A rare tuberculosis form: congenital tuberculosis

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ÖZET

Nadir görülen bir tüberküloz formu: Doğumsal tüberküloz

Doğumsal tüberküloz, infantlarda Mycobacterium tuberculosis basili ile intrauterin dönemde veya normal doğum sırasında karşılaşma sonucunda oluşan infeksiyon tablosu olarak tanımlanmaktadır. Tüberküloz infeksiyonu tüm dünyada yaygın olmakla birlikte, %50'lere varan ölüm oranına sahip doğumsal tüberkülozlu olgular nadiren bildirilmiştir. Doğumsal tüberkülozdaki nonspesifik semptomlar ve genel olarak tüberkülozdaki tanı zorlukları nedeniyle kesin tanı koymak zordur. Doğumsal tüberküloz olguları genellikle doğum sonrası ilk bir ay içinde görülür. Bu olgunun önemi, doğumdan sonra üç aylıkken pnömoni belirtileriyle başvurması ve dikkatli anamnez alınması sonucunda doğumsal tüberküloz tanısı konulmasıdır. Bilgilerimize göre üç aylıkken doğumsal tüberküloz tanısı konulan literatürdeki birkaç olgudan biridir. Şunu vurgulamak gerekir ki; ülkemiz gibi tüberküloz olgularının sık görüldüğü ülkelerde pnömoni yakınmalarıyla gelen infantlarda doğumsal tüberkülozun akla getirilmesi ve bu amaçla alınacak dikkatli ve ayrıntılı bir anamnezin tanı için hala en geçerli parametrelerden biri olduğu kanaatindeyiz. Erken tanı prognoza olumlu katkı sağlayacaktır.

Anahtar Kelimeler: *Doğumsal tüberküloz, infant, infeksiyon, mortalite.*

SUMMARY

A rare tuberculosis form: congenital tuberculosis

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Congenital tuberculosis is defined as infection developing as a result of the encounter between the infant and Mycobacterium tuberculosis bacilli during the intrauterine period or during normal birth. Although tuberculosis infection is very common all over the world congenital tuberculosis cases are rare and mortalities of 50% have been reported. Non-specific symptoms in congenital tuberculosis and difficulties encountered in the diagnosis of tuberculosis in general, make it difficult to reach a final diagnosis. Cases of congenital tuberculosis are generally known clinically during the first postnatal month. This case is important as the three-month infant was presented with pneumonia symptoms and diagnosed as congenital tuberculosis after an attentive anamnesis which is unusual during three postnatal months. To our knowledge, this case is one of a few cases in the literature diagnosed as congenital tuberculosis in three months. Our case emphasizes that it is necessary to consider congenital tuberculosis in the differential diagnosis of pulmonary infections in infants, particularly in countries where the incidence of tuberculosis is high. For this reason, we believe that a successfully obtained anamnesis is the parameter which provides a valid diagnosis. Furthermore, early and speedy initiation of treatment in cases with a potential diagnosis of tuberculosis is a very important factor that affects prognosis.

Key Words: *Congenital tuberculosis, infant, infection, mortality.*

Congenital tuberculosis is defined as infection developing as a result of the encounter between the infant and *Mycobacterium tuberculosis* bacilli during the intrauterine period or during normal birth. Although tuberculosis infection is very common all over the world congenital tuberculosis cases are rare and mortalities of 50% have been reported (1-5). Non-specific symptoms in congenital tuberculosis and difficulties encountered in the diagnosis of tuberculosis in general, make it difficult to reach a final diagnosis (6-9). Cases of congenital tuberculosis are generally known clinically during the first postnatal month. This case is important as the 3-month infant was presented with pneumonia symptoms and diagnosed as congenital tuberculosis after an attentive anamnesis which is unusual during 3 postnatal months.

To our knowledge, this case is one of a few cases in the literature diagnosed as congenital tuberculosis in 3 months.

