Case Report

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Non-viable Neonatal Gastroschisis: Case Report

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Abstract

Gastroschisis is one of the major congenital defects of the abdominal wall, the incidence reported worldwide is one per 20,000 births, in a defect that is frequently located at the para-umbilical level to the right of the umbilical insertion, with a usual size of 2-4 cm, through which mainly protrudes small and large intestine, without being covered by avascular and translucent amniotic peritoneum membrane, that is due to the premature interruption on the irrigation of the right omphalomesenteric artery. This entity requires postnatal surgical repair by primary closure of the fascia or secondary closure as soon after birth, the survival rate for gastroschisis has revealed that lower and middle-income countries have lower survival in gastroschisis. This article is about the case of a Gastroschisis baby, female new-born of 38 gestational weeks, attended at Hospital General del Sur, Choluteca, Honduras, whose mother had poor prenatal control, not performed by a physician, without obstetric ultrasound during pregnancy. At physical examination presents multiple congenital malformations, increased of cephalic perimeter suspicion of hydrocephalus, hypertelorism, cleft lip, cleft palate, and gastroschisis with evisceration of liver, small intestine, large intestine, right superior pole of the right kidney, equino varus, who was a non-viable neonatal gastroschisis. Public health and prenatal interventions should target at-risk populations to improve clinical outcomes. An prenatal control is essential in the early detection of Gastroschisis and congenital malformations, emphasizing in factors associated with an increased risk for gastroschisis, helping clinical outcomes by starting the management earlier, the decision about management often occurs before birth.

Keywords: Gastroschisis; Honduras; New-born

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Introduction

Gastroschisis is one of the major congenital defects of the abdominal wall, the incidence reported worldwide is one per 20,000 births and the neonatal mortality rate in the period 2009 to 2012 in average is 26.5 per 1000 live births, from 7 to 12 per 1000 RN in developed countries and up to 50 or more per 1,000 NB in the least underdeveloped countries. The term derives from the Greek word gaster, meaning belly and squisis, cleft. Gastroschisis is a defect that is frequently located at the para-umbilical level, with a usual size of 2-4 cm, through which mainly protrudes small and large intestine, without being covered by avascular and translucent amniotic peritoneum membrane [1-3].

This disease represents a failure in the return of the midgut to the abdomen, produced around the 10th and 11th gestational week, the etiology is due to the premature interruption of the right omphalomesenteric artery, which causes an ischemic injury on the anterior abdominal wall, through which the abdominal structures are herniated resulting in rupture of the anterior abdominal wall. It is therefore characteristic of this disease the presence of intestinal loops floating in the amniotic fluid, and other abdominal organs may be involved [3,4].

Nowadays, gastroschisis is nearly always diagnosed prenatally during the first and second trimester ultrasound examinations. Neonatal survival and the quality of life of children born with gastroschisis are often expressed as excellent, however this might be the result of different treatment strategies, or caused by the fact of extra-intestinal congenital abnormalities. The incidence

of associated anomalies in gastroschisis varies from 5 to over 20% between studies. Reported associations include cardiac abnormalities and increased prevalence of central nervous system anomalies (amyoplasia) and limb and kidney anomalies may influence the prognosis of the child with gastroschisis significantly [5-8].

The main differential diagnostic that has to be established is omphalocele which is a defect of the midline abdominal wall, where the intra-abdominal organs are herniated inside the umbilical cord [4-8].

This entity requires postnatal surgical repair by primary closure of the fascia or delayed as soon after birth, the survival rate for gastroschisis has revealed that lower and middle-income countries have lower survival in gastroschisis. Factors associated with increased on mortality in middle to low income countries have included the absence of prenatal diagnosis, prematurity, low birth weight, delivery outside the tertiary center, delayed surgery, parenteral nutrition, ventilators and intensive care facilities. Factors associated with increased on mortality in high-income countries have included prematurity and low birth weight, and the presence of complications such as atresia, perforation and bowel necrosis, and complex malformations [9].

Clinical Case

A female new-born, daughter of a 37- year-old mother, who attended 3 prenatal check-ups at the health center, which were started until the third trimester of pregnancy, all attentions were given by a nurse, and an obstetrical ultrasound was not performed nor indicated during the pregnancy. According to the prenatal card, adequate weight growth is reported, as far as the personal history of the parents they did not report exposure to toxic substances or X-rays. There are no reports in the prenatal care of a urinary tract infection or any pathology during the pregnancy. Both parents deny a history of Omphalocele, Gastroschisis or other congenital disease in the family tree and deny consanguinity. This is the mother eighth pregnancy, no abortions, and no death or congenital complications on the other seven children. She began with active labour at the 38 weeks of gestation according to the date of last menstruation, transvaginal bleeding of 3 h of evolution, moment in which she was evaluated clinically and made its first ultrasound, which reveal placenta praevia and the first evidence of Gastroschisis during the whole pregnancy, as well there was evidence of acute fetal distress, proceeding to admitted her to labour and delivery room, for emergency C- section. The new-born had an Apgar score of 1 and 3 at the first and fifth minutes, weight 1,990 g, cephalic perimeter 38 cm, length 49 cm, chest perimeter 31 cm, heart rate 106 beats per minute, respiratory rate breaths 30 per minute.

