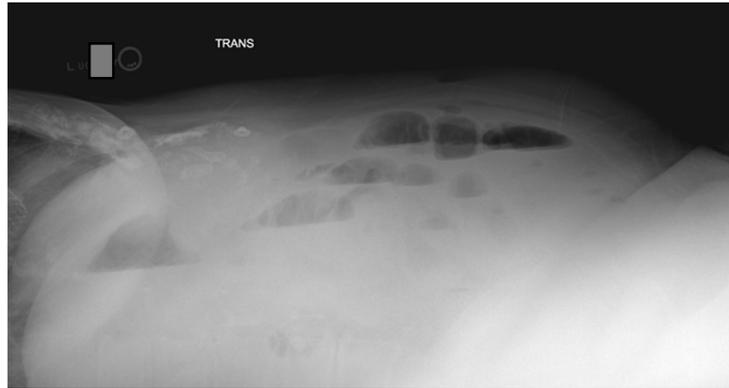
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56

trans

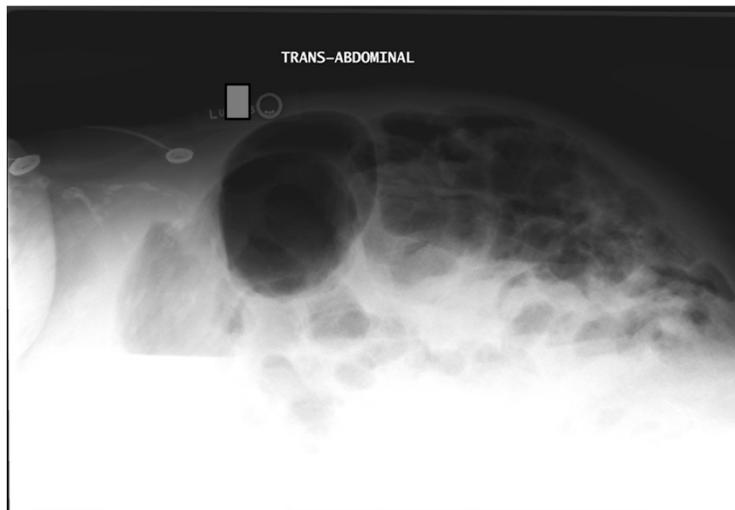
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EI: 774 800

57

40

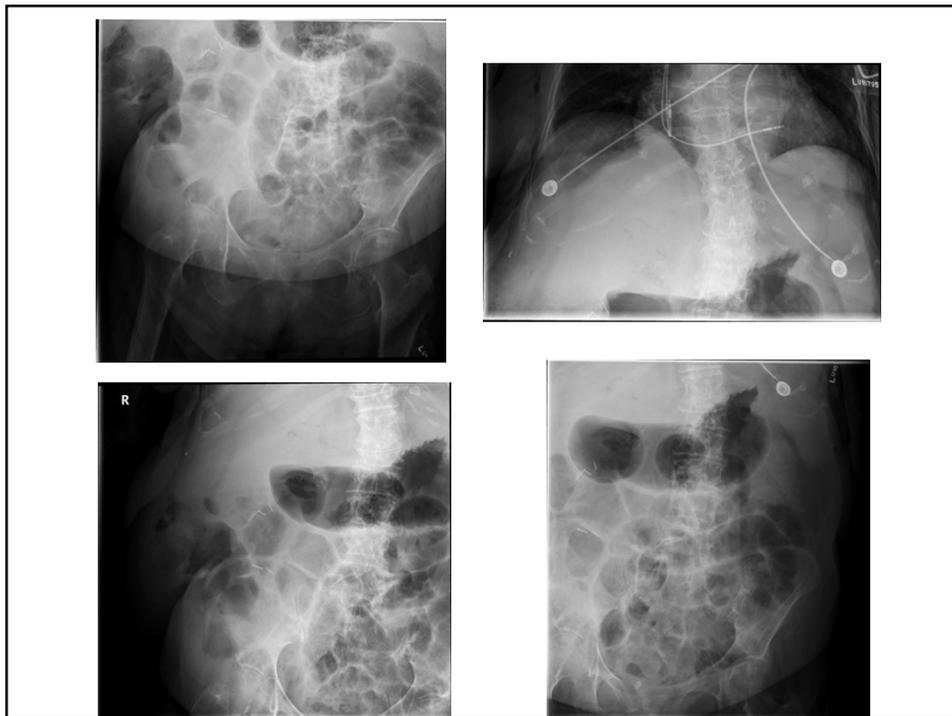


EI: 628

58

It should be rare that you have to do 1 lengthwise to capture a side and even rarer to do “quads”

59



60