



Spondylodiscitis with bronchopneumonia in infancy: A rare entity

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ABSTRACT

Childhood spondylodiscitis is an extremely rare entity and accounts for 2-4% in neonates. Respiratory and other site infections are identified as sources of hematogenous spread. A 5-week-old male child was brought to the emergency department with respiratory distress and convulsions. On the evaluation, he had bilateral bronchopneumonia with septicemia and kyphosis. Computed tomography scan demonstrated spondylodiscitis with destruction of T₅-T₆ vertebrae with abscess of right lower lobe of the lung. Subsequently, thoracotomy was done, and a biopsy sent from apical and posterior segments of the lower lobe of the right lung revealed bronchopneumonia, abscess with entrapped dead bony spicules and collapse. Early diagnosis and treatment of respiratory infections are critical as delay may result in vertebral destruction as seen in this case and could lead to potentially life-threatening complications.

KEY WORDS: Bronchopneumonia, lung abscess, spondylodiscitis

INTRODUCTION

Childhood spondylodiscitis is an extremely rare entity that often presents as a nonspecific clinical picture that may delay the diagnosis [1-3]. It is a combination of discitis which means inflammation of one or more intervertebral disc spaces and spondylitis which means inflammation of one or more vertebrae. It is also known to extend into the paravertebral soft tissues, the epidural space, meninges, and spinal cord [3-6].

In older children spondylodiscitis is usually a