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Congenital Hydrocephalus Secondary To Parvovirus Infection (About One Case)

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ABSTRACT

In pregnancy, even if the risk of fetal complications is extremely low in case of parvovirus infection, a preventive or therapeutic attitude must be implemented as quickly as possible in the event of contagion because the risk of foeto-placental hydrops exists as well as the risk of death fetal in utero and malformative. We report the case of parvovirus seroconversion during pregnancy discovered in the etiological assessment of hydrocephalus associated with hydramnios.

Keywords
Parvovirus B19, Pathogenic virus,

Introduction
Parvovirus B19 is a single-stranded DNA virus linked to non-immune anasarca conditions and fetal death [1,2]. About 50% to 75% of women of childbearing age have acquired immunity to parvovirus B19 [3-5]. 1% to 3% of pregnant women will seroconvert during pregnancy to parvovirus 19 [6,7].

We report the case of a congenital hydrocephalus discovered at 17 weeks of pregnancy associated with hydramnios, the etiological assessment revealed a parvovirus infection, as for the malformative assessment, hydrocephalus was isolated without other detectable abnormalities.

Through this case we will study the consequences of a parvovirus infection on pregnancy.

Observation
This is Mrs. AH, 20 years old, IIIG IIIP, with no particular pathological history, no notion of consanguinity, presenting in our structure for fetal malformation such as hydrocephalus discovered at 17 weeks of amenorrhea associated with a hydramnios on a pregnancy not followed, morphological ultrasound revealed a major isolated quadriventricular hydrocephalus with hydramnios, the remainder of the examination was normal. A whole aetiological assessment was requested, including serologies parvovirus toxoplasmosis rubella, syphilitic cytomegalovirus, parvovirus hepatitis B C D and E, with detection of irregular agglutinins, induced oral hyperglycemia. The results were normal apart from the parvovirus serology which was positive with a high IGM rate. An amniocenthesis was proposed which was not performed due to lack of resources. At 37SA, the ultrasound performed as part of the follow-up objectified major hydrocephalus with a biparietal diameter of 16.85 cm (figure 1) with a large cistern at 15cm, a scheduled cesarean section was indicated allowing the extraction of a newborn female weighing 5300g with manifest hydrocephalus without other abnormalities detected at birth (Figure 2). A neurosurgery opinion was requested indicating a ventriculo-peritoneal bypass which was performed at D10 of life.

Discussion
Parvovirus B19 is a human pathogenic virus responsible for generally mild infections [8-10]. The infection is even more serious in immunocompromised patients and in cases of maternal-fetal transmission. 50 to 75% of women of childbearing age are immune [3-5]. As the prevalence of infection is high before ten years of age, unimmunized women are especially likely to be infected by young children. During pregnancy, parvovirus B19 infection can lead to miscarriages, major fetal anemias with foetoplacental hydrops, and death in utero. The rate of transmission of parvovirus B19 infection from mother to fetus is between 17% and 33% [11-13].

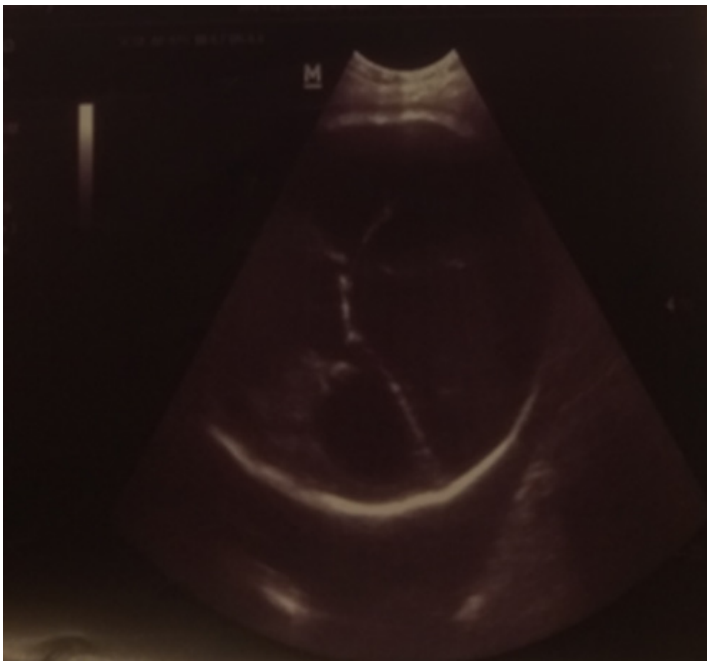

Figure 1: Ultrasound aspect of hydrocephalus.

