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Specificity of Brucellosis In Pregnancy: Presentation of Two Cases and Review of Literature

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Abstract

In pregnant women, brucellosis may have different clinical aspects, but there are no specific signs of the disease and in all cases the maternal and fetal prognosis may be involved. We report two cases of brucellosis-infected pregnant women. In the first, the diagnosis and the treatment were early and the evolution was favorable with term delivery of a healthy newborn. In the second the pregnancy was complicated by a premature delivery at 32 weeks of gestation.

On the occasion of these two observations, we made a literature review to clarify the clinical features of this infection during pregnancy as well as its therapy specificities.

Keywords: Brucellosis; Infectious diseases and pregnancy; Spontaneous abortion; Wright serology; Congenital Brucellosis

Introduction

Brucellosis (also known as Maltese fever or undulating fever) is a zoonosis caused by bacteria of the genus Brucella. The disease can be transmitted to humans through direct contact with infected animals, consumption of their infected dairy products, or by inhalation [1]. The disease remains endemic in many parts of the world where it still poses a real public health problem [2].

In pregnant women, brucellosis is rare. Its clinical symptomatology is polymorphous and often unfair. But it may be responsible for serious complications that may affect the maternal and/or fetal prognosis.

Observation 1

Mrs. J. O., 30 years old, with no significant pathological history, primigravida at 24 weeks of amenorrhoea, was sent by a doctor of free practice to explore an unexplained fever evolving for a week. After interrogation, the woman was from a rural area and she has contact with domestic animals such as dogs, goats and sheep. The history of the disease begun a week before consulting her doctor and was marked by the sudden onset of fever associated with myalgia, arthralgia, asthenia, nausea and vomiting. Initial clinical examination was usual. The patient was put under amoxicillin 1g * 3. The evolution was marked by persistent fever and non-improvement of the general state.

On admission, the examination had demonstrated a fever at 40°, patient was asthenic and pale, cardiopulmonary examination was normal, there were no axillary or inguinal lymph nodes. On the obstetrical plan, the uterine height was 27 cm, the uterus was relaxed, no bleeding or liquid flow at the vaginal touch and the cervix was short, closed and posterior. Ultrasound showed an evolution pregnancy and eutrophic fetus for its term. In biology, the patient had microcytic normochromic anemia (HB at 9.1 g/dl) and thrombocytopenia at 90000 elts/ml, cytobacteriological examination of the urine was negative, endocervical and vaginal sampling were negative. Due to the contact with domestic animals and the consumption of their dairy products, brucellosis was suspected. Wright's serology was practiced and the outcome was positive. Antibiotic therapy based on Rifampicin 900 mg/day + trimetropime-sulfamethaxazole 400 mg/day was prescribed. The evolution was marked by the disappearance of the fever within a week with an improvement of the general state. The treatment duration was 6 weeks.

Surveillance of the patient was completed at the outpatient clinic. She delivered vaginally at term a girl in a good health with a birth weight of 3100 g. The search for Brucella in the baby was negative.

Observation 2

Ms Z.A, 39 years old, fifth gesture, pregnant at 32 weeks who consults for pelvic pain (uterine contractions). On examination, there was a fever at 39° with no obvious infectious focus. Obstetrical examination had demonstrated the presence of uterine contractions and on TV the cervix was dilated to 4 cm with a broken water pouch. Cardiac activity was positive. There was therefore a premature delivery in a context of fever. The woman had delivered a male baby weighting 2 kg. In postpartum the patient was always febrile with anegative initial infectious assessment. A second interview of the patient revealed that she came from acountry where brucellosisis endemic. Wright's serology was therefore requested and we started an antibiotic therapy based on Rifampicin (900 mg/d) + (trimetropime-sulfamethaxazole 400 mg/day). Wright's serology returned positive. The evolution was favorable.

Reviews

Brucellosis is a zoonosis which remains endemic in many parts of the world, particularly in Latin America, Africa, Asia and the

Mediterranean countries, where it still poses a real public health problem and represents an important economic cost [2]. It affects more than 500,000 individuals each year. Its incidence varies between countries and regions ranging from 0.125 to 200 cases per 100000 inhabitants.

In Tunisia, the incidence of the disease is estimated at 2 to 3.5/105 inhabitants [3].

In the pregnant woman, Brucellosis is rare. The first report on this subject dates from 1906 by Devoir [4] and the first series of brucellosis during pregnancy was published in 1938 by Del Vecchio (59 cases). In 1990, Sherif estimated the incidence of brucellosis at 3.5% of Egyptian pregnant women [5]. According to Elshamy the incidence of this infection in pregnant Saudi women extends to 12.2% [1]. A new study published in 2015 by Gustavo et al. found an average of 2.3 cases per year [4].

Brucellosis is secondary to a gram negative cocco-bacillus bacterium [2]. Classically Brucella consists of six species, four of which cause human brucellosis: Brucellamelitensis (goat, sheep and camels), Brucellaabortus (cows, buffaloes and camels), Brucellasuis (pigs), and Brucellacanis(dogs) [6]. In Tunisia, the disease is mainly secondary to brucellamelitensis and exceptionally Brucellaabortus [3].

Clinically, brucellosis is a systemic disease that can develop in an acute or chronic mode and during which any organ or body system may be involved. In pregnant women, brucellosis can take different forms: it can go completely unnoticed or be revealed by few symptoms [7-9]. But in any case, both the fetal and maternal prognosis can be involved [10]. The most common symptoms include fever, arthralgia, myalgia, hepato-splenomegaly, sweat, fatigue, pain and anorexia [11]. For some authors the disease progresses to an acute form in about 76.9% to 100% of cases [1,8]. While other authors, including Khan et al. [7] and Elshamy et al. [8] found that subacute and chronic forms are the most frequent in the first trimester of pregnancy, while in the third trimester the disease is presented mainly in acute form ($p<0.001$). Our two patients had acute and brutal forms of brucellosis. In the first, the clinical presentation was complete, while in the second the complaints were reduced to an isolated fever.

Diagnostic certainty requires the isolation of Brucella in culture. However, this diagnosis is traditionally based on antibody research. This research is based on different serological techniques including Wright's serological diagnosis (SW), which remains the reference reaction to theWHO and the most commonly used in clinical practice [9]. In our two cases Wright's serology was positive but, in none of them it was possible to isolate the germ.

This infectious disease is a source of several complications of varying severity. Indeed, as for non-pregnant women, the most common medical complication is bone and joint disease [10]. Pappas et al. [11] and Gustavo et al. [4] found more sacro-ileitis in the subacute phase. Genital and urinary complications come second [4]. In addition, hematological disorders have been described in pregnant women, mainly anemia [9,10,11]. According to Gustavo et al. [4] 72.3 % of pregnant women affected by brucellosis are anemic and 23.1% have thrombocytopenia. A lowrate of hemoglobin was noted in our two patients, the first had also thrombocytopenia.

Obstetric complications are also possible. The most described are essentially spontaneous abortion, premature delivery and fetal death in utero [12,13]. The causal relationship between brucellosis and these complications is still a topic of discussion.

The overall incidence of spontaneous abortion in pregnant women with brucellosis varies from 7% to 45.6% [14,15]. Thus Khan et al. [7] found 43% of abortions in a group of 92 pregnant womenaffected by brucellosis. According to him, spontaneous abortion occurs mainly in the second trimester. While Gustavo et al. [4] found alower rate of spontaneous abortion (18.6%), of which 87.5% occurred during the first trimester.

In addition, brucellosis may be responsible for many abortions in the same woman [9]. According to Khan et al. [7], we should think of brucellosis in case of repetitive abortions in the same patient, especially if she comes from an endemic region and it is recommended to practice the serology of Wright in the etiological assessment of these abortions.

Premature delivery is also a major complication in brucellosis-associated pregnancies [1,2,3,9]. In fact, in her study, Kurdoglu et al. [1] foundthat of 29 pregnant women infected with brucellosis, 2 patients had premature delivery. In the first, brucellosis is diagnosed in the first trimester, while in the second the diagnosis of the disease is made in the third trimester. Gustavo et al. [4] reported 13.9% preterm delivery in his study. According to Elshamy et al. [8] and Khan et al. [7], premature labor is observed respectively in 20.58 % and 3.26% of cases. One of our patients had premature rupture of the membranes with premature delivery at 32 weeks of gestation.

Cases of neonatal brucellosis have also been documented. Indeed, during the pregnancy the foetus can be contaminated. This fetal contamination occurs via the placenta, cord blood, amniotic fluid or bloody losses during delivery. Some authors believe that contamination can also occur through breast milk. The majority of infected newborns develop septicemia; although some of them may remain asymptomatic. Sometimes, clinical signs and symptoms may appear later in childhood.

Early management of the disease determines the maternal and fetal prognosis. Antibiotic therapy is the essential treatment. Its aim is to treat the disease, prevent complications and relapses [4]. Cyclinsare the referential antibiotics; but they are proscribed during pregnancy because its use may be the cause of enamel hypoplasia. Streptomycin may cause destruction of the eighth fetal nerve. It should not be used during pregnancy unless the maternal need clearly outweighs the risk to the fetus. Rifampicin at a dose of 900 mg/day for 6 weeks is considered to be the drug of choice for the treatment of brucellosis in pregnant women [4]. Gotuzzo et al. [14] and Carrillo et al. [15] recommend the combination of rifampicin andcotrimoxazole for 4 weeks.

Conclusion

Brucellosis infection during pregnancy, although rare, is the source of many general and obstetric complications. Its diagnosis is essentially serological. It must be thought of face to any unexplained fever, especially among patients who are from endemic regions or who have intimate contact with animals. Early management, based on adequate antibiotic therapy, influences greatly the maternal and fetal prognosis.

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