ABSTRACT Congenital syphilis is a worldwide health problem. Diagnosis sometimes is difficult and an extensive evaluation is necessary. We report the case of fetal ascites and pericardial effusion, in addition to a positive treponemal test in fetal ascites and maternal blood. Although maternal treatment was adequate, placental examination revealed chorangiosis. The newborn was asymptomatic with normal screening for syphilis. Clinicians should always suspect congenital syphilis in an asymptomatic newborn with positive previous treponemal test in fetal ascites and reinforces the importance of placental analysis, especially in countries with a high prevalence of the disease.

KEYWORDS Congenital syphilis, ascites, placenta diseases

Introduction

In Latin America, around 85% of congenital syphilis cases occur in Brazil, and its incidence has been increasing over the years. It is well recognized that congenital syphilis could be avoided if correct diagnosis and treatment were made. Government protocols are proposed to face this condition. [1,2] Congenital syphilis is a multisystemic infection that can cause fetal and neonatal disease, abortion, stillbirth or neonatal death, preterm delivery and low birth weight. Prenatal screening is usually made by maternal serologic tests and is the primary means of diagnosis. Adequate treatment with penicillin can impair vertical transmission. [3]

The prenatal ultrasonographic examination may suggest congenital infection. Junior et al. reported a case with fetal ascites, pericardial effusion and hyperechogenicity of the cerebral parenchyma and maternal positive VDRL (venereal disease research laboratory) on the 31st week of pregnancy. Andrade et al. in 2017 reported a case of congenital syphilis with the late diagnosis; maternal VDRL was negative on the 1st trimester and at delivery; the infant was symptomatic on the 1st month and had VDRL 1:1024. This case reveals difficulties in detecting all cases on routine neonatal care, especially when the newborn is asymptomatic, and the mother is VDRL negative. On the other hand, it has been reported that placental abnormalities are identified in 95% of cases of congenital syphilis, and this may help diagnosis. [4-6]

Here, we report a case of presumed congenital syphilis who developed fetal ascites with positive treponemal test and pericardial effusion, associated with negative maternal VDRL during pregnancy and placental abnormalities but had no clinical manifestations at birth. This study was approved by the Research Ethics Committee of Federal Fluminense University (CAAE 76609917.2.0000.5243).

Case report

A 22-year-old primigravida, A positive blood group, was referred to the high-risk prenatal service of the Department of Obstetrics of Fluminense Federal University (UFF), because of a finding of mild fetal ascites on obstetric ultrasonography performed on the 23rd week. There was no history of lupus or other autoimmune disorder. As maternal VDRL was negative,
a fetal paracentesis was indicated for diagnosis. Ascites specific treponemal test (immunochromatography) was positive. Two weeks later, maternal blood specific treponemal test (immunochromatography) was also positive; she had no history of previous syphils and treatment with benzathine penicillin (7,200,000 UI divided in three weeks) was indicated at the 32nd week. Fetal echocardiography revealed right ventricle overload, a high ductus arteriosus flow and mild pericardial effusion. Maternal serological tests for rubella, toxoplasmosis, hepatitis and cytomegalovirus were negative on the 14th week and repeated on the 34th week; anti-HIV was also negative. Because of oligodrammio and meconium-stained amniotic fluid, it was decided to perform a cesarean delivery at the 38th week. At that time, both maternal and newborn blood VDRL were negative. Amniotic fluid was not tested for Treponema pallidum (oligodrammio). The female newborn presented inadequate vitality, the weight of 2,780g (percentile 10-50), length 46 cm (percentile 10-50), head circumference 33 cm (percentile 50-90), Apgar 5/9 and required positive pressure ventilation. Physical exam was normal. Because of the fetal exams, the newborn underwent a spinal tap, blood analysis, long-bone X-ray, echocardiography and received crystalline penicillin for ten days. The cerebrospinal fluid revealed five cells, protein 112 mg/dl and negative VDRL. Blood analysis revealed haemoglobin 13,6 g/dl, 13,600 white cells (61% polymorphonuclear). Long-bone X-ray was normal. The echocardiography revealed normal ventricular function and no pericardial effusion. The ophthalmologic exam was normal. The placental size was normal (560g), and microscopic analysis revealed focal necrosis and polymorphonuclear infiltrate suggesting amniotic fluid infection, chorangiosis, focal calcification and villitis. The placenta was not examined for spirochetes because specific staining was not available.

On day 6, the newborn developed jaundice (total bilirubin 16.2 mg/dl; 276 mol/L) and required phototherapy for two days. She was also A positive blood group. On day 11, the newborn was discharged without presenting any intercurrences.

