

# Antenatal Diagnosis of Gastroschisis: About a Case and Reviews of the Literature

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**Abstract:** *Gastroschisis is a full-thickness paraumbilical defect in the abdominal wall. In most cases, the defect lies to the right of a normally inserted umbilical cord. The defect is usually small (<4 cm), and, by definition, there is no peritoneal membrane covering the herniated abdominal contents. Although it is possible to see herniation of additional organs, such as the stomach, liver, spleen, or genitourinary tract, this is less common. The diagnosis is easily made with US scanning starting at the end of the first trimester reporting the case of a pregnant patient of 22 weeks who presented with gastroschisis*

**Keyword:** gastroschisis, antenatal diagnosis

## Introduction:

Gastroschisis (Greek for “abdominal cleft”) is a full-thickness paraumbilical defect in the abdominal wall. In most cases, the defect lies to the right of a normally inserted umbilical cord. The defect is usually small (<4 cm), and, by definition, there is no peritoneal membrane covering the herniated abdominal contents. Although it is possible to see herniation of additional organs, such as the stomach, liver, spleen, or genitourinary tract, this is less common. The diagnosis is easily made with US scanning starting at the end of the first trimester. (1,2)

reporting the case of a pregnant patient of 22 weeks who presented with gastroschisis

## Case report

A 28 -year-old woman (G1P1) with unremarkable prenatal history was sent to our unit for management of a fetal malformation at 22 weeks of pregnancy. Ultrasonography revealed an gastroschisis containing the intestinal loops. (image1-2-3)



Image 1: show sonographic diagnosis of gastroschisis in a fetus at 22 weeks of gestation.

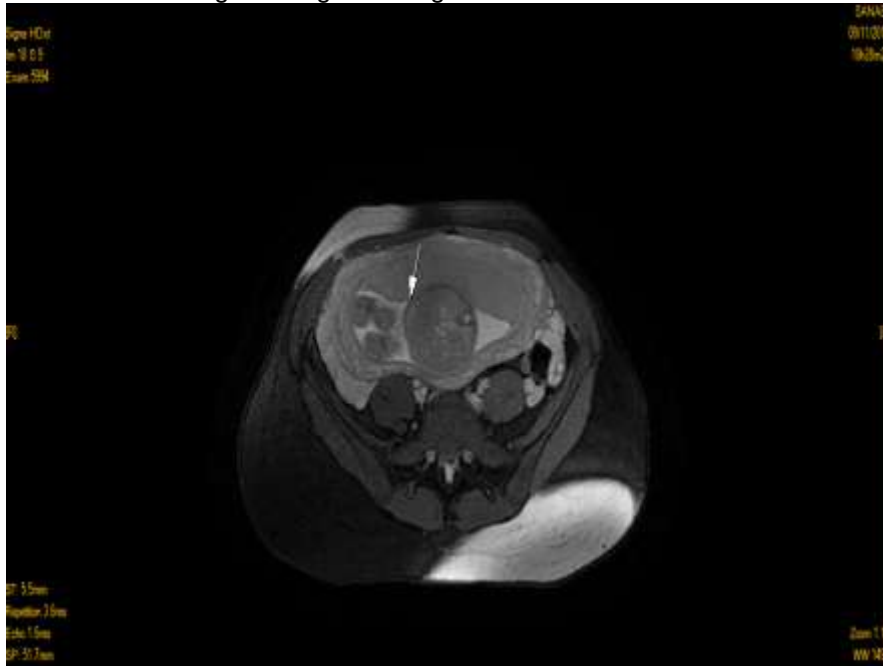


Image 2: show sonographic diagnosis of gastroschisis in a fetus at 22 weeks of gestation.



Image3: show sonographic diagnosis of gastroschisis in a fetus at 22 weeks of gestation.

the patient underwent an MRI confirming the diagnosis of gastroschisis.



Images4: show RMI diagnosis of gastroschisis in a fetus at 22 weeks of gestation.

the course of the pregnancy was unremarkable with delivery scheduled at 39 weeks vaginal route after onset of labor with misoprostol.



Images6: show diagnosis postnatal of gastroschisis .