On physical examination, a mixed race new-born with multiple congenital malformations, tense anterior fontanelle, increased of cephalic perimeter suspicion of hydrocephalus, hypertelorism, cleft lip, cleft palate, gastroschisis with evisceration of liver, small intestine, large intestine, right superior pole of the right kidney, equino varus **(Figures 1 and 2)**, lungs with asymmetrical air inlet without presence of pathological sounds, heart sounds with low tone and intensity, without murmurs. Genitals in accordance to age and sex, complete limbs, with gestational age of 37.6 weeks by Capurro Test.

Figure 1 New born with multiple congenital malformations, gastroschisis with evisceration of liver, small intestine, large intestine, heart and equino varus.

Figure 2 Multiple congenital malformations increased cephalic perimeter suspicion of hydrocephalus, hypertelorism.

The patient is admitted to the neonatal intensive care unit, were cardiopulmonary resuscitation and support care was made, as

well laboratory studies are performed, including blood and urine exams with normal results. Complete blood count reported leukocytes 17,5 × 10^9/L, neutrophils 52.4% and lymphocytes 36.5%, haemoglobin 10.9 mg/dl, haematocrit 32.3% and platelets 258,500, glucose level and PCR within normal ranges; according to the clinical state it was decided to manage the patient with ampicillin and amikacin, the eviscerate organs were covered in a sterile bag. Intravenous hydration was administered via peripheral route and the new-born was maintained in radiant-heat cradle at a suitable temperature to avoid hypothermia and in a sterile environment to avoid infections. But despite all the medical intervention the new-born dies an hour after birth.

Discussion

Several communications have reported a significant increase in the prevalence of gastroschisis in the last three decades. In many Countries it is referred to as ''a pandemic strongly associated to low maternal age'', in Honduras this is the second case reported at national level between 1985 and 2017 and the first in the southern region of the country to be reported. A recently emerged group of specialist in Chile with an important interest in this pathology, have conducted an epidemiological study on the prevalence of Gastroschisis; according to the results of their study, it is believed that it's been an increase of 300% of Gastroschisis since 1994 to 2015, this significant increase in the gastroschisis prevalence at birth in Chile since 1995, and this anomaly is associated with a low maternal age [10].

The incidence of gastroschisis has increased 30%, with largest increase in Black neonates born, and mixed neonates. There is an association between race and complex gastroschisis, in addition, income status is associated with mortality, this association matches with our patient, daughter of a black father and mixed mother, with low income status, that conceive a mixed newborn with complex gastroschisis, with multiple congenital malformations and non-viable with life [4].

This case report presents the newborn of a patient who was diagnosed two complications at the time she arrived at the hospital, until the last trimester of pregnancy, which were gastroschisis and plancenta previa, these came to compromise the life of the mother and the newborn, which is a product of an inefficient prenatal control. Worldwide the incidence of gastroschisis has increased in the last years due to the improvement in the rates of prenatal diagnosis through ultrasound, being this pillar in the management of prenatal control. Ultrasound diagnosis and follow-up have allowed us to anticipate their complications, the main cause of morbidity and mortality in these cases. It is therefore very important to carry out a diagnostic-therapeutic plan that coordinates the obstetrician, pediatrician and pediatric surgeon [11].

Gastroschisis is a structural anomaly with a perinatal risk of morbidity and mortality, nowadays, gastroschisis is nearly always diagnosed prenatally during routine on the first and second trimester ultrasound examinations. However, even with early prenatal diagnosis, a recent meta-analysis has shown that intra-uterine fetal death is still 7% higher compared to the general population. Neonatal survival and quality of life of children born with gastroschisis are often expressed as excellent, however, is important to classify the cases into simple and complex cases for the prediction of outcome. The occurrence of complex gastroschisis changes outcome drastically. Complex gastroschisis cases had a longer time to full enteral feeding, ventilation time, longer hospitalization and higher mortality rate compared to simple cases [12].

