

GASTROSCHISIS AND OMPHALOCELE OBSTETRICAL ULTRASOUND PROTOCOLS

BILLING CODES:

- UOBC or UOBF. See separate protocol and image requirements.
- UOBORGDC to be added when SMA/SMV spectral doppler performed.
- UOBUA to be added when umbilical cord doppler performed for FGR.

Fetal gut herniation is a normal part of fetal development, however gut herniation should no longer be seen after 12 weeks. Gastroschisis and Omphalocele should be considered in cases where gut herniation persists pasts 12 weeks gestational age.

GASTROSCHISIS:

Extra-abdominal herniation of fetal bowel into the amniotic cavity through a para-umbilical abdominal wall defect. This defect almost always is to the right side of umbilical cord insertion. Contents of the herniation are not covered by a membrane and are in direct contact with amniotic fluid. Components of the fluid may trigger immune responses and inflammatory reactions against the intestines that can damage the tissue. Occasionally, stomach or liver may also be contained within the defect

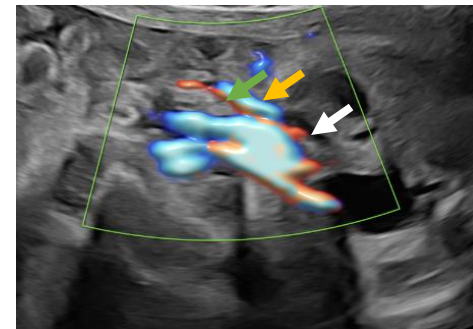
Associated With:

- AFP
- Maternal alcohol and nicotine abuse
- Maternal age <20 years
- Congenital anomalies not frequently associated
- Occurrence 3-5 per 10,000

Scanning protocol for Gastroschisis:

Protocol will remain the same for the first visit and all follow-up visits.

1. 2D and cine sweeps of the defect in sagittal and transverse.
2. Cine sweeps of the entire abdomen in sagittal and transverse for overall view of extent of defect.
3. Measure the gastroschisis defect at the level of the abdominal wall in sagittal and transverse.
4. Measure the following bowel structures in a sagittal view:
 - External bowel lumen diameter, from inner-to-inner wall
 - External bowel wall at its maximum thickness
 - Internal bowel lumen diameter if seen, inner-to-inner wall
 - Internal bowel wall at its maximum thickness, if seen
5. Color doppler on the external bowel to show perfusion.
6. Stomach- Document location with measurement of its longest dimension in a transverse view.
7. Include in the report which structures are located in the gastroschisis; Stomach, small bowel, large bowel, etc.
8. Spectral doppler of the SMA and SMV for vessel patency. Measure just outside of abdominal wall, avoid measuring within the abdomen. *See image.*
9. AFI with 4 quadrant assessment
10. Umbilical cord dopplers for FGR if AC<10% or EFW <10%



SMA (green arrow) and SMV (yellow arrow) seen passing through abdominal wall defect and adjacent to the umbilical cord vessels (white arrow). Sample the SMA and SMV just outside of the abdominal wall.

OMPHALOCELE:

Abdominal wall defect in which contents of abdomen protrude through an opening at the umbilicus. Contents of defect can be bowel, liver, stomach, spleen, and bladder. The organs and contents are covered by the same protective membrane that covers the umbilical cord. This membrane protects the organs from exposure to amniotic fluid and the external environment.

Associated With:

- Increased alpha-fetoprotein
- Advanced maternal age
- Other associated congenital anomalies ~ 30%
- Neural Tube Defect ~ 40%
- Cardiac Anomalies ~ 50%
- Trisomies 13, 18 and 21 ~ 50%
- Beckwith-Wiedemann Syndrome ~ 30%
- Prevalence: 1 per 10,000



Scanning protocol for Omphalocele:

Protocol will remain the same for the first visit and all follow-up visits.

1. 2D and cine sweeps of the defect should be taken in sagittal and transverse.
2. Cine sweeps of the entire abdomen in sagittal and transverse for overall view of extent of defect.
3. Measure the contents of the defect in sagittal and transverse.
4. Document the membrane covering the contents of defect.
5. Image cord insertion location into omphalocele
6. Include in the report which structures are located within the omphalocele; bowel, liver, stomach, spleen, and/or bladder
7. AFI with 4 quadrant
8. Umbilical cord dopplers for FGR if AC<10% or EFW <10%
9. Evaluate closely for other abnormalities. Omphaloceles are commonly associated with other syndromes and anomalies.

GASTROSCHISIS EXAM IMAGE LIST

IMAGE	MODE
Defect Sagittal 2D image	2D
Defect Sagittal cine	Cine
Defect Trans 2D image	2D
Defect Trans cine	Cine
Entire abdomen cine sweep	Cine
Measure defect in sagittal	2D+
Measure defect in transverse	2D+
External bowel lumen at greatest <i>inner to inner</i>	2D+
External bowel wall at thickest	2D+
Internal bowel lumen at greatest <i>inner to inner</i>	2D+
Internal bowel wall at thickest	2D+
Perfusion of bowel with color	Color
Stomach location	2D
Stomach measured <i>longest dimension in transverse view</i>	2D+
SMA Doppler <i>measure just outside of abdominal wall</i>	Spectral
SMV Doppler <i>measure just outside of abdominal wall</i>	Spectral
UA Doppler x3	Spectral
AFI w/ 4 quadrant assessment	2D+

OMPHALOCLE OB EXAM IMAGE LIST

IMAGE	MODE
Defect Sagittal 2D image	2D
Defect Sagittal cine	Cine
Defect Trans 2D image	2D
Defect Trans cine	Cine
Entire abdomen cine sweep	Cine
Measure contents of defect in sagittal	2D+
Measure contents of defect in transverse	2D+
Document membrane covering contents	2D
Cord Insertion	2D
Stomach location	2D
UA Dopplers x3	Spectral
AFI w/ 4 quadrant assessment	2D+

GASTRO/OMPHAL PROTOCOL HISTORY

	Date	Changes made	By whom
Created	5/17/2022	-Separate protocol made -Info on anomalies added	Manjiri Dighe, Renee Betit Fitzgerald
	5/23/2022	Added: Cine sweeps of the entire abdomen in sagittal and transverse for overall view of extent of defect.	Manjiri Dighe, Renee Betit Fitzgerald
Added	4/16/2024	Image lists	Renee Betit Fitzgerald
Added	5/12/2025	SMA SMV image example	Renee Betit Fitzgerald
Added	10/10/2025	Added AFI to Gastro & Omphal image list	Amie Hollard Renee Betit Fitzgerald