## Discussion:

Gastroschisis (Greek for “abdominal cleft”) is a full-thickness paraumbilical defect in the abdominal wall. In most cases, the defect lies to the right of a normally inserted umbilical cord. The defect is usually small (<4 cm), and, by definition, there is no peritoneal membrane covering the herniated abdominal contents. Although it is possible to see herniation of additional organs, such as the stomach, liver, spleen, or genitourinary tract, this is less common. The diagnosis is easily made with US scanning starting at the end of the first trimester. (1,2)

Many theories have also been suggested to explain the development of gastroschisis. (3-4) All hypotheses involve defective formation or disruption of the body wall, leading to subsequent herniation of bowel. Because a disproportionate number of fetuses with gastroschisis are carried by younger women, research has focused on factors thought to be more prevalent in this group, such as nutritional patterns and drug use.

The generally accepted vascular pathogenesis of gastroschisis has prompted a focus on vasoactive factors such as cocaine use, smoking, and use of cold remedies. Study results have been largely contradictory, with weak or modest associations found between various environmental factors. More recently, other new theories have been presented to explain the mechanism behind the defect. The first proposes that gastroschisis is the consequence of failure of one or more of the folds responsible for abdominal wall closure (3) The proposed mechanism states that the body fold failure impedes the merging of the yolk sac with the body stalk. As development of the gut continues, part of the primary intestinal loop attached to the vitelline duct herniates through the body fold defect and into the amniotic cavity instead of the umbilical cord.

An alternative scenario is proposed in which the primary intestinal loop herniates normally into the umbilical cord, with another part of the gut herniating through the unclosed portion of the ventral wall. Another proposed mechanism explaining development of gastroschisis was presented in an article by Stephenson et al. in 2009. (5) These authors hypothesized that the determining defect in gastroschisis is failure of the yolk sac and related vitelline structures to be incorporated into the umbilical stalk. This failure leads to persistence of the vitelline duct and yolk sac outside the main body stalk and abdominal wall, whereas the lateral abdominal walls close normally. The developing midgut has two points of egress from the abdominal cavity; this leads to abnormal herniation of the expanding midgut into the amniotic cavity and subsequent development of gastroschisis.

gastroschisis can be diagnosed by ultrasound in the late first trimester. This is due to the physiological herniation of the bowel into the umbilical cord during early fetal development.

The classic appearance of fetal gastroschisis on US is free-floating loops of bowel within the amniotic fluid. On closer examination, a defect is seen to the right (in most cases) of a normally inserted umbilical cord. The intestine is usually the only herniated organ. It is rare to see concomitant herniation of additional abdominal organs in cases of isolated gastroschisis. (6) There is no peritoneal covering of the intestinal mass, and the exteriorized mass has a “cauliflower” appearance because the fluid between loops of bowel results in acoustic interfaces at both near and far bowel walls. Visualization of free-floating bowel loops is enhanced secondary to echogenic bowel wall edema and inflammation in addition to the dilated intestinal lumen

Magnetic Resonance Imaging (MRI) is traditionally not used to augment US diagnosis or characterize fetal gastroschisis further.

Differential diagnoses include: Physiologic gut herniation, Omphalocele, Amniotic bands, Limb-body wall complex (body stalk abnormalities), Bladder or cloacal exstrophy, Ectopia cordis. Pentalogy of Cantrell, Urachal abnormalities, Umbilical cord cyst.

gastroschisis can be associated with congenital abnormalities like congenital heart disease; neural tube defects, and chromosomal abnormalities.

Overall survival rate is greater than 90% in developed countries.

Long-term complications include bowel dysmotility, short gut syndrome, and complications from long-term total parenteral nutrition including liver failure.

No prenatal therapy is available at the present time. Postnatal therapy includes primary closure, use of a Silastic spring-loaded silo, or staged closure.

## Conclusion:

Gastroschisis is a full-thickness paraumbilical defect in the abdominal wall. In most cases, the defect lies to the right of a normally inserted umbilical cord.

The diagnosis is easily made with US scanning starting at the end of the first trimester

Magnetic Resonance Imaging (MRI) is traditionally not used to augment US diagnosis or characterize fetal gastroschisis further.

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