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A Diagnosis of the gastroschisis in the first trimester of pregnancy in Serbia -a case report

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Abstract

Gastroschisis (gastroshisis) Gastroschisis (gastroshisis) represents evisceration of the abdominal organs, most commonly small bowels, stomach and gonads through the front abdominal wall defect, almost always to the right of the umbilicus (90

Index terms— prenatal diagnosis; gastroschisis; ultra-sonography; fetal anomalies.

1 INTRODUCTION astroschisis

(gastroshisis) represents evisceration of the abdominal organs, most commonly small bowels, stomach and gonads through the front abdominal wall defect, almost always to the right of the umbilicus (90%) from which it is separated by thin skin bridge. Eviscerated intestines are thickened, edematous, sticky, aperistaltic as a consequence of influence of the amniotic fluid on the serosa of intestines (1). The incidence of this anomaly is 0.5 to 4 in 10.000 liveborn babies (2). In about 60% of the cases it is about prematurely born children. This anomaly is more common in male children. Gastroschisis is rare with associated anomalies, although malrotation and malfixation are always present. There are several theories concerning the cause of this anomaly. According to one of them the interruption in development of omphalomesenteric artery occurs, and according to the other pathological involution of the right umbilical vein, it leads to a weakening of the anterior abdominal wall and consequent protrusion of the intestine through a weakened part. Teratogenic agents for occurence of this anomaly are smoking and vasoactive medications. Reference is to the aspirin, ibuprofen, alcohol and cocaine abuse and malnutrition. Seasonal occurrence of gastroschisis is associated with teratogenic influence of pesticide and herbicides (2).Ultrasonography is the dominant method in the diagnosis of this fetal anomaly. Ultrasonographic Author : Gynecology and Obstetrics Clinic, Clinical Center Kragujevac, Vojislava Kalanovi ?a 1A/3, 34000 Kragujevac, Serbia; Tel.: +381 -64-616-8999; Fax: +381-34-370-151; E-mail : drloncar@sezampro.rs features of gastroschisis are clear and allow, in most cases, the exact prenatal diagnosis in the first trimester of pregnancy. In the ultrasound examination, the gastroschisis is shown as a mass resembling the cauliflower (small intestines), which floats freely in the amniotic fluid, close to the anterior abdominal wall. Ultrasound examination remains the method of choice in the diagnosis of fetal anomalies, although the application of magnetic resonance imaging (MRI) can provide a more detailed examination of fetus with anomaly of the anterior abdominal wall. The amniotic fluid contains the elevated concentrations of alphafetoprotein and acetylcholinesterase (2,3).

Treatment is strictly operative after a good preoperative preparation.

2 II.

3 CASE REPORT

The patient I.J., aged 27, worker by vocation, was hospitalized at the Department of Fertility Control in CC Kragujevac with the diagnosis: Graviditas ml III. Gastroshisis foetii, due to pregnancy termination after the decision of Second Instance Commission of Department of Obstetrics and Gynecology in CC Kragujevac that approved pregnancy termination for medical indications. The Commission was in session at the request of I.J, after the report of the Consilium for Fetal Anomalies of CC Kragujevac reaching the following conclusion Dg Gastroshisis, suggestion: Perform CVS. Ultrasound finding: fetal pelvis leading, BPD 25mm, AC 89mm,

12mm FL, fetal heart rate recorded, normal amniotic fluid, placenta at left lateral side. Gestation week by ultrasonographic findings is 13.5. In front of the anterior abdominal wall the convoluted intestines are observed 20x11mm in size. Stomach is in the abdomen (Figure 1). A thorough informative conversation with the family was performed and once again the options and procedures in the following course of pregnancy observation were presented, the procedure for surgical treatment of the baby after birth was explained and the success of such treatment and the possibility of any possible complications were reported.

