

A PREMATURE INFANT WITH BRUCELLA ABORTUS INFECTION

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Brucellosis is an animal disease occurring in cows, sheep, goats and swine. However, it has also been observed in man as an acute and chronic infectious disease¹⁻⁴. This disease is prevalent in 85%-95% of herdsmen and their relatives^{1,4}.

General symptoms such as fever, chills, weakness, sweating and arthritis mark the onset of the acute infection. Fever, weakness, anxiety and depression accompany the chronic infection, and inflammation may develop in the bones, spleen, liver, kidney, brain or in the urogenital system¹⁻⁴.

Congenital infection has not been defined. However, it has been reported that *Brucella abortus* can cause spontaneous abortion and premature delivery in both animals and man¹⁻⁴.

In this paper a case of sepsis with *Brucella* infection resulting in premature birth is presented. Such a case being rare at this age, it seemed worthwhile to report it.

Case Report

The patient was a boy, 5 hours old. He had been born to a 16-year-old mother in the 32nd week of the pregnancy, and there had been a spontaneous vaginal delivery. The patient, who was the second child, respirated immediately after birth, but he had cyanosis. The patient's sibling had been delivered at home in the 28th week of pregnancy, and he had died the same day. The mother had no record of abortions.

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Physical examination. Weight was 1930 g, length 42 cm, head circumference 30 cm, chest circumference 26 cm, respiration rate 32/min, pulse 140/min and rhythmic, and the temperature was 37 °C. His general condition was poor but he was conscious. He was hypoactive. There was light peroral cyanosis, and intercostal retractions were present. Normal aeration was less in the right lobe of the lungs than in the left. Moro and sucking reflexes were weak.

Laboratory findings. Urinalysis was normal, Hb 20.44 g/dl, WBC 10,000/mm³; a peripheral smear revealed 58% lymphocytes, 40% PNL, 2% normoblasts; HCT, 61%. Erythrocyte morphology was macrocytic and normochromic. There was no toxic granulation. Blood glucose was 88 and 150 mg/dl. A chest x-ray suggested aspiration pneumonia.

The patient was placed in an incubator and received oxygen. Five percent dextrose (110 cc/kg) was started intravenously. 100,000 U/kg crystalline penicillin and 5 mg/kg gentamicin were administered intravenously. Twelve hours after admission the patient developed apnea and received 10 mg/kg caffeine; the apnea persisted and intermittent positive airway pressure apparatus was used. The patient did not respond to resuscitation and died due to cardiac arrest in the 24th hour of life.

Brucella abortus was grown from the postmortem blood and spinal fluid cultures. Spinal fluid biochemical analysis yielded: protein 90 mg/dl, glucose 40 mg/dl, simultaneous blood glucose 88 mg/dl; microscopic examination of the spinal fluid showed young and old erythrocytes.

Discussion

Brucellosis was first described by Bruce in 1887^{1,2,4}. Gram-negative coccobacilli are the responsible agents for *Brucella* infection. The types of *Brucella* infection seen most commonly in man are *Brucella abortus* (cow type), *Brucella suis* (swine type), *Brucella melitensis* (goat type), *Brucella canis* (canine type), and *Brucella neotomae*; moreover, the above mentioned types all have various biological subgroups^{3,5}.

Humans are usually infected by unpasteurized cow milk, butter, cheese, yogurt, meat, and animal by-products such as bones, wool and animal fur. It can be transmitted to a fetus through a lesion in the placenta or at delivery through a crack in the skin^{3,5-7}. Perinatal infection is more rare⁷. There are reports about endemic and sporadic forms of this infection among agricultural populations in Turkey^{1,2,8,9}.

Generally it is seen in adolescents and in adults^{7,8}. *Brucella abortus* was cultured in the blood and spinal fluid of our patient, and the infection progressed as sepsis. This infection is very rare in the neonatal period and in early childhood. This observation is supported by other reports in relevant literature^{1,2,10,11}.

After *Brucella* was diagnosed in our patient, we also screened the family, and *Brucella* agglutination titers were found to be 1/320 in the mother, 1/160 in a grandmother, and 1/320 in an uncle. It has also been established that the infection was prevalent in the Çubuk area of Ankara where the family were living at the time.

A 1/160 agglutination titer is recognized as a positive index for the acute disease. In chronic cases, lower titer values might be accepted as positive^{3,4}. A false positive *Brucella* agglutination may be present after tuberculosis, tularemia or cholera immunization^{2-4,11,12}. However, there was no such history in this family.

It is open to discussion whether the mother's infection was acute or chronic. However, taking into consideration her first delivery, which had occurred at 28 weeks of gestation, it seems that the infection may have been localized chronically in the genital area¹².

It is interesting that placental or perinatal infections were observed in the two consecutive babies. We do not have any culture results from the first baby; therefore conclusions are speculative.

The development of meningitis following septicemia was shown by the growth of the agent in the spinal fluid culture; the biochemical findings, however, were within normal limits since the infection was at an early stage. It is reported that meningitis is rare in acute *Brucella* infections¹³, even in cases related to older age groups^{4,13,14}. It is very rare in the newborn¹⁵. There are no reports of it in premature babies, but some cases of it have been reported during infancy¹⁶. Our case is therefore special in this respect. The findings indicate that it is important to look for the *Brucella* agent in mothers from rural areas with histories of abortion and premature delivery and in babies with sepsis.

Summary

A case of *Brucella abortus* in a premature neonate with a septic condition. The relationship between this infection and the early delivery is investigated and the relevant literature reviewed.

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ERRATA

The final expression of Table I, page 36 of the previous issue of the Turkish Journal of Pediatrics (Volume 25, No. 1), should read:

Fy (a-b-) and Rh₀
13/87 (14.9%)

NOT

Fy (a-b-) in Rh₀
13/87 (14.9%)