

Incidence, Diagnostic and Surgical Approach of Gastroschisis in the Hospital Civil de Guadalajara “Fray Antonio Alcalde”

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Abstract

Objective: To review the incidence of cases of gastroschisis in the Hospital Civil Fray Antonio Alcalde and to analyze possible environmental and genetic causes.

Methods: Data obtain from hospital registries from 2017-2018 were used to obtain the frequency of cases. Maternal age, associated anomalies, clinical outcomes and prenatal exposure to teratogens were obtained from medial registries.

Results: There were around 4500 births per year from 2018. A total of 12 neonates with gastroschisis were admitted from June 2017 to July 2018, the incidence rate was x

The mortality was of 5%. We only had access to 10 medical records. The mean maternal age was 18.7 years (15-22 years). From these, 70% were primiparous, had a history of alcohol use and of tobacco in four of them. Thirty percent of the newborns were preterm with a mean gestational age of 37 wks (32-40 wks). Major and minor malformations were associated in 10% of cases.

Conclusion: Incidence of gastroschisis has been raising at the Hospital Civil Fray Antonio Alcalde in Guadalajara, Mexico associated to an increase in pregnancies in teenagers. Chromosomal aberrations found have not been reported previously.

Introduction

The defects of the anterior abdominal wall (gastroschisis and omphalocele, limb body wall complex, the complex OEISs) have a worldwide prevalence of 4.3: 10,000 newborns (NB) [1]. Gastroschisis is considered a rare congenital defect, in which the intestinal loops herniate through the abdominal wall on one side of the umbilicus, usually the right [2]. The intestinal loops are not covered by any membrane, so they are exposed to the amniotic fluid.

Its incidence is 1.66: 10,000 NB and its prevalence is variable, oscillating between 0.66 and 2.17, with an average of 1.33: 10,000 births [3].

This pathology has a high morbidity since, despite the surgical

treatment of the defect; they present irritation and malabsorption problems and require prolonged hospitalization. The mortality at birth is variable, reaching 15% or more. The expected survival for the first year varies from 65% to 92% [4]. Some factors that may influence this survival are: the presence of other malformations, intestinal atresia or stenosis, damage caused by the amniotic fluid to the intestine (edema or necrosis) and complications from corrective surgery [5].

According to the Registry and Epidemiological Surveillance of External Congenital Malformations (RYVEMCE), in Mexico an increase of 1.44 was observed: 10,000 in 1980 to 5: 10,000 NB in 2003 regarding the differences between populations, the bibliography report a higher prevalence in the Latino population [6, 7].



The average maternal age was 18.7 years (range 16 to 22), of which 70% were adolescents (under 19 years of age) and 70% were primitives.

One of the mothers refers to the intake of illicit substances (crystal), in three others there was a history of smoking and in four there was also an intake of alcohol. Only two women took pre-conceptional folic acid. The mean gestational age was 37 weeks (range 32 to 40) and only 3 patients were premature. The birth of the patients was mostly by cesarean section (90%).

The 20% was average closing and 80% deferred, managing the provisional silo in 100% of the patients with closure in more than one time; the Apgar greater than or equal to 8 at the minute of life prevailed with 70% and at 5 minutes 90%; 30% weighed less than 2,000 grams.

Discussion

Several studies have been reported evidencing the increase in the incidence of gastroschisis in recent years in different parts of the world [5, 7]. The lowest reported incidence rate in 2003 was 1.10: 10,000 RNV in the Czech Republic and the highest was 5.11: 10,000 RNV reported by Mutchinick (Registry and Epidemiological Surveillance of External Malformations, RYVEMCE), 7 data obtained from various hospitals in Mexico [10, 11].

One explanation for the presence of so many cases in this study could be the fact that the HCFAA is highly specialized and concentrates high risk pregnancies and pediatric surgical pathology. This occurrence of cases is significantly higher than that reported in a tertiary hospital in Cali, Colombia, where they found a rate of 11.1: 10,000 births.³

Mortality found in our study was 10%, similar to that reported since it is estimated a survival of 60 to 92% at one year of age, and in all cases it was secondary to surgical complications, mainly infection [5, 12, 13].

Among the risk factors associated with gastroschisis are the ages of the parents, where teenage pregnancy is highly related to higher risk, particularly in women [14-16] in the present study, 70% of the women were less than 19 years of age.

The number of births in teenage mothers increased significantly in the HCFAA. The above, could explain the increase of cases of gastroschisis in our population in recent years, since to date is the risk factor most frequently associated with this malformation.

Among the other risk factors reported, such as medication intake (aspirin, pseudoephedrine, acetaminophen), 8 smoking and alcoholism, 3 were not important in our population; in the literature there is a greater association between primigravidence and a short period of cohabitation as risk factors for having a child with gastroschisis (the risk increases up to 13 times more). In this study it was found that 70% of the women were primigravites.

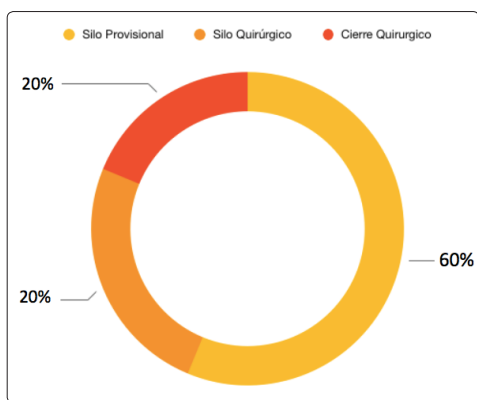
Gastroschisis usually occurs as an isolated malformation and in only 5% of cases it is accompanied by other malformations, 3 although some reviews report up to 31% of associated alterations. 13 the malformations that have been associated are: renal agenesis, porencephaly and biliary atresia. Arthrogryposis, as well as heart disease and bone malformations have also been reported [13, 17-25].

The etiology of gastroschisis is multifactorial and appears to involve vascular disruption of the fetal mesenteric vessels (umbilical and omphalomesenteric artery). Several risk factors have been related, such as young maternal age, smoking, intake of vasoconstrictor drugs, among others [8, 9].

During the year 2018 the birth of eight neonates who were admitted to the intensive care unit of the Fray Antonio Alcalde Civil Hospital in Guadalajara, Mexico, was reported, with the diagnosis of gastroschisis, which motivated me to carry out a retrospective study to analyze the incidence of this defect in the last year as well as evaluate and determine possible causes of risk, genetic or environmental.

Methods

This was a retrospective and observational study in which the available clinical records of patients with gastroschisis born in the HCFAA during the period from June 2017 to July 2018 were reviewed. The following variables were analyzed: gender, age of the mother at birth of the child, pregnancy number, and route of birth, non-pathological history of the parents, pregnancy control, folic acid intake, and exposure to drugs or teratogenic agents, presence of other malformations.



Results

From June 2017 to July 2018, a total of 14 newborns with gastroschisis were registered, which were not registered correctly and the files were discarded. The mortality due to surgical complications was 10%. Of the 10 files that were accessed, the following information was obtained: in relation to gender, 60% of the cases were male and 40% female.

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