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INFECTION WITH PARVOVIRUS B19 IN PREGNANCY. CASE PRESENTATION

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Abstract

Parvovirus B19 is part of the Parvoviridae family and is a newly discovered virus. Its main feature being the need for mitotic cells active for replication-virus multiplies and propagates efficiently in human erythropoietic progenitor cells in the bone marrow. We present the case of a secondary pregnancy, parvovirus leading to fetal death intrapartum despite the medication initiated and the intrauterine procedures performed. Especially in the case of parvovirus infection occurred in the second trimester of pregnancy, knowing that 25% of the virus crossed transplacental and manifested by marked fetal anemia and fetal hydrops leading to fetal intrauterine death in spite of the performed treatments. In Romania, if an abnormality is found that could benefit a intrauterine or postnatal correction, doctors can not complete the pregnancy assistance in the absence of a well-established branch with specialized centers from abroad.

Key words: fetal parvovirus B19 infection, fetal morphology scan, fetal hydrops.

INTRODUCTION

Parvovirus B19 is part of the Parvoviridae family and is a newly discovered virus. (Enders M. W., 2004) Its main feature being the need for mitotic cells active for replication-virus multiplies and propagates efficiently in human erythropoietic progenitor cells in the bone marrow, cells where susceptibility to infection increases with increasing cell differentiation. (Gratacós E. T., 1995) (Miller E. F., 1998)

Especially in the case of parvovirus infection occurred in the 2nd trimester of pregnancy, knowing that 25% of the virus translates transplacentally and has been shown to be marked fetal anemia and fetal hydrops, leading to intrapartum fetal death in spite of treatments. (Crane, 2002)

The fetal mortality rate is estimated at 1-9% of all maternal infections. Immunoglobulin M antibodies appear 10-12 days after infective contact, and the Immunoglobulin G antibody is about 2 weeks after inoculation. Immunoglobulin M persists in the blood for several months, but immunoglobulin G titer is rising at a new exposure. Immunoglobulin M

antibodies become detectable during peak reticulocytosis. (Tolfvenstam, 2001) (Skjöldebrand-Sparre L. T., 2000)

MATERIAL AND METHOD

We present the case of a B.C.I. patient aged 31 years who comes from the urban environment with short-term secondary education, employed, second pregnancy, under the supervision and supervision of a primary obstetrician-gynecologist in the month of 1/2. Performed quarter-load pregnancies (normal values), performed the double-normal test, fetal morphology scan at week 21 - all within physiological limits, last menstruation in 23.12.2015.

There were regularly performed routine controls in pregnancy, all of which were recorded within physiological limits. She took folic acid until 18 weeks of pregnancy and a complex of vitamins and minerals, she had a physiological pregnancy.

Four weeks after the fetal morphology scan, she goes to the doctor for a routine screen (pregnancy at that time 24 weeks and 1 day), during the examination a fetal anasarca is detected (with ascites, scalp edema, pleural, oligohydramnios), an occasion requiring analyzes including rotavirus and parvovirus B19, all were negative. (Mekereş, 2017)

The patient did not declare periods of general health alteration or colds, flu. The case is transferred in a Clinic from Cluj-Napoca for monitoring, a week after detection (25 weeks and 2 days of pregnancy). On its own initiative, the family decides to continue to monitor pregnancy in a center in Vienna-Austria.

RESULTS AND DISCUSSION

The Vienna-Austria treatment center performs fetal Magnetic Resonance Imaging (MRI), fetal ultrasound, parvovirus determination in maternal blood (this time positivates Immunoglobulin M for parvovirus in maternal blood), amniocentesis, FISH test (inconclusive) and cell cultures).

Affirmative, two intrauterine transfusion by cordocentesis in the 3rd day and concomitant treatment for parvovirus B19 is performed until the analysis (from the patient's report) arrives. (Naides, 1989)

Evolution of the fetus is unfavorable - the patient and her husband are summoned to discuss the case, after the arrival of the results of all investigations in the presence of an obstetrician-gynecologist specialist and a psychologist.

From the results of the investigations carried out in Vienna: fetal ascites MRI, subcutaneous edema, V maximal increase in the mean cerebral artery. The maternal blood test at the gestational age of 25 weeks and 2 days

detects maternal infection with parvovirus, fetal ultrasound (ultrasonic examination) - transabdominal with 2D probe - positive cardiac activity - reduced amniotic fluid in amount; placenta on the posterior wall, signs of the hydrops present-ascites (quantity-abdominal wall distance - 13 mm) (Brown, 1994) (Salomon, 2013)

In the MRI examination were changes in the fetal brain that were interpreted as direct result of fetal anemia. Changes in the spleen and fetal liver have also been identified - these organs being associated with fetal hematopoiesis. Also due to massive anemia, the fetus has cardiomegaly and compression of the lungs. Data from anamnesis, MRI, blood tests, amniocentesis were combined, and it was concluded that the fetus had an unfavorable prognosis, thus recommending interruption of pregnancy. (Carvalho, 2013)

Approximately 2 days after this discussion, the patient shows up in our clinic accusing non-systemic contractions, pelvic pain, which is why she is being hospitalized.

