PEM GUIDE – PYLORIC STENOSIS

INTRODUCTION

The surgical abdomen in the neonate is a rare event, but is associated with a very high morbidity and mortality. It can quickly lead to severe dehydration, hypoglycemia, electrolyte imbalance, and to irreversible ischemia to the intestine. Early recognition and early intervention are crucial.

In almost every case of an intestinal obstruction the neonate will present with vomiting. Vomiting is rare in the neonatal period or early infancy and should always raise concern of a serious underlying disease. Inexperienced parents may confuse spitting up secondary to food-regurgitation and overfeeding with vomiting. It is helpful to know the amount a newborn is normally feeding (Approx: 1/6th of its body weight a day = 1 oz / kg body weight / every 4 hrs)

Age and presenting symptoms may help in the differential diagnosis of the surgical abdomen in the newborn and early infancy: Bilious vomiting suggests a level of obstruction below the sphincter of Odi. Abdominal distension (as apposed to gastric distension) occurs due to more distal obstructions

- Congenital GI obstruction - A lethargic neonate with bilious vomiting
- Pyloric stenosis - A young male infant with non-bilious, projectile vomiting
- Intussusception - An infant beyond neonate period (peak 5-10 months of age) whose vomiting occurs with bouts of pain, a change in mental status, or bloody stools.

INITIAL MANAGEMENT

- IV access, fluid resuscitation with colloidal fluids (NS, LR)
- CBC/diff, Electrolytes, Dextrostick
- Blood Culture, Catheterized UA/Urine Culture – LP if rectal temp > 38 (100.4)
- XRAY - single abdomen supine AP and upright with chest AP
- Consider Orogastric or nasogastric tube (Fr 8-10)
  - Avoid in pyloric stenosis
- Surgical consult, Radiology consult

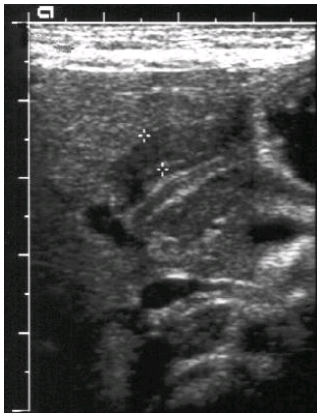
INTESTINAL OBSTRUCTION IN THE NEONATE	
Proximal	Pyloric Stenosis
	Gastric Volvulus
	Malrotation with Ladd's Bands
	Annular Pancreas
	Cholecdochal Cyst
	Duodenal Atresia
Middle	Malrotation with Midgut Volvulus
	Jejunoileal Atresia
Distal	Intussusception
	Hirschsprung's Disease with Aganglionic Megacolon

PYLORIC STENOSIS

INTRODUCTION

Hypertrophy of the pyloric musculature results in progressive narrowing of the pyloric canal and varying degrees of gastric outlet obstruction. Classically a male infant (male:female ratio of 4:1) who has been feeding well previously presents at 2 to 5 weeks pf age with a history of progressive vomiting after feeding. They look well initially and wish to feed after vomiting. As more complete obstruction develops, the vomiting becomes more forceful and projectile. Clinical findings depend on the extent of obstruction and degree of dehydration.

EVALUATION



There are two physical examination findings that are somewhat specific to pyloric stenosis. The first is the observation of a gastric peristaltic wave as the stomach peristalsis against the narrow pyloric channel. The patient will exhibit gastric distention (as opposed to generalized abdominal distension). The second is direct palpation of the hypertrophied pyloric channel. This is described as a small mobile mass or “olive”. Palpation of the “olive: can be facilitated by examining the infant immediately after vomiting (with an empty stomach). The infants feet are held in one hand with the hips flexed (relaxing the abdominal musculature). The other hand gently palpates the right upper abdomen in an upward direction. Signs of dehydration should also be noted.

Ultrasound is useful to identify pyloric stenosis. The criteria for the sonographic diagnosis are 1.4 cm or longer length of the pyloric canal with 0.3 cm or greater thickness of the circular muscle. If the ultrasound study does not show a hypertrophic pylorus, an upper GI series can be done to demonstrate a narrowed pyloric channel and identify other causes of gastrointestinal obstruction.

Serum electrolytes may be abnormal because of gastric losses. In essence the infants are vomiting hydrochloric acid and potassium. The classic electrolyte findings are that of hypokalemic, hypochloremic metabolic alkalosis. As dehydration progresses a metabolic acidosis may be seen.

MANAGEMENT

Management depends on the degree of obstruction and the presence of electrolyte disturbances and dehydration. Definitive therapy includes a surgical pyloromyotomy.

In the case of an ill appearing child with protracted vomiting and signs of dehydration or electrolyte abnormalities, intravenous fluid resuscitation should be initiated pending confirmation of the diagnosis with an ultrasound or upper GI series. IV fluids should be 5% dextrose in normal saline. If hypotonic solutions are used, there is significant risk of

hyponatremia. Nasogastric drainage should be avoided as it may worsen electrolyte abnormalities. The patient should be admitted for correction of acid base and electrolyte abnormalities. Surgical repair is attempted later.

In the well appearing, well hydrated neonate with normal electrolytes the differential diagnosis is early pyloric stenosis versus benign regurgitation and the child is safe to continue oral feeding pending official ultrasound study. The neonate may be discharged pending ultrasound study if ultrasound confirmation is not available at the time of presentation.