Discussion

In countries where congenital syphilis is prevalent, suspected cases must be extensively explored, and in case of high suspicion, neonatal treatment should be considered; this occurred in the present case, because of fetal and placental abnormalities. The rising incidence of syphilis in our country reinforces the importance of diagnosis during pregnancy. Bezerra et al. reported increasing infant mortality rates associated with congenital syphilis, in Brazil, between 2010-2015. It is possible that the increasing application of rapid tests (at delivery) and availability of serologic tests during pregnancy helped to identify new cases. Noteworthy, for the World Health Organization (WHO), morbimortality associated with congenital syphilis is high. In 2012, it was estimated that 143,000 fetal demises/stillbirths, 62,000 neonatal deaths, 44,000 preterm or low birth weight infants and 102,000 infected newborns were associated with congenital syphilis. In February 2019, the WHO published new estimates on congenital syphilis. Data indicate that there were more than half a million total cases of congenital syphilis in 2016, resulting in over 200,000 stillbirths and neonatal deaths. Adequate treatment during pregnancy may prevent fetal and neonatal disease. These data support that congenital syphilis is still a matter of concern. [7,8]

Specific tests (treponemal) can be positive for a long time after a previous syphilis infection. In the present case, a primigravida without a history of previous syphilis had a fetus with a treponemal test positive in ascites; the maternal treponemal test was positive and, maternal treatment was indicated. The maternal diagnosis was supported by those abnormalities and the exclusion of another diagnosis. Blood sample for the maternal VDRL was correctly diluted. According to the Brazilian Health Ministry protocol, when a treponemal test is positive, and VDRL is negative, the case is considered serological scar if there is no clinical manifestation. In the present case, the serological scar could not explain fetal and placental abnormalities. It is mandatory to investigate syphilis in all pregnant women, initially in the first medical appointment, then at the 28th week and delivery. Prenatal screening for syphilis is done with a nonspecific test (VDRL) and if positive, with a specific test, as FTA-ABS (fluorescent treponemal antibody absorption), to confirm the diagnosis. Specific tests reveal specificity superior to 0.97. At delivery, rapid tests are indicated. Rapid test accuracy was reported on a systematic review that included ten studies with a sensibility of 0.83 and specificity of 0.96. It must be emphasized that infected women and children may have VDRL false-negative as a result of the prozone effect. This phenomenon is secondary to an imbalance between antigens and antibodies, impairing flocculation. All highly suspected cases with a nonspecific negative exam should be retested with diluted serum. [9,10]

Without serological confirmation, ultrasonography may help the identification of fetal cases, as occurred in the present case. Ascites, hepatomegaly, pleural or pericardial effusion, hyperechogenicity of cerebral parenchyma, polyhydramnios, placentomegaly and abnormal middle cerebral arterial Doppler were reported in other studies. [4,5]

Asymptomatic fetus with a positive treponemal test on ascites and maternal positive treponemal test, which was asymptomatic at birth was the challenge in the present case. When maternal exams are negative, but the newborn is symptomatic, a neonatal diagnostic is suggested by the infant exams. Dalgleish et al. reported a case of a small-for-gestational-age infant depressed at birth who presented early hypoglycemia, hepatosplenomegaly, thrombocytopenia and jaundice associated with a negative maternal and infant VDRL. The infant was symptomatic, which differs from the present case. On the second week of life, they decided to test the neonate for a treponemal test, and this was positive. The authors suggest that the meticulous assessment at birth will aid the elimination of this disease. [11]

In the present case, maternal treatment was initiated six weeks before delivery. At birth, placental abnormalities were demonstrated and could not be associated with other diseases. Unfortunately, identification of spirochetes by specific staining was not possible. The placental analysis adds essential information for the diagnosis of congenital syphilis. Treponema pallidum identification, placentomegaly, amniotic fluid infection and villitis were reported. It has been suggested an association between fetal and placental pathology, i.e., when the placenta is abnormal, there is probably a fetal abnormality or disease. Chorangiosis, a capillary lesion of the placenta, is observed in 6.8% of pregnancies and is associated with syphilis, pre-eclampsia and diabetes. The finding of these alterations is crucial to investigate such conditions. In the present case, the mother had no diabetes or pre-eclampsia. [6,12]

All investigation was carried out based on fetal abnormalities and maternal positive treponemal test. A positive specific test on ascites with negative maternal VDRL revealed that sometimes, maternal serological diagnosis is difficult. For that reason,
screening for other diseases was made, to exclude other diagnosis. A correct diagnosis requires the combination of clinical, epidemiological and laboratory evaluation. Whenever necessary, treatment must be made during hospital admission, as in the reported case. Also, rigorous postnatal follow-up of all treated children is recommended, for up to 18 months. [2]

Limitations to this case were the impossibility of examining the placenta for spirochetes by specific staining, the fact that maternal nonspecific screening remained negative and the small volume of amniotic fluid impaired the testing for Treponema pallidum.

Conclusion
Congenital syphilis diagnosis is sometimes hard to do. Our case showed that presumed congenital syphilis cases in countries where the disease incidences are high, such as in Brazil, should promptly be treated.

Ethics approval
This study was approved by the Research Ethics Committee of Federal Fluminense University (CAAE 76609917.2.0000.5243).

Disclosure Statement
There were no financial support or relationships between the authors and any organization or professional bodies that could pose any conflict of interests.

Authors’ contributions
COSV was the main author and writer of the case report; MDSQ, ACO, NRPBM and IMAR were involved in conception, data collection, writing and revising final manuscript.

Competing Interests
We obtained informed consent from the patient for publication of this case.

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