Paediatric Bowel

You are in charge of a regional ED and a 17 day old child comes with a history of 2 episodes of projectile vomiting in the preceding hour.

Associated with reduced feeds and not having opened bowels for 3 days. Mother reports he has passed meconium.

O/E:

Irritable with a distended abdomen

Vitals:

HR: 210

RR: 40

Temp: 35.5

1) List 5 differential diagnosis

- Pyloric Stenosis
- Necrotizing enterocolitis
- Malrotation / Volvulus
- Intussusception
- Hirschsprung disease

2) List 5 clinical signs you will look for in this child.

- Depressed Fontanelle
- Decreased conscious state
- Visible peristalsis
- Absent / Reduced bowel sounds
- Undescended testes

3) List 5 investigation you would ask for and give a rational for each

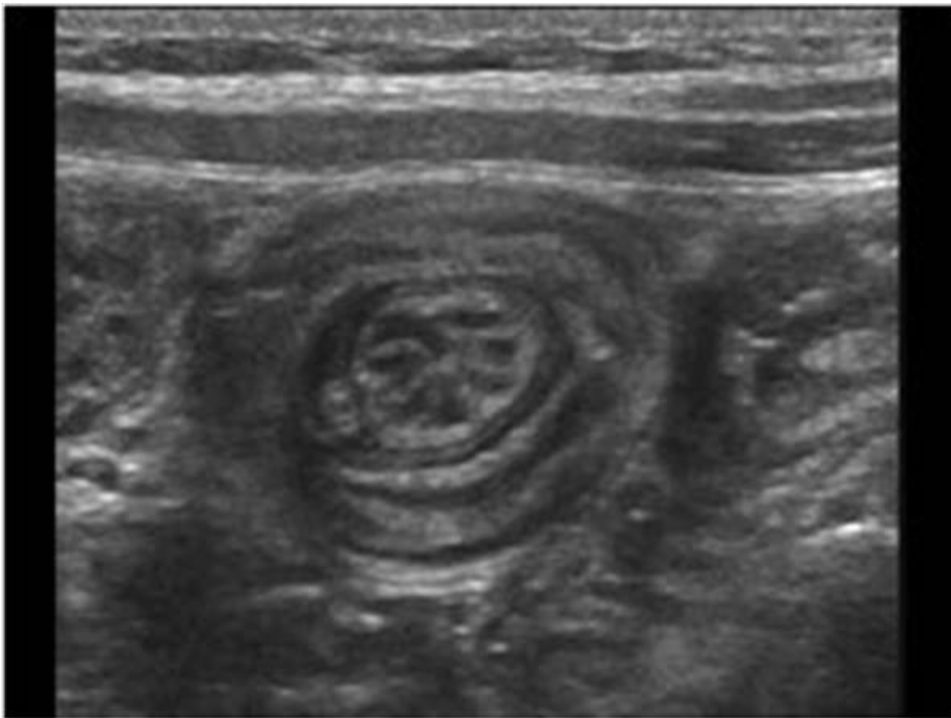
- VBG – BSL and to assess acid-base status (hypochloraemic hypokalaemic metabolic alkalosis would suggest pyloric stenosis)
- UEC – to assess presence or degree of electrolyte derangements (hypokalaemia)
- FBE – raised WCC with left shift and neutrophilia suggestive of bacterial infection.
- AXR – signs of bowel obstruction
- US – to assess for features of intussuseption

4) List 5 possible abnormal AXR findings you may find.

- An abnormal gas pattern, with an empty right lower quadrant and visible soft tissue mass in the upper abdomen

- A soft tissue mass surrounded by a crescent lucency of bowel gas (crescent sign)
- Lack of faecal material in the large bowel
- Signs of small bowel obstruction (air-fluid levels and dilated loops)
- Pneumoperitoneum indicating bowel perforation

5) List 2 US findings of intussusception.



