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## Learning Objectives for Rotations in Pediatric General Surgery Year 3 Basic Clerkship

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### CLINICAL PROBLEMS IN PEDIATRIC SURGERY

#### I. NEONATES

##### **CASE 1**

A two-day old infant develops bilious vomiting and abdominal distension.

##### **Clinical Skills**

1. Develop an accurate differential diagnosis for this clinical scenario.
2. Describe in detail the work-up to obtain a final diagnosis.
3. Describe the initial resuscitation and treatment of this baby.

##### **Knowledge Base**

1. Malrotation/Volvulus.
  - Describe the embryology of normal intestinal rotation and fixation.
  - Discuss the anatomic abnormality in malrotation.
  - Describe the etiology and implications of midgut volvulus.
  - Describe the Ladd's procedure/Detorsion of volvulus.
2. Hirschprung's Disease.
  - What is the etiology of the functional bowel obstruction
  - Name the definitive diagnostic test
  - Discuss the histologic abnormality of the bowel
  - Describe the surgical treatment
3. Jejunal/Ileal Atresia.
  - Discuss the findings on plain and contrast radiologic studies
  - Describe the pathophysiology of the small bowel atresia
4. Meconium Ileus.
  - Discuss the etiology of the mechanical bowel obstruction
  - Name the associated systemic abnormalities
  - Describe the treatment options for this condition

## **CASE 2**

A newborn male develops copious oral secretions and mild respiratory distress.

### **Clinical Skills**

1. Make an accurate diagnosis of esophageal atresia using nasogastric tube insertion and plain chest radiograph.
2. Safely stabilize and transport this child to a tertiary care facility.
3. Treat acute gastric dilatation causing respiratory compromise.

### **Knowledge Base**

1. Describe the anatomy of the most common type of esophageal atresia.
2. Define the components of the VATER syndrome.

## **CASE 3**

A newborn female is delivered via C-section for polyhydramnios and fetal distress. She is found to have most of her abdominal viscera protruding through a defect in her abdominal wall.

### **Clinical Skills**

1. Describe how to acutely resuscitate this child.
2. Discuss the care of the abdominal viscera prior to abdominal wall closure.
3. Outline the pre-operative work-up for this baby.

### **Knowledge Base**

Gastroschisis/Omphalocele.

1. Describe the associated congenital abnormalities in each case.
2. Discuss the presence of a covering membrane and the implications of this.
3. Describe the location of the abdominal wall defect in each.
4. Duration of post-operative ileus in gastroschisis versus omphalocele.
5. Describe the other abnormalities of the intra-abdominal viscera.

## **CASE 4**

A newborn male develops tachypnea and dyspnea shortly after birth. Breath sounds are diminished on the left.

### **Clinical Skills**

1. Use physical exam to determine the cause of this baby's symptoms.
2. Confirm this diagnosis radiologically.
3. Resuscitate and stabilize this child for transfer to a tertiary care facility.

### **Knowledge Base**

1. Describe the anatomy of a congenital diaphragmatic hernia.
2. Discuss the etiology of the child's respiratory distress
  - pulmonary hypoplasia
  - compression by abdominal viscera
  - persistent fetal circulation

## II. INFANTS

### **CASE 1**

A five-week old male infant presents with a history of progressive non-bilious vomiting after feeding.

#### **Clinical Skills**

1. Elicit the key points in taking a history for pyloric stenosis.
2. Describe the classic findings on physical examination.
3. Accurately assess the state of hydration in an infant.
4. Describe in detail the resuscitation of a dehydrated baby with pyloric stenosis.
5. Discuss the radiologic tests used to confirm this diagnosis.

#### **Knowledge Base**

1. Describe the etiology of the pyloric obstruction.
2. Discuss the "classic" electrolyte abnormality in pyloric stenosis and the cause for this.
3. Describe surgical treatment for this condition.
4. Discuss other causes of vomiting in an infant of this age.

### **CASE 2**

A six month-old infant presents with a 24 hour history of colicky abdominal pain. She has become irritable and is feeding poorly. This morning she passed some bloody stool prompting her parents to bring her to the emergency room.

#### **Clinical Skills**

1. Elicit a history containing the salient features of intussusception.
2. Describe the physical findings in a child with this diagnosis.
3. Accurately interpret the radiologic findings on plain abdominal radiograph and name the diagnostic test of choice.
4. Discuss the various treatment alternatives.

#### **Knowledge Base**

1. Describe the anatomy of an intussusception.
2. Name the possible etiologies acting as a lead point in intussusception.
3. Discuss other causes of rectal bleeding in infants.

### **CASE 3**

A 16 month-old male is found to have an empty right hemiscrotum on routine physical examination.

#### **Clinical Skills**

1. Perform a careful physical examination to locate the right testicle.
2. Differentiate a retractile from an undescended testicle.
3. Assess whether there is an associated hernia or hydrocele.

#### **Knowledge Base**

1. Describe four potential complications of an undescended testicle.
2. Discuss the proper timing of surgical treatment in this child.
3. Define cryptorchidism and discuss potential etiologies.

### III. CHILDREN

#### **CASE 1**

A four year old female presents with a recently discovered right upper quadrant abdominal mass. Her appetite has been poor for the last few weeks and she has complained of some vague abdominal pain.

#### **Clinical Skills**

1. Perform a history and physical exam to develop an accurate differential diagnosis.
2. Order the appropriate laboratory studies to aid in the diagnostic work-up.
3. Select the appropriate imaging studies to define the extent of the mass and evaluate for metastatic disease.

#### **Knowledge Base**

1. Wilms' Tumor
  - Describe the site of disease and incidence of bilateral tumors.
  - Discuss the significance of hematuria.
  - Name the most common sites of metastatic disease.
  - Describe the primary treatment.
2. Neuroblastoma
  - Name the most common sites of origin as well as the location of metastatic disease.
  - Describe the distinguishing radiologic characteristics of this tumor.
  - Discuss the treatment options.
3. Hepatoblastoma
  - Name the tumor marker which is elevated in hepatoblastoma.
  - Discuss the role of chemotherapy in this disease.
  - Describe the surgical treatment.