CASE REPORT

A 3-month-old girl was referred to our clinic with the complaints of cough that had persisted for a month, a 10-day history of abdominal swelling, and a 5-day history of antibiotic administration. The case was born with a weight of 3100 g at 38 weeks of gestation from a 24-year-old mother (Gravida 4- Parity 3), via vaginal delivery; asphyxia could not be defined. The mother had not undergone routine medical evaluation during the prenatal period. Bacillus Calmette Guerin (BCG) vaccination was not administered to the infant. The general condition of the infant was moderate; his weight was 5350 g (25-50 percentile), height: 62 cm (50-75 percentile), head circumference: 40 cm (50 percentile), heart rate: 146/minute, respiration rate: 52/minute. The case had subcostal and intercostals retraction, in addition to nasal flaring. The liver was palpable 4 cm and the spleen was palpable 2-3 cm below the costal margin. Other psychical examination findings were normal. No BCG scar was found. Her hemoglobin level was 9.2 g/dL, with normocytic and normochromic anemia, the white blood cell count was 16.500/mm^3 with a shift to the left; the platelet count was 158.000/mm^3, and C-reactive protein (CRP) was 15.4 mg/dL (normal range: 0-5 mg/dL).

The chest X-ray revealed various nodules and a radiographic infiltrate in the pulmonary parenchyma (Figure 1). Computerized tomography scanning of the abdomen demonstrated hepatosplenomegaly and multiple hypodense lesions in the liver, porta hepatis and paraaortic lymph nodes (Figure 2). PPD skin test (Purified Protein Derivative Standard, Tuberculin Skin Test) was found to be negative. The case was diagnosed with bronchopneumonia and hospitalized.

After obtaining samples for cultures of blood, urine and cerebrospinal fluid (CSF), the patient's treatment was begun with the administration of ceftriaxone, erythromicin and amikasin. Serologies of cytomegalovirus, Epstein-Barr virus, human immunodeficiency virus, herpes simplex virus, syphilis and toxoplasmosis were found to be negative. All the cultures of the patient revealed negative results. Thus, gastric aspirates were obtained three times from the patient in the fasting status, against the risk of tuberculosis. However, no acid-fast-bacilli (ARB) we-

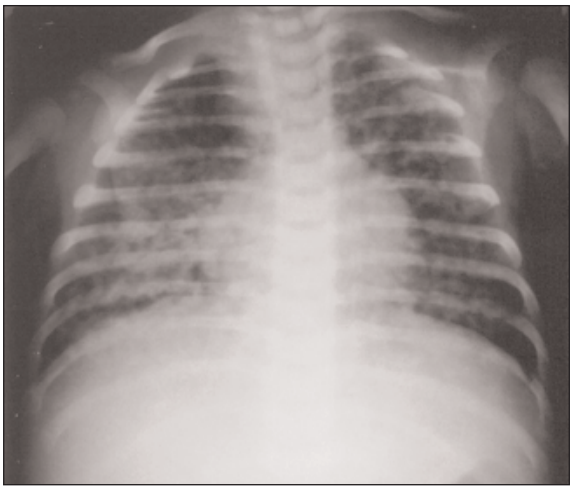

Figure 1. On the chest X-ray, multiple nodules can be observed in the parenchyma, particularly in the right lung.

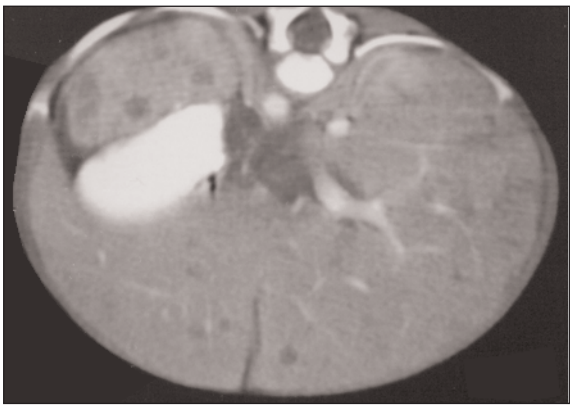

Figure 2. CT scan showing hepatosplenomegaly and enlarged porta hepatis and paraaortic lymph nodes.

re found in the gastric aspirate. The patient's state deteriorated on the 7th day of antibiotic treatment, and despite all resuscitation and supportive treatments, passed away on the 11th day of hospitalization. Post-mortem liver biopsy material revealed the presence of *M. tuberculosis*. In the family scanning, the father's PPD test and chest X-ray were found to be negative and the mother's induration of PPD test was 27 mm. The mother was referred to the department of pulmonary diseases as the detection of a cavitary lesion confirmed the presence of tuberculosis on the chest X-ray. She was diagnosed with tuberculosis and her treatment was begun.