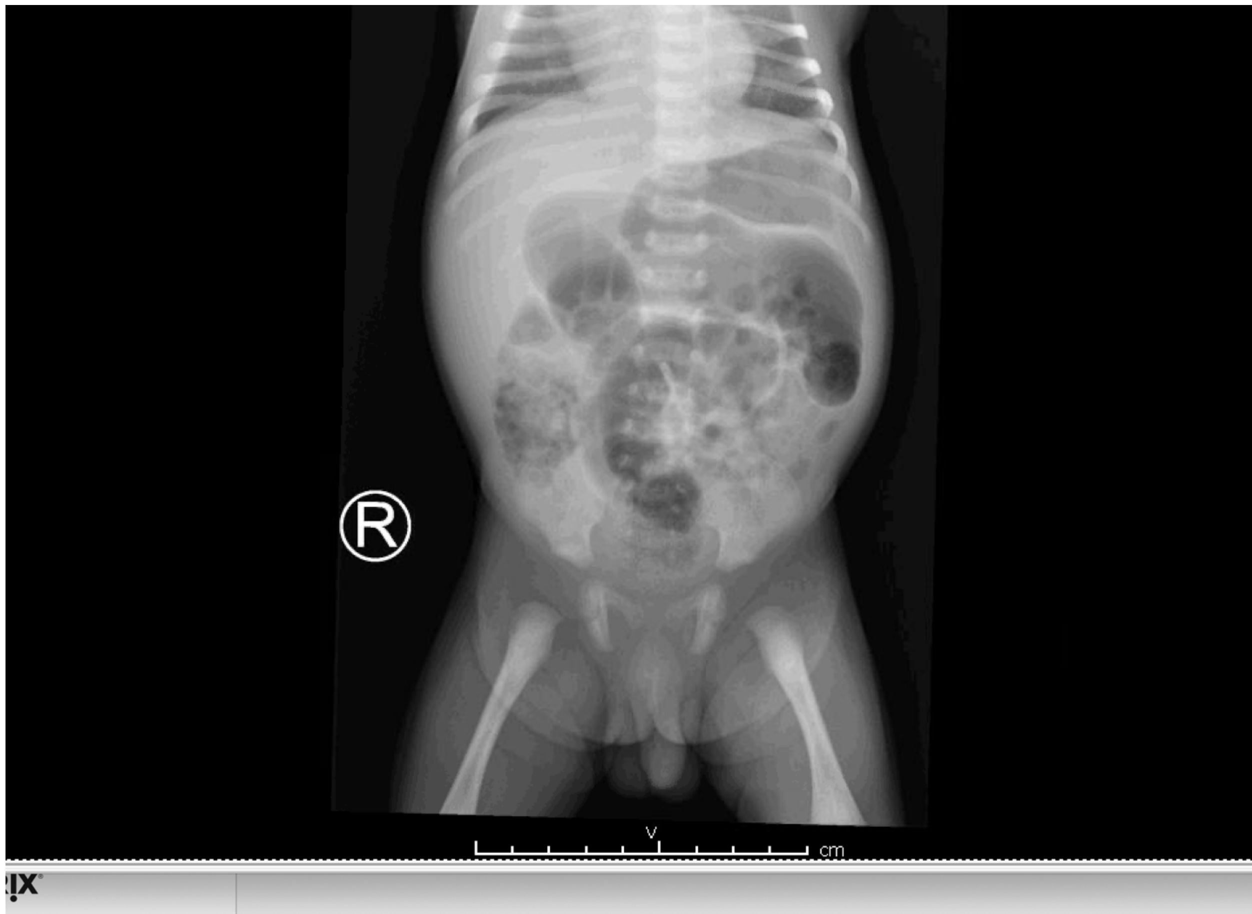
- **Target sign** / **doughnut sign** or **bull's eye sign**.

(The appearance is generated by concentric alternating echogenic and hypoechoic bands. The echogenic bands are formed by mucosa and muscularis whereas the submucosa is responsible fo the hypoechoic bands)

- **Pseudokidney of intussusception** (It refers to the longitudinal ultrasound appearance of the intussuscepted segment of bowel which mimics a kidney. The fat-containing

mesentery which is dragged into the intussusception, containing vessels, is reminiscent of the renal hilum, with the renal parenchyma formed by the oedematous bowel.)

Urgent ultrasound exam shows a small amount of free fluid and an AXR is performed concerning for dilated small bowel loops suggestive of obstruction (see pic below). Pathology returns a markedly elevated WCC with neutrophilia.



5) There has been no further vomiting in the emergency department. List your 4 immediate management priorities in this patient

- IV Fluids with 20ml/kg of Normal Saline.

- Analgesia IV fentanyl 1mcg/kg (Morphine 0.1mg/kg is an alternative)
- Early empiric IV Antibiotics Amoxicillin 50 mg/kg IV and Gentamicin 5 mg/kg IV and Metronidazole 15 mg/kg IV stat
- Arrange Transfer to tertiary hospital for urgent paediatric surgical investigation and treatment.

Importance of these diagnoses is that there might be other congenital malformations present.