The attitude of the family to perform pregnancy termination was explicit after all performed consultation of which there are adequate medical records in the medical history of a patient. Laboratory analyses were conducted in Central Biochemical Laboratory of CC Kragujevac and the Blood Transfusion Centre in CC Kragujevac. Intracervical misoprostol was applicated in two individual doses of 400 mg, at intervals of 12 h. An antibiotic cefuroxime was prescribed at a dosage of 1.5 g/12 h intravenously as well as anxiolytic diazepam, tablets of 5 mg per os. It was decided at the Consilium that the induced abortion should continue with prostaglandin E2 (PGE2) dinoprostone intracervically in the interval of 12 hours. After 24 hours the patient had an abortion of the male fetus, with a clearly visible evisceration of intestinal loops, which was sent for pathohistological analysis along with the placenta (Figure 2). Instrumental revision of uterine cavity was carried out and it was continued with the aforementioned intravenous antibiotic therapy with intramuscular application of uterotonic during three days. By control ultrasound examination after two days the following finding was stated: Uterine anteversion / anteflexion (AVF), measures 79x56x45mm, with emphasized horns. Right horn without content, with decidual reaction of 6mm. The left horn with no content, with decidual reaction to 11mm. Right ovary measures 36x27mm with cystic formation that measures 23x25mm. The left ovary measures 40x29mm, and it is of cystic structure. Empty pouch of Douglas (Figure 3). By bimanual gynecological examination the following finding is stated: under the speculum vagina is of normal depth, portio vaginalis uteri (PVU) cylindrical, 2.5 cm long, the orificium externum uteri is transversally placed, sparse bleeding ex utero. PVU insensitive, mobile, can be inserted with a finger tip. Uterus in the AVF, firm, mobile and in good involution, insensitive, size of women's fist. Adnexa free on both sides with, no pathological changes, insensitive to palpation. Pouch of Douglas insensitive. b) Pathohistological finding 810 -Foetus maceratus in utero. Infarctus anaemicus recens in texti stromae placentae Chorioamnionitis chronica, light to moderate degree. Gastroshisis.

The patient was discharged three days after an abortion in good condition.

4 III.

5 DISCUSSION

The significant survival of patients with gastroschisis was noted since the introduction of early diagnosis of this anomaly, best prenatally (4). Good preoperative preparation and appropriate postoperative treatment are also necessary parameters in the final outcome of treatment of these patients (5). Great progress in prenatal medicine was enabled by the rapid development of ultrasonography (6). Ultrasonography improves the prognosis by enabling control during pregnancy, planned delivery by Caesarean section in an appropriate institution and the surgical team ready for the gastroschisis treatment (7.8). Treatment of gastroschisis begins in maternity ward with high umbilical cord ligation and adequate surgical treatment that follows (9). Early diagnosis, good preoperative preparation, adequate anesthesia, gentle handling during surgical intervention, as well as good postoperative care, contribute considerably to better treatment outcomes of gastroschisis which increases the survival rate above 80% (10,11). We didn't have dilemma at any time about the need for additional diagnostic methods such as computed tomography (CT) or magnetic resonance (MR) in order to establish the final diagnosis as used by many perinatologists according to the literature data. (12,13,14).

By differential diagnosis, we eliminated the possible omphalocele in the fetus. Gastroschisis occurs later, because the hole (abdominal front wall defect) before 16th week is very small and because the abdominal front wall muscles and peristaltic waves are visible only in 12ththat is 14th week (15). Omphalocele (omphalocoela) is a herniation of abdominal cavity contents into the cord base. This occurs because of lack of fusion of lateral ectomesodermal folds. Small intestines are always the content of the hernia bag, and liver, stomach, spleen, colon, and gonads can be found. It is covered by amnioperitoneal membrane and umbilical cord is located at its top (16). In gastroschisis, intestinal convolutions pass through a small defect (<1 cm), which is still localized to the right of the normal umbilical cord insertion, float freely in the amniotic fluid. There is no membrane covering the content as with the omphalocele. With omphaloceles in the syndrome formation, there is a strong genetic component (17). The incidence of this disorder is 1-3 per 5000 liveborn babies. By careful ultrasonographic evaluation, which is facilitated by (2D, 3D) and power Doppler technology, it is detected that fetal end of the umbilical cord ends on the apex of the mass and that it is covered with membrane (18). In 80% of the cases, the liver and small intestines are in a bag and in 20% of the cases there is only the small intestine. Polyhydramnion is not a rare finding, and in 40% there is an elevated level of alphafetoprotein in maternal serum. Searching for the associated anomalies is the mandatory part of the fetal examination due to is frequency (50-70%) (19). The prevalence is 30% in the second trimester, and only 15% at birth, which indicates a high mortality rate during pregnancy. Before 12 week, omphalocele should be suspected only if the bag is greater than 7 mm, irregular and /or inhomogeneous. Several of the above stated sentences represent a brief summary of our attempt to inform

the parents in the mentioned case about the possibility of healing their baby. We have not met with approval; on the contrary, they were categorical in insisting that the pregnancy termination should be performed.

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Figure 1: Figure 1 :

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Figure 2:

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Figure 3: Figure 2 :

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Figure 4: Figure 3 :

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