Patients with gastroschisis have shown improving rates of survival during the last decades because of upgrades in perinatal and perioperative care, nowadays, our attention is not focused only on mere survival, but also on the long term results of the treatment and the quality of life of the survivors. Studies have shown that the majority of patients after operation of gastroschisis have a good quality of life without limitation in comparison with the general population. Overall intellectual abilities are within normal range. The anthropometric data confirm that the somatic development of patients with gastroschisis is favorable [13].

An adequate prenatal control is essential in the early detection of Gastroschisis and congenital malformations, emphasizing in factors associated with an increased risk for gastroschisis, such as maternal age, parity, and maternal use of selected drugs, public health and prenatal and natal interventions should target at-risk populations to improve clinical outcomes [5]. The management of a patients with gastroschisis often occurs before birth, with the decision on the mode of delivery, the goal of delivery of the new-born with gastroschisis is to optimize their outcome by minimizing trauma to the exposed gastrointestinal contents, the caesarean section would be more advantageous than vaginal delivery, because the caesarean section produce less compromise to the mesenteric circulation because there may be less compression and twisting of the bowel during uterine contractions and passage through the birth canal. Another reason is that the risk of infection to the exposed bowel is decreased by cesarean delivery with intact membranes. The last theoretical disadvantage to vaginal delivery is if a large defect is present with possible liver involvement, there may be an increased risk for avulsion injury. Stabilization and preoperative management of the new-born with gastroschisis must take into consideration many factors, including thermoregulation, fluid volume status, gastric distention and intestinal compromise, infection, respiratory status, and preparation for surgery. Stability and in the detection of maternal and neonatal complications of the aforementioned factors is necessary before the impending surgical repair to optimize the infant's outcome.

Ethics

The authorization of publishing this article was granted through the informed consent, signed and approved by the patient legal guardians. The authors declare no conflicts of interest with the publication of this article.

References

1 Azpilcueta-Juarez A, Rivera AM, Islas LP (2014) Acute abdomen in utero, etiologic gastroschisis, and maternal cocaine use. Ginecologia y Obstetricia 41: 120-130.

2 Islas Domínguez LP, Martínez PM, Monzoy VMA, Galicia FL, Solís HH, et al. (2006) Morbidity due to defects in the abdominal wall in neonates, experience in the General Hospital of Mexico. Rev Med Hosp General 69: 84-87.

3 Cortes-Matus NF, Barrera-Salcedo JI, Villareal- Careaga J (2010) Factors associated with gastroschisis in newborns at Culiacan General Hospital. General de Culiacan Ach Salud 4: 14-17.

4 Serrano Monferrer A, Benet Montesinos L, Sanjuan Diaz R (2011) Obstetric management of gastroschisis in a gestation of 26 weeks. Prog Obstet Ginecol 54: 176-179.

5 South AP, Stutey KM, Meinzen-Derr J (2013) Meta-analysis of the prevalence of intrauterine fetal demise in gastroschisis. Am J Obstet Gynecol 2: 114e1-114e3.

6 Bergholz R, Boettcher M, Reinshagen K, Wenke K (2014) Complex gastroschisis is a different entity to simple gastroschisis affecting morbidity and mortality-a systematic review and meta-analysis. J Pediatr Surg 49: 1527-1532.

7 Rankin J, Dillon E, Wright C (1999) Congenital anterior abdominal wall defects in the north of England, 1986-1996: occurrence and outcome. Prenat Diagn 19: 662-668.

8 Calzolari E, Bianchi F, Dolk H, Milan M (1995) Omphalocele and gastroschisis in europe: a survey of 3 million births 1980-1990. Am J Med Genet 58: 187-194.

9 Marshall Niles SG (2017) Mortality - related factors in gastroschisis-a Jamaican perspective. J Pediatr Surg 52: 530-533.

10 Herrera Nazer J, Essedin Karochan L, Ovalle Cifuentes L (2016) Gastrosquisis: ¿Una pandemia con tasas en aumento? Experiencia del estudio colaborativo latinoamericano de malformaciones congénitas (ECLAMC) en Chile.

11 Bello Romay AB, Ruiz Soler P, Funete EA (2011) Defectos de cierre de la pared abdominal: Gastrosquisis Prog Gineco 54: 612-617.

12 CCMM LAP (2016) Outcome of isolated gastrosquisis an international study, systematic review and meta-analysis. Early Hum Dev 1303: 209-218.

13 Frybova B, Kokesova A, Zemkova D, Mixa V, Vlk R, et al. (2017) Quality of life in patients with gastrosquisis is comparable with general population: A questionnaire survey. Biomed Pap Med Fac Univ Palacky Olomouc Czech Repub 161: 75-79.