

# Gastroschisis. Presentation of a case.

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## Abstract

Gastroschisis is characterized by an abdominal wall defect in which the bowels and other organs develop outside the abdominal cavity. We report a case of a newborn at term (37 weeks) with a birth weight of 2 400gr without prenatal diagnosis of congenital malformation and born by normal delivery. Protrusion of most of the small intestine, stomach and colon is ascertained. As result of the exposure, these organs showed multiple lesions and signs of intestinal distress without bowel perforation. The infant is surgically intervened; the entire exposed abdominal content reintroduced and the abdominal wall closed at one time. During 15 days only parenteral nutrition is given, until recovery of peristalsis and onset of enteral nutrition. The patient was discharged at 21 days in satisfactory condition.

## Keywords

Gastroschisis, silastic pouch, laparotomy.

## ■ INTRODUCTION

Gastroschisis is an evisceration of abdominal contents through herniation of the abdominal wall, generally on the right side of the umbilicus with normal insertion of the umbilical cord. The defect has variable diameter. There is no pouch containing the viscera, because the fetus is in the prenatal period, these float freely in the amniotic fluid. This has an irritating effect and causes inflammation of the intestinal wall, which results in a rigid and hypofunctional intestine (1). Different hypotheses exist on the origin of the defect, for example abnormal involution of the right umbilical vein and disruption of the omphalo-mesenteric artery. Other studies have also shown smoking, cocaine and pseudoephedrine consumption may cause gastroschisis, since they are vasoactive substances (2,3). Their use in the critical period of embryonic development could be a potential risk for this congenital malformation. The most serious and most frequent complications associated with gastroschisis are those related to the intestinal loops; because of the amniotic fluid exposure, both prenatally and during birth, and their contact with the environment. All these aspects force long periods of only parenteral nutrition and prolonged hospitalizations (4,5).

## ■ CASE PRESENTATION

A white female patient with gastroschisis, born by non-instrumented transvaginal delivery with 2 400gr birth weight and gestational age of 37 weeks (term), is reported. APGAR was 9/5. There was no prenatal diagnosis of any malformation, despite the ultrasound carried out during the second trimester. The mother's age was 20 years and this was her firstborn. The diagnosis is made at birth

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in the delivery room and preoperative measures are started immediately. The newborn is transferred to our hospital in a sanitary transport under stable conditions. Surgery is begun 6 hours after birth.

Surgical findings show a defect to the right of the umbilical cord, which is inserted in the normal place, exposing abdom-



Figure 1. Newborn with gastroschisis, 2400 g, 8 hours after birth, exposure of stomach, small and large intestine.

inal viscera (stomach, small intestine, large intestine), with inflammatory signs of varying degrees (Figure 1). There was no vascular compromise or perforation. Distal and proximal emptying of the intestinal contents is carried out with manual relaxation maneuvers of the abdominal wall, followed by



Figure 2. Newborn with gastroschisis, 2400 g, after surgery for Gastroschisis with primary closure of abdomen in one stage.

introduction of all the viscera and primary closure. Intestinal viability is macroscopically assessed. There is increase in intra-abdominal pressure, but the color of the lower limbs is adequate. The abdominal wall is closed (Figure 2).

The patient maintains a stable evolution during surgery; is reported in critical state and comes out with assisted mechanical ventilation. The infant is taken to the critical care ward of our hospital.

During the postoperative period measures are taken for liquid control and antimicrobials and parenteral nutrition are begun. At 72 hours there is a febrile peak of 39 °C. Blood culture and leukogram are indicated. The leukogram showed a left shift, interpreted as early signs of sepsis and the antimicrobial was changed. In parallel, hypoperfusion emerged with reduction of saturation, which is interpreted as an obstruction of the endotracheal tube. She is treated by aspiration and bronchial lavage. There is complete recovery and the patient is extubated on the 4th postoperative day. Nasal oxygen support is maintained for a week.

On day 10, signs of intestinal transit recovery appear, however orogastric aspirations above the normal numbers con-

tinue and there is varying degree of intra-abdominal distension, without reaching high intra-abdominal hypertension values. Although, intravesical measurements were not carried out, clinical signs of hypoperfusion in the lower extremities were observed. Manual rectal stimulations were performed to help restore peristalsis. Defecation is achieved on the 4th day after surgery.

On day 14th of the postoperative period, enteral nutrition was begun because evolution was stable and peristalsis had been restored. It was increased depending on the tolerance, which was good, as well as on nutritional recovery. Although breastfeeding was not started, at 21 days of hospitalization the patient was satisfactorily discharged. Follow up is carried out by a pediatrician and a pediatric surgeon (Figure 3).

#### ■ DISCUSSION AND CONCLUSIONS

Gastroschisis prevalence has increased in recent years. The cause is still unknown; although, environmental factors have been suggested. Currently, it is detected prenatally in most cases during routine ultrasound control. Intestinal inflammatory changes can be detected as dilation. Intestinal



Figure 3. Gastroschisis patient 30 days after surgery.

dilation and thickening causes imbalance between visceral volume and capacity of the abdomen. Therefore, during surgical reduction, it may become difficult to reposition the intestine and carry out primary closure through laparotomy. If achieved, there is risk of causing a compartment syndrome in the abdominal cavity that compromises renal flow and adequate vascularization of the intestine. In many cases, initial closing is not possible and delayed closure is carried out by placing a silastic pouch, which progressively allows reintroduction of the intestinal loops. Many authors advocate in favor of this strategy using preformed silos.

Congenital malformations of the abdominal wall remain a challenge for pediatric surgeons, and the success of the operation depends largely on their management and evolution. They do not occur frequently and continue to have high mortality rate mainly in countries with fewer resources. Therefore, prenatal diagnosis is useful for better monitoring of the pregnant woman. Once this condition is diagnosed, it be-

comes high-risk obstetrics, and requires special care. The surgical technique used in our patient is the most recommended in the literature, although there are controversies on the best birth route for infants with gastroschisis. We recommend cesarean section. Another controversy today, is how to perform surgery; criteria range from those who defend multistage treatment and multiple surgical interventions, to those who prefer primary closure. The method used in our patient was primary closure, which resulted in a shorter hospitalization time.

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