

# Anorectal Malformations (ARMs)



- Anorectal malformations (ARMs) is commonly referred to as *imperforate anus*.
- A normal anal opening is nonexistent and the colon empties anteriorly either onto the perineum or towards the vagina in a female or into the urinary system in a male.
- There are also instances of atresia where the rectum is blind ending with no connection or external opening.
- The distance away from the normal anal opening correlates with the degree of associated abnormalities (VACTERL Association).

# Epidemiology and Pathology

- ARM occur in one in every 4000 to 5000 births.
- They are slightly more common in males (1.2:1).
- The risk of having a second child with an ARM is approximately 1%.
- Failure of complete hindgut separation into ventral urogenital portion and the dorsal anorectal portion.
- Known association with trisomy 21.

# Presentation

- Neonatal Intestinal Obstruction:
  - Delayed or absent passage of meconium
  - Abdominal Distention
  - Bilious Vomiting
- Meconium Per urethra
- Meconium Per Vagina

# Classification

Male ARM Classification by Location	
<b>Lower</b>	
Anal stenosis	1%
H-type fistula	4%
ARMs with no fistula	5%
<u>Perineal (cutaneous) fistula</u>	10%
<u>Recto-bulbar urethra fistula</u>	37%
<b>Higher</b>	
<u>Recto-prostatic urethra fistula</u>	35%
<u>Recto-vesical fistula</u>	8%

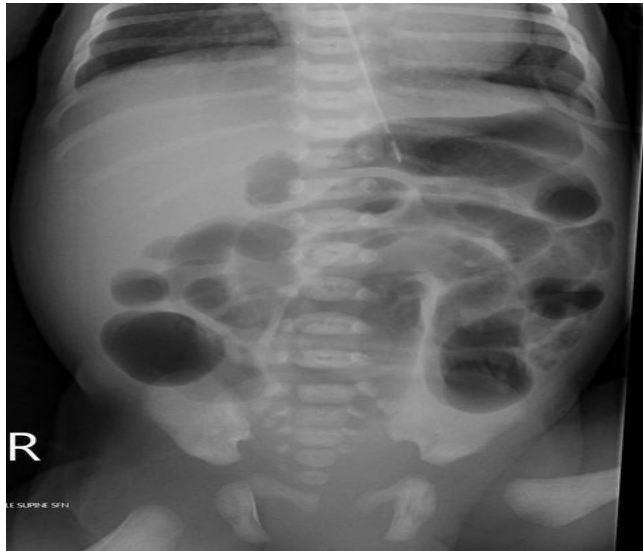


Female ARM Classification by Location	
<b>Lower</b>	
<u>Recto-vaginal fistula</u>	< 1%
Anal stenosis	1%
ARMs with no fistula	5%
<u>Perineal (cutaneous) fistula</u>	18%
<u>Recto-vestibular fistula</u>	70%
<b>Complex</b>	
Cloaca (Single Opening)	5%



# Assessment

- Plain Radiographs
- *Chest and Abdomen* to evaluate for vertebral anomalies and esophageal atresia after a nasogastric tube is placed
- *Lateral prone* ('invertogram')

