

Gastroschisis Project Summary

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Objective: To develop a regional evidence-based standard of care for the prenatal, medical, and surgical management of gastroschisis.

Exclusions: This guideline does not apply to patients with complex gastroschisis (defined as gastroschisis with volvulus, atresia, necrotic bowel, or bowel perforation).

Recommendations

PRENATAL

- Perform fetal ultrasound every 3-4 weeks after diagnosis. A standardized ultrasound checklist will be used [LOE= D]
- Perform Non-stress test (NST) 2 times per week starting at 32 weeks gestation in simple gastroschisis.
- Perform NST weekly prior to 32 weeks in fetuses with concerning fetal growth, progressive bowel dilation or an absolute bowel diameter of 25 mm or greater, and/or abnormal amniotic fluid volume. [LOE= E]
- Base the timing of delivery solely on obstetric indications, e.g., abnormal NST, rather than any fetal ultrasound findings [LOE=D].
- Avoid preterm delivery (<37 0/7 weeks) in fetuses with simple gastroschisis in the absence of maternal, fetal, or obstetric indications.D
- Document fetal pulmonary maturity for delivery under 39 weeks' gestation, in the absence of fetal, maternal, or obstetric indications for delivery (in accordance with ACOG Practice Bulletin Number 107, August 2009).
- Deliver at or shortly after 39 0/7 weeks in the absence of maternal, fetal, or obstetric indications. [LOE= B, D]
- Deliver vaginally, and reserve Cesarean delivery for maternal, fetal, or obstetric indications. [LOE = M, D]

MEDICAL PROCEDURES IMMEDIATELY AFTER BIRTH

- Clamp and cut the umbilical cord at least 12 inches (30 cm) from the baby.
- Position baby right-side down. Place legs, exposed bowel and viscera, and lower body up to the axillae into "bowel bag" and secure bag opening loosely across upper chest (do not add or cover bowel with gauze). Minimize handling of bowel and monitor color and perfusion of bowel continuously [Level of evidence (LOE)=E - expert opinion].
- Use isolette and monitor patient temperature continuously [LOE=E – expert opinion].
- Insert 10F nasogastric, double-lumen sump like tube (e.g., Replogle) and connect to low intermittent suction [LOE=E – expert opinion]. Use a syringe to apply suction to the nasogastric tube until suction is available.
- Place peripheral IV for parenteral fluids and antibiotics. There is no contraindication to using an Umbilical Venous Catheter (UVC) if needed. [LOE=X – no evidence].
- At birth, begin D5 1/4 NS at 150 mL/kg/day. Continue until surgical intervention and adjust based on measurement of sodium every 12 hours until stable and urine output is normal (1-3 mL/kg/hour) [LOE=E – expert opinion].

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- The following labs should be done at birth: glucose, blood culture and CBC. The following labs should be done after transfer to surgical center or at about 6 hours of age: CBC (if not already done), glucose, electrolytes (Na, K, CO₂, Cl). The following studies should be done if there is respiratory distress or need for supplemental oxygen: arterial (or capillary) blood gas and CXR [LOE=E –expert opinion].
- Begin ampicillin 100 mg/kg IV every 12 hours and gentamicin 4 mg/kg IV [LOE=E – expert opinion].

SURGICAL

- Enclose bowel by umbilical turban, spring-loaded silo, or primary fascial closure (method selected by attending surgeon). [LOE=B,D,E]
- Provide general anesthesia for primary surgical closure [LOE = E].
- Do not use general anesthesia for routine placement of a SLS or umbilical turban closure [LOE= D,E]
- If using SLS, cover the defect as soon as possible with silo, then definitively close defect when auto-reduction has stopped [LOE = D/E].
- If using primary closure, close the defect when clinically stable [LOE = D/E].
- Perform placement of SLS or turban closure in the ICU rather than OR [LOE = E].
- Perform primary surgical closure in the OR. [LOE = E].
- Use NICU pain protocol [LOE = E]
- Use rectal acetaminophen for first-line pain control (may give on a scheduled basis with re-evaluation at 48 hours post-op) [LOE = E]
- Use intermittent morphine doses as second-line pain control. Add morphine drip if intermittent doses are required more often than 3 times over a 4 hour period [LOE = E]
- Measure gastric pressure intra-operatively prior to reduction and after reduction at fascial approximation, and keep it <20mmHg
- Use Ampicillin and Gentamicin for routine antibiotic prophylaxis for 48 hours after definitive closure. [LOE = E]
- Cefazolin may be used for erythema of wound/skin. [LOE = X]
- Start TPN on day of birth
- Start feeds when bowel sounds are present, nasogastric output is clear, flatus and/or stool is present, nasogastric tube to gravity is tolerated. Consider measuring gastric pressures.
- Follow gastroschisis feeding protocol (see attachment) [LOE=E]
- Transfer from NICU to Acute Care on Surgery service when off ventilation and hemodynamically stable.
- Discharge from hospital when no fever for 48 hr, gaining weight on oral or gavage feeds, primary care physician identified and accepts transfer of care, family education complete (see parent handout), hearing screen performed, wound closed or wound care plan established, and follow-up appointment with surgeons made for 2 weeks (additional appoints will be needed at 6 weeks, 3 months, 6 months, 9 months, 1 yr, then annually). [LOE = X]



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Evidence

See above with associated recommendation

LEVELS OF EVIDENCE

M =Meta-analysis or Systematic Review

A =Randomized controlled trial: large sample

B =Randomized controlled trial: small sample

C=Prospective trial or large case series

D= Retrospective analysis

O= Other evidence

E =Expert opinion or consensus

F =Basic Laboratory Research

X= No evidence

Implementation Tools

- “NICU gastroschisis” orderset
- “Post-operative gastroschisis” orderset
- Prenatal ultrasound checklist/passport
- Transport checklist/passport
- Family video
- Feeding protocol

Metrics Plan (see data report card for details)

- Process measures: NICU Gastroschisis orderset use, chart audits to evaluate rationale for surgeon’s closure technique
- Outcome measures: LOS, charges, ICU days, Ventilator days

Revision History

Date Approved: March 2011

Review Due: March 2014

Revision Date: N/A