The next day, the uterine contractions are systematized - the labor begins, and after a 4-hour labor, it aborts a male conception product weighing 700 grams. Affirmatively, macroscopically, pluri-malformation (in fact with changes due to parvovirus infection and anasarca, following marked fetal anemia).

Deliverance occurs and the placenta is also sent for histopathological examination, then soft parts control and intrauterine instrumental control.

The patient was hospitalized for 3 days, when antibiotics were administered according to antibiograms, uterotonic drugs, and medication for ablation.

She has been discharged with good general condition, afebrile, appetent, well contracted uterus with physiological involution, minimal vaginal bleeding, ablactation, spontaneous sputum, presence of intestinal transit, without subjective accusations.

At the 6-week control, there are no pathological changes, internal and external genital apparatus in normal relationships, the patient is advised to use contraceptive products for 6-9 months before a possible new pregnancy and she need to repeat all the analyzes. (Skjöldebrand-Sparre, 2000)

From the histopathological examination we observe: male conception product with very high fetal hydrophobic mass, weight 860 g, lower edema marked with intraepidermal microvehicle formation, apparent small periventricular hemorrhagic points. The cord slightly turned to the left of 2/2 cm apparently with left ventricular hypertrophy. Spleen is increased in volume of 3.5/2 centimeters. Brown liver of 6/3.5 cm, bileless vesicle, mucous, slightly yellowish. Left kidney with hemorrhagic aspect in the cortical. Right kidney 1.5/2.5 cm. Brain: Cerebral edema, cerebral

hemorrhage. Lungs: implants with interstitial bleeding. Myocard: interstitial edema. Liver: hepatic fibrosis, massive hemosiderin deposits and intrahepatocytic cholestasis. Kidney: kidney nephrosis, hematic cylinders, tubular necrosis, extramedullary hematopoietic outbreaks in the pelvis, interstitial bleeding in the medulla. Conclusion: hemolytic syndrome.

More likely the pregnant woman acquired the respiratory virus within 3 weeks between fetal morphology and routine control (5^{th} month), initially immunoglobulin M being positive in the maternal blood rather due to their occurrence at 10-12 days of contact or inoculation. It was probably a very aggressive strain if within 3 weeks the fetal anasarca was strengthened irreversibly by intrapartum fetal death. (Tolfvenstam T. P., 2001) (Rodis, 1998)

With all analyzes performed and treatment for parvovirus and the two intrauterine transfusions performed by cordocentesis in Austria, the evolution was to fetal exitus. (Schwarz, 1991). More likely, only if the pregnant woman had accidentally presented to a routine check earlier than the pregnancy monitoring protocol would have been able to detect early and eventually initiate an intrauterine fetal treatment because Immunoglobulin M for parvovirus were negative at the first determination in week 24/25. (Sheikh, 1992) (Anand, 1987)

CONCLUSIONS

Under the conditions of a correct pregnancy monitoring, there may be situations where the initiation of treatment and even intrauterine correction are outdated and the evolution of the fetus is to exitus.

The Parvovirus B19 infection has not yet been sufficiently explored, when we are faced with a fetal situation we must think (among other differential diagnoses) at an infection with this virus.

In Romania, intrauterine correction interventions are still in the beginning, schedules are cumbersome, and patients are forced to use these services abroad, mentioning that the services are extremely expensive, with only some patients able to cope financially.

It is imperative to establish case-guideline protocols in the event of abnormal or suspicious ultrasounds.

Too few entities can benefit from intrauterine correction in the country or abroad. Besides the very high costs (which the patients assume) there is also the timing that is hampered by the place where the procedures and the late programming are performed to resolve the pathology on time.

In Romania maternal-fetal medicine is at first, 4th grade maternities with diagnostic and intrauterine treatment services are few and hence the need to send these cases to solve abroad.

From this practical case it is deduced the need to invest much more in maternal-fetal medicine, to equip the third and fourth grade maternities with performance equipment, to set up laboratories for accurately performing pregnancy analyzes, including genetic tests - double test, triple test, amniocentesis, coronal villus biopsies, these being the basis for quality service delivery.

It should also be invested in training health professionals through continuing medical education courses and programs, as well as organizing quality control and audit programs to ensure quality, all of which are time and money-consuming.

The foundation of good health of a nation is the major investment in maternal-fetal medicine.

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