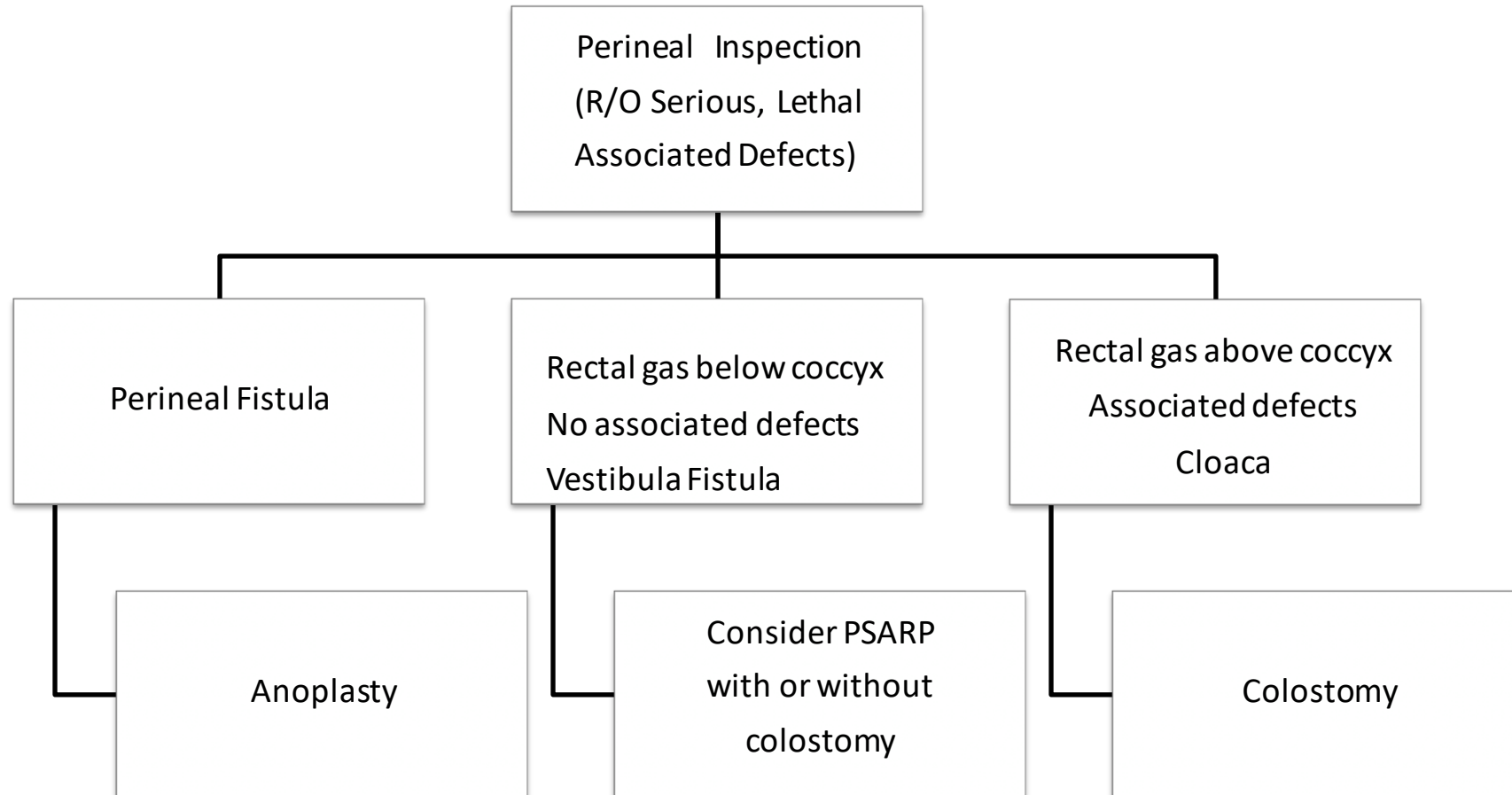


- **VACTERL Work up**

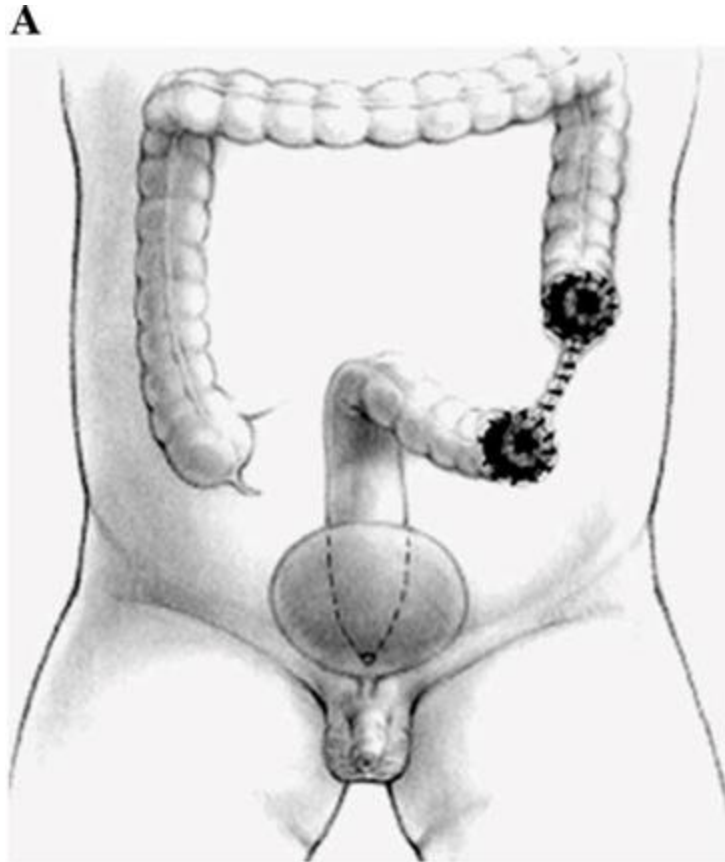
- Echocardiogram
- Renal Ultrasound (GU anomalies are the most common in ARM)
- Spine Ultrasound and X-Ray (Has prognostic factor)
- Radius X-Ray if abnormality is noted on physical exam.

- **Document if perineum is flat or well developed (Prognostic Factor)**



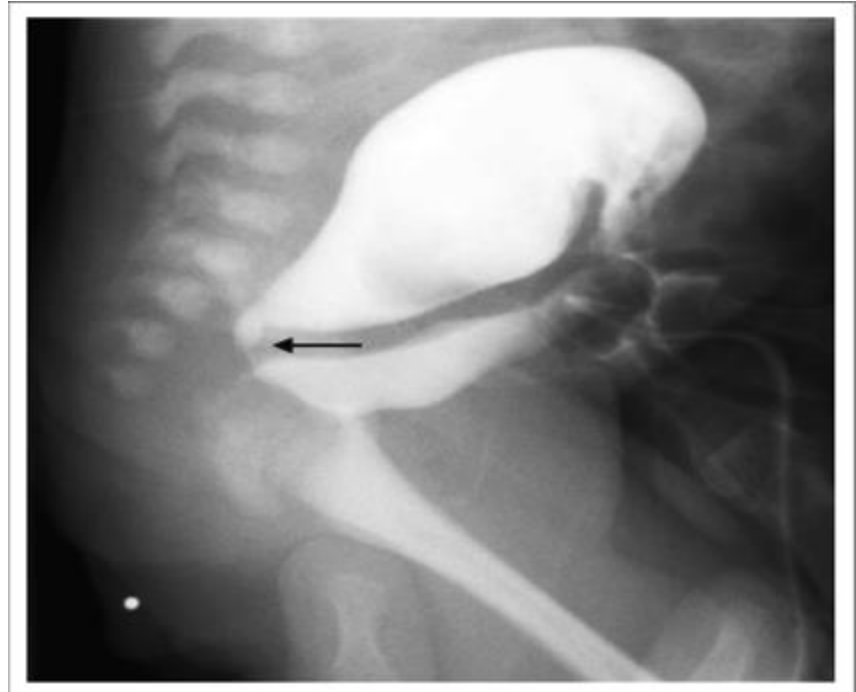


# Diverting colostomy (Divided Colostomy)



# Planning Staged Procedure

- **Evaluation of Anatomy**
  - **VCUG**
  - **Antegrade colostogram via distal limb**
  - **Cystoscopy**
  - **Vaginoscopy**



## Operation: PSARP Procedure

- Combined perineal and abdominal approach required for higher types.
- Colonic diversion reversed once perineum healed (6-8 weeks after PSARP)



# Complications

- **Peri-operative**

- Infection
- Bleeding
- Wound Dehiscence
- Urinary Tract Injury

- **Long Term**

- Anal stenosis
- Fecal incontinence
- Chronic constipation