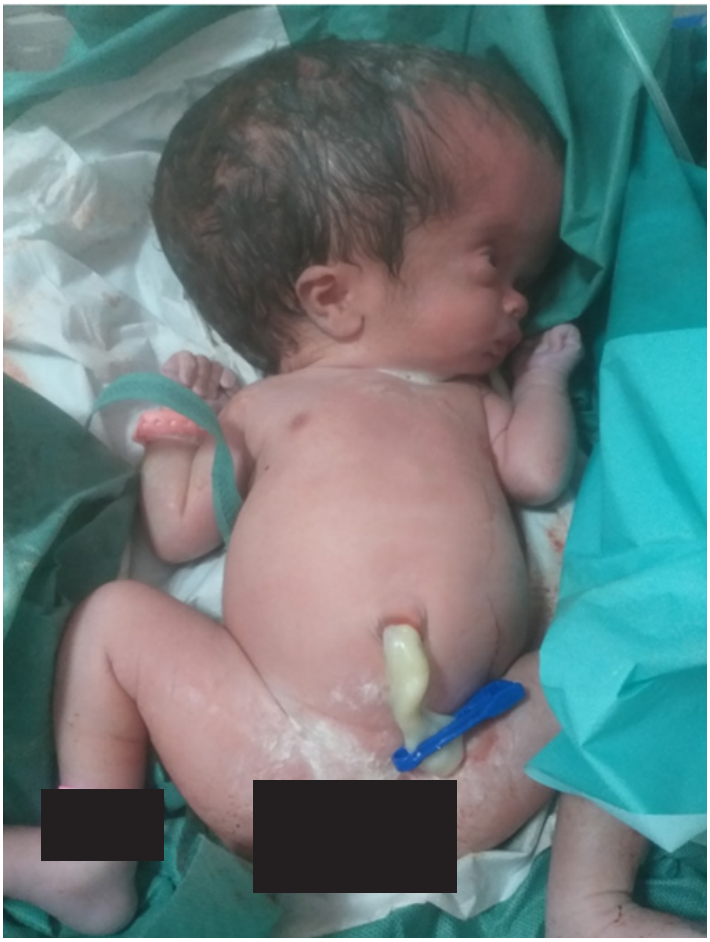

Figure 2: Picture of new born at birth.

Parvovirus B19 has been associated with fetoplacental ananasarch [7,11-15]. The earlier the infection appears in pregnancy, the greater the risk of ananasarch fetus appears to be, the incidence being 2.9% [7,11,12,16,17]. Enders et al. noted that the rate of ananasarck was 4.7% when maternal infection occurred before 25 weeks gestation, compared to 2.3% afterwards [18].

Parvovirus B19 is not a teratogenic virus although malformations associated with the infection it induces have been reported. However, their incidence remains similar to that of the general population. Ocular abnormalities, intracranial microcalcifications, hydrocephalus [19], craniofacial, musculoskeletal and ocular anomalies affecting the central nervous system have mainly been reported [20-22].

Fetal infection can be detected in amniotic fluid or fetal serum by PCR. However, the presence of viral particles can only be observed during the viraemic stage. The presence of Parvovirus B19 IgM in fetal blood cannot be relied upon to diagnose fetal infection because the fetus does not begin to produce its own IgM until 22 weeks gestation. False negative results have been obtained even when gestational age was beyond 22 weeks [23].

Conclusion

In the majority of cases, the prenatal diagnosis of parvovirus infection is suspected by the presence of hydrops fetalis. Prenatal diagnosis is based either on the analysis of the fetal blood which reveals an aregenerative anemia and the presence of the virus, or by electron microscopy, or by amplification of the DNA by PCR on amniotic fluid. Congenital hydrocephalus has not been described among the malformations secondary to parvovirus in the literature.

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