

**OMPHALOCELE
AND
GASTROSCHISIS**

OVERVIEW

- Description of lesion
- Preoperative stabilization
- Preanesthetic evaluation
- Anesthetic management
- Postoperative considerations

GUT DEVELOPMENT

□ **Primitive gut - Divided into 3 regions**

□ Foregut- Pharynx, esophagus and stomach

□ Midgut- Small and large intestine

□ Hindgut- Colon and rectum

□ **Abdominal wall- somatic and splanchnic layers of the cephalic lateral and caudal folds**

□ **Failure in development of one of these folds can result in**

GUT DEVELOPMENT

- Week five
- Week ten
- Week eleven

OMPHALOCELE

- Greek- *omphalos*-navel, *cele*- hernia
- Absence abdominal wall fascia
- Herniation abdominal contents
- Eccentric displacement umbilical cord
- Small underdeveloped abdominal cavity
- Thin sac covering defect

OMPHALOCELE

□ **Incidence: 1 in 3 - 5,000**

□ **Divided into 2 groups**

□ Small hernia umbilical cord (<4 cm)

□ Giant Omphalocele (>4 cm with herniated liver)

□ **Associated congenital abnormalities (30-70%)**

□ **Gastrointestinal, Genitourinary, central nervous system, congenital heart defects**

□ **Cardiac defects- seen in 25% of patients (TEF most common)**

ASSOCIATED MALFORMATIONS

□ UPPER MIDLINE SYNDROME

- Pentalogy of Cantrell, Sternal defect, Ectopia cordis, Pericardial and cardiac defects,
Diaphragmatic defect, Omphalocele

□ LOWER MIDLINE SYNDROME

- Vesicointestinal fistula, Imperforate anus, Colonic agenesis, Bladder extrophy,
Omphalocele

□ BECKWITH-WIEDEMANN SYNDROME

OMPHALOCELE

- 30- 50% develop hypoglycemia

- May last for first year of life

- Associated mortality

 - Small defect (30%)

 - Giant defect (48%)

GASTROSCHISIS

- Greek: *Gaster*-stomach, *schisis*- cleft
- Incidence 1 in 50,000
- Infarction /atresia bowel common
- Infrequent congenital malformations
- High association prematurity
- Herniated contents (rarely liver)
- Umbilical cord left defect, Absence sac over herniation

GASTROSCHISIS...

ISOLATED OMPHALOCELE

- Failure of lateral folds to engulf the midgut and form the future umbilical ring

DEVELOPMENT SPECULATIVE

- Shaw (Early 1980's) – Simple herniation of the cord that ruptures after completion of the anterior abdominal wall but, before completion of the umbilical ring.

GASTROSCHISIS...

GLICK (1984)

□ **Ultrasound for chronologic in utero development of Gastroschisis**

OBSERVATION

□ **27 - Moderate soft tissue mass adjacent to fetal anterior wall, contained in sac**

□ **31 - Mass with loops of bowel identified, contained in sac**

□ **35 - Free floating bowel in amniotic fluid**

CESAREAN SECTION

PREOPERATIVE STABILIZATION

• AIRWAY SUPPORT

- Often intubated in delivery room

• GASTRIC DECOMPRESSION

- Prevent aspiration
- Air progressing past pylorus where irretrievable and cause increased difficulty in repair

• TEMPERATURE REGULATION

- Infant covered with plastic wrap to minimize heat loss

• BOWEL CARE

- Bowel covered by moist saline dressing, protect from dehydration

INITIAL RESUSCITATION

- Consider hypoglycemia until proven otherwise
- Dextrose solution at 5-7 mg / kg / min
 - D20 / D10 / Ringers lactate / 5% albumin
- Brain & Heart depend on glucose as major energy substrate
- Limited hepatic glycogen storage < 2.5 kg

PREOPERATIVE EVALUATION

- Inspect the protruding viscera, R/O torsion or angulation of bowel
- Correct dehydration / hypovolemia / hypoglycemia
- Evaluation respiratory system (Chest X-ray)
- Cardiac evaluation (EKG, ECHO, especially in Omphalocele)
- Temperature stabilization
- Evaluation intravascular status

MANAGEMENT

ANESTHETIC MANAGEMENT

- Airway
- Maintenance
- Monitors

SURGICAL PROCEDURE

- Reduction herniated viscera
- Closure of defect
- Cardio/respiratory function

SURGICAL PROCEDURE

PRIMARY CLOSURE

□ Reduced complications

- Sepsis, sac dehiscence, prolonged ileus

□ Increased complication

- Hypotension, bowel ischemia, anuria, respiratory failure

STAGED CLOSURE

□ Avoid abdominal viscera compression

□ Allow early extubation

□ POSTOPERATIVE MANAGEMENT