A 4-Month-Old Infant with Cough and Fever

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A 4-month-old boy was referred to our clinic with a diagnosis of pneumonia. When he was 2 months old, he was treated for pulmonary infection for 20 days. A few days after being discharged, he was referred to our clinic with the symptoms of cough, fever, and respiratory distress. His natal and prenatal history were unremarkable. His one sibling had died due to pneumonia at the age of 1 month, but his parents were healthy. There was no history of vomiting or seizure.

At admission, his temperature was 39°C and he was in respiratory distress. Breath sounds were decreased in his right hemithorax. He was in the third percentile for his weight and the tenth percentile for his length. Chest radiograph showed that his right lung was totally infiltrative, and there was a cavitory lesion in the right upper lobe (Figure 1). Ultrasound was performed to exclude the possibility of pleural effusion, and no effusion was detected. His white blood cell count was 28,100 mm$^3$, hemoglobin level was 10.6 g/dL, platelet count was 660,000 mm$^3$, and C-reactive protein was 2.3 mg/dL. Liver and renal function tests were normal. Treatment with intravenous (IV) teicoplanin and meropenem was started. For respiratory distress, he was given IV methylprednisolone, nebulized salbutamol, and ipratropium bromide. His respiratory distress was resolved, but there was not marked response to treatment. His thorax computerized tomography (CT) showed consolidation in the right upper lobe with cavitation and air bronchogram (Figure 2). Gastric aspirates were negative for Mycobacterium tuberculosis. His tuberculin skin test was also negative, but mycobacterium PCR was positive. Due to the positive PCR test for tuberculosis, chest radiographs for his parents were also evaluated. The child’s mother’s test was negative, but a cavitory lesion was detected on his father’s chest radiograph. Bronchoalveolar lavage results showed acid-fast bacilli positivity. Sputum culture was done, and antituberculosis treatment was started for his father. The patient’s tuberculosis treatment is still ongoing.

For diagnosis, see page 140

Editor’s note: Each month, this department features a discussion of an unusual diagnosis in areas including genetics, radiology, or dermatology. A description and images are presented, followed by the diagnosis and an explanation of how the diagnosis was determined. As always, your comments are welcome via email at pedann@Healio.com.
Case Challenge:

Primary Cavitating Tuberculosis

DISCUSSION

Tuberculosis is still one of the most important diseases causing mortality and morbidity in developing countries. The World Health Organization, at least half a million children become ill with tuberculosis each year and up to 70,000 children die because of tuberculosis every year. Children can present with tuberculosis at any age, but the most common age is between 1 and 4 years. Because of non-specific symptoms and difficulty in establishing a definitive diagnosis, it may be difficult to diagnose tuberculosis in infants and children. Tuberculous cavities are usually seen in adults as a result of post-primary pulmonary tuberculosis; however, primary infection with cavitation is rare among children and seen mostly in Africa and India.

In primary tuberculosis, the most common symptom is cough, unlike our case contact with adult pulmonary tuberculosis. Although consolidation in a chest radiogram is the most common finding; CT scan is more useful for diagnosis of parenchymal lesions and tuberculosis lymphadenopathy.

One of the manifestations of progressive primary tuberculosis lung lesion is the occurrence of necrosis and liquefaction of the caseous material within the primary focus. This material may discharge into a bronchus resulting in a cavity, which is defined as primary cavitating tuberculosis. Right lung involvement is more common, as was seen in our case. Prognosis for primary cavitating tuberculosis is typically very poor. Furthermore, it has been reported that mortality is higher as the patient’s age decreases. Mortality in Turkey was 70.6% in children younger than 6 months and 41.9% in those aged 7 to 12 months. Mortality was higher at lower ages because of miliary tuberculosis and because tuberculosis meningitis is more common in that age group. In our case, miliary tuberculosis was not seen in chest radiogram, and the patient’s cerebrospinal fluid examination was normal.

Primary cavitating tuberculosis is rarely seen in children younger than 12 months. At the time of this writing, our patient, who had presented with ongoing fever and cough for 3 weeks, had not yet resolved his symptoms with anti-tuberculous therapy.

Although rare, primary tuberculosis should be kept in mind as a potential diagnosis for infants who are unresponsive to pneumonia treatment. Due to diagnostic difficulties and nonspecific symptoms in children, more studies may be needed as compared to adults.

REFERENCES