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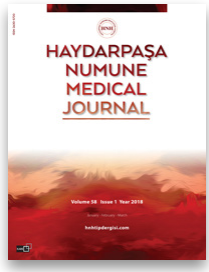

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CASE REPORT

Congenital *Brucellosis* in a Premature Infant

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Abstract

Brucellosis is a worldwide infectious disease that arises from *Brucella* type bacteria. The infection is transmitted to humans through the consumption of unpasteurized milk, direct contact with infected animals. Congenital *brucellosis* occurs using trans-placental transmission due to maternal infection during pregnancy or ingestion of the contaminated maternal secretions during birth and breastfeeding. The diagnosis of *brucellosis* is made by culture or serology. In this article, the case of a premature infant with congenital *brucellosis* presumed to be acquired trans-placental transmission is reported because of the rarity of such cases. We should note that preventive procedures should be taken to protect pregnant women living in high-risk areas where *brucellosis* is endemic.

Keywords: Brucellosis; intrauterine infection; preterm newborn.

Brucellosis is a zoonotic infectious disease that arises from bacteria of the genus *Brucella*, and the main route of transmission is the consumption of infected animal milk and dairy products. *Brucellosis* is commonly seen in humans with high morbidity and low mortality [1, 2]. *Brucella* species cause outbreaks in sheep, goats, cattle and pigs in the form of epidemics. In humans, it causes spontaneous abortion, intrauterine death and premature birth by invading the placenta and fetus [3]. *Brucella* is a spore-free, immobile, aerobic, gram-negative coccobacilli [4, 5].

Although *B. melitensis*, *B. abortus*, *B. canis*, *B. bovis*, *B. suis*, *B. neomatae* species are found, *B. melitensis* is the most common species in humans. The most invasive and pathological of all *Brucella* species is *Brucella melitensis* [3, 5]. The countries on the Mediterranean coast, in Eastern Europe, Asia, Africa, South and Central America are high-risk regions [6, 7]. The diagnosis of *brucellosis* is made by the presence of clinical signs and symptoms, with a specific antibody titer of 1/160 or higher in the *Brucella* standard tube agglutination (STA) test in serum and/or production of *Brucella* bacteria in any culture sample [8]. *Brucella* is rarely transmitted from the infected mother to the infant through the placenta in the prenatal period, with blood or other fluids at birth and with breast milk after birth [4, 6, 7]. Here, a case of *brucellosis* that is thought to be transmitted from mother to baby before or during delivery is presented.

Case Report

Patient consent was obtained for this study. The baby born at 38 gestational weeks at 2700 g by spontaneous vaginal delivery from a 25-year-old mother was hospitalized in neonatal intensive care unit at 8th postnatal hour because of the presence of icteric sclera and skin, poor sucking and febrile mother at birth. Results of some biochemical tests were as follows: hemoglobin 15.9 g/dl; hematocrit 47.5%; platelets 271000/mm^3; leukocytes 15900/mm^3; procalcitonin 10.61 ng/ml; glucose 25 mg/dl; calcium 7 mg/dl: BUN 22 mg/dl; creatinine 0.98 mg/dl, and C-reactive protein

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were negative. In peripheral blood smear, 60% lymphocytes, 35% polymorphonuclear leukocytes and 4% monocytes were detected. Early-stage sepsis was suspected, and blood and urine cultures were obtained, then, treatment with ampicillin (150 mg/kg/d) and amikacin (15 mg/kg/d) was started.

On the 5th day, *Brucella melitensis* was grown in the blood culture and his antibiotherapy was switched to gentamicin (4 mg/kg/day for 14 days), rifampicin (15 mg/kg/day as single daily doses for 42 days) and cefotaxime (150 mg/kg/day for 42 days). *Brucella* tube agglutination was positive at 1/80 titer. The patient underwent lumbar puncture, cerebrospinal fluid culture was obtained and any bacterial growth was not observed. Transthoracic echocardiography was reported as normal. Hepatosplenomegaly was not observed in whole abdomen ultrasonography. When the patient's history was obtained in detail, the family did not deal with animal husbandry, but they consumed cheese manufactured in rural areas continuously. The mother, who had congenital *brucellosis*, was referred to the infectious diseases clinic. The family screening was performed.

Brucellosis tube agglutination test was found to be positive at 1/320 titer and the mother was started on treatment for *brucellosis*. Breastfeeding was stopped and blood and milk cultures were obtained from the mother. *Brucella* tube agglutination test was found to be positive at 1/1280 titer in his 7-year-old brother and treatment was started. Any bacterial growth was not detected in the control of blood culture and after completion of 6-week-long treatment, the patient was discharged.

Discussion

The incidence of *brucellosis* in pregnant women is not known since routine screening is not performed during the prenatal follow-up period in endemic areas [9]. In our country, 6.1% of the cases of *brucellosis* in Eastern Anatolia consist of pregnant women; the frequency of spontaneous abortion, intrauterine death and premature birth in pregnant women with *brucellosis* has been reported to be 24.1%, 3.4% and 6.9%, respectively [10]. In pregnant women, *Brucella* infection causes serious morbidity, such as abortion, intrauterine death and preterm birth. Experimentally, an oxytocin-like endotoxin that induces abortion in *brucellosis* has been reported to increase the frequency and intensity of uterine contractions [3, 11]. In recent years, a small number of cases of congenital *brucellosis* with the intrauterine transmission have been reported [12, 13].