DISCUSSION

Tuberculosis can be described as a chronic bacterial infection seen in the people infected with the complex of *M. tuberculosis* bacilli. This complex includes *M. tuberculosis*, *Mycobacterium bovis* and *Mycobacterium africanum*. These three forms lead to various clinical diseases. However, the subspecies of *M. bovis* causes extra pulmonary cases more frequently than the others and thus, the prognosis is generally poor with a higher resistance against treatment.

Most of the children infected with bacilli who display the symptoms of the disease are older than five years and approximately 90% of childhood deaths caused by tuberculosis are seen in this age group. While the disease is generally seen more commonly in boys during the pre-pubertal period, the risk is equal for boys and girls in the puberty period (1-3).

Congenital tuberculosis infection is acquired from the placenta through *M. tuberculosis* bacilli or through aspiration of infected amniotic fluid. The bacillus first infects the intestines, and then expands to the liver via the umbilical vein (2,3). However, in some cases, it surpasses the liver and infects the lung and other organs.

Tuberculosis should be suspected and investigated for:

(i) if newborn with unresponsive worsening pneumonia, particularly in those from endemic areas,

(ii) if the mother was diagnosed to have tuberculosis and baby has non-specific symptoms,

(iii) when their CSF revealed a high lymphocyte count in the absence of any identifiable bacterial pathogen on culture as in case 2 and

(iv) in presence of fever and hepatosplenomegaly (8).

Therapy for congenital tuberculosis should include at least two bacteriocidal anti-tuberculosis drugs. Usually isoniazid, rifampin, pyrazinamide and sometimes streptomycin are recommended for 1-2 months and followed by isoniazid and rifampin for 9-12 months. Airede suggested that isoniazid and rifampin should be given to the premature infant for a longer period (20 months) (9). If drug-resistant disease is suspected, initial therapy usually includes four or five drugs. A course of 6-8 weeks of corticosteroids is indicated for tubercular meningitis, pleural and pericardial effusion, miliary disease or endobronchial disease (10-13).

Our case was followed-up with the diagnosis of pneumonia due to respiratory symptoms that mimicked pneumonia at the 3rd month of life. However, he was diagnosed with congenital pulmonary tuberculosis on the basis of the radiological findings, and the progressive state despite the non-specific treatment administered, reproduction of tuberculosis in the post-mortem biopsy material, and the history of tuberculosis of the mother (3,4). An infected mother with tuberculosis treated carefully with four anti-tuberculosis drugs. The infant had been separated from the mother since birth and the possibility of postnatal transmission was remote (11).

Diagnosis of congenital tuberculosis is made on the basis of the presence of a primary complex of tuberculosis in infants in the early days of their lives, and by excluding the bacilli obtained from the mother or other close relatives in the postnatal period (5,6). When we interviewed the mother of our case in a calmer environment, away from the pressure of her family, she reported that her cough had persisted for approximately 18 months and that she did not have routine medical evaluation during the prenatal period.

The criteria for distinguishing congenital tuberculosis from postnatally acquired tuberculosis were established initially by Beitzke in 1935, later revised by Cantwell et al. in 1994 (5,7). This is an interesting, though unfortunate, case. It is particularly interesting that the patient presented relatively late (three months of age) for a case of congenital tuberculosis. Most cases of congenital tuberculosis present in the first month of life. This leads our to question whether transmission occurred in utero, during the intrapartum phase, or postnatally. Considering that the mother had symptoms for 18 months prior to delivery, and no treatment during the pregnancy, it probably was a case of congenital tuberculosis. Finally, recent articles have replaced the descriptive term “congenital tuberculosis” with “perinatal tuberculosis” due to the fact that it is difficult to identify the exact time of infection. The term “perinatal tuberculosis” encompasses the in utero, intrapartum, and early newborn period, all of which could be the possible time of transmission (5-7).

Our case emphasizes that it is necessary to consider congenital tuberculosis in the differential diagnosis of pulmonary infections in infants, particularly in countries where the incidence of tuberculosis is high. For this reason, we believe that a successfully obtained anamnesis is the parameter which provides a valid diagnosis. Furthermore, early and speedy initiation of treatment in cases with a potential diagnosis of tuberculosis is a very important factor that affects prognosis.

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