Giannacopoulos et al. [12] reported that *brucellosis* was detected in the 27*day-old baby of the mother who was treated for *brucellosis* during pregnancy and indicated that transplacental transmission occurred because the baby was fed only with formula milk after birth and the case was accepted as congenital *brucellosis*. Ceylan et al. [14] reported a case of newborn *brucellosis* that was thought to be transmitted by breast milk. The presence of *brucellosis* was investigated in both the mother and her baby, who was born at the 28th gestational week because of insufficient weight gain at the age of three weeks and a history of *brucellosis* in the mother during the last month of pregnancy.

As a result of this examination, *Brucella* tube agglutination tests (1/1280, 1/640 and 1/160, respectively) were found to be positive in breast serum, breast milk and infant serum. With these findings, exacerbation of *brucellosis* in the mother was considered, breast feeding of the baby was discontinued and trimethoprim-sulfamethoxazole and rifampicin treatment was initiated in the baby who was diagnosed with *brucellosis*. Ceylan et al. reported that they discharged the baby in a healthy state after six weeks of treatment.

Our case was admitted to the neonatal intensive care unit for the investigation of sepsis and hyperbilirubinemia after the development of icteric sclera and skin on the 8th hour of the postnatal period when the baby was lying beside her febrile mother (38.4°). Early-stage sepsis was considered due to the high procalcitonin values in our patient's history and clinical findings, as well as laboratory investigations. Antibiotherapy was started and the patient's treatment was changed to rifampicin, cefotaxime and gentamicin. Upon the detection of *brucellosis* in the baby, the mother of our case was also examined for *Brucella* infection and she was diagnosed with *brucellosis*.

Samples for milk and blood culture obtained from the mother were sent to the laboratory for three days, and treatment was started. However, any bacterial growth was not detected in the cultures. Since *Brucella* infection was detected in both the mother and the baby in our case, we believe that *B. Melitensis* was transmitted transplacentally from the mother.

We think that newborns are at risk for *Brucella* infection in the regions where *brucellosis* is endemic in our country. It is important for pregnant women to be warned about consumption of poorly cooked milk and dairy products in regions where *brucellosis* is widespread.

Since *brucellosis* is still an important public health problem in developing countries, such as Turkey, *brucellosis* women of childbearing age in endemic regions, should be edu-

cated about transmission routes, clinical findings, complications and treatment of *brucellosis* and pregnant women should be included in screening programs.

Brucellosis, which is a common disease in our country, may present with different clinical manifestations. Since the clinical presentation of mothers infected with *brucellosis* may be very different, mothers should be questioned in detail, and it should be kept in mind that *brucellosis* may present only with jaundice in endemic countries. *Brucellosis* should also be considered in the differential diagnosis as a rare disease in patients with early sepsis.

Informed Consent: Written informed consent was obtained from the parents of the patient for the publication of the case report.
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Conflict of Interest: None declared.

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References

1. Yuce A, Alp-Cavuş S. Turkiye'de bruselloz: Genel bakış. Klimik Derg 2006;19:87–97.
2. Pappas G, Akritidis N, Bosilkovski M, Tsianos E. Brucellosis. N Engl J Med 2005;352:2325–36. [CrossRef]
3. Khan MY, Mah MW, Memish ZA. Brucellosis in pregnant women. Clin Infect Dis 2001;32:1172–7. [CrossRef]
4. Elshamy M, Ahmed AI. The effects of maternal brucellosis on pregnancy outcome. J Infect Dev Ctries 2008;2:230–4. [CrossRef]
5. Çelebi S, Hacımustafaoğlu, M. Brusellozis. Güncel Pediatri 2004;2:39–43.
6. Schutze GE, Jacobs RF. Brucella. In: Kliegman RM, Behrman RE, Jenson HB, Stanton BF, editors. Nelson Textbook of Pediatrics. 18th ed. Philadelphia, PA: Saunders, 2007. p. 1214–6.
7. Matyas Z, Fujikura T. Brucellosis as a world problem. Dev Biol Stand 1984;56:3–20.
8. Young EJ. Brucella species. In: Mandell GL, Bennett JE, Dolin R, editors. Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases. 7th ed. Philadelphia, PA: Churchill Livingstone Elsevier; 2010. p. 2921–5. [CrossRef]
9. Karcaaltincaba D, Sencan I, Kandemir O, Guvendag-Guven ES, Yalvac S. Does brucellosis in human pregnancy increase abortion risk? Presentation of two cases and review of literature. J Obstet Gynaecol Res 2010;36:418–23. [CrossRef]
10. Kurdoglu M, Adali E, Kurdoglu Z, Karahocagil MK, Kolusari A, Yildizhan R, et al. Brucellosis in pregnancy: a 6-year clinical analysis. Arch Gynecol Obstet 2010;281:201–6. [CrossRef]
11. Sayılır K, Kutlu SS, Baykam N, Eren Ş, Çelikbaş AK, Dokuzoğuz B. Spontaneous Abortion Due To Brucellosis: Report Of Two Cases. [Article in Turkish]. Turkish Journal of Infection 2003;17:345–8.
12. Giannacopoulos I, Eliopoulou MI, Ziambaras T, Papanastasiou DA. Transplacentally transmitted congenital brucellosis due to Brucella abortus. J Infect 2002;45:209–10. [CrossRef]
13. Chheda S, Lopez SM, Sanderson EP. Congenital brucellosis in a premature infant. Pediatr Infect Dis J 1997; 16: 81-83. [CrossRef]
14. Ceylan A, Köstü M, Tuncer O, Peker E, Kırımi E. Neonatal brucellosis and breast milk. Indian J Pediatr 2012;79:389–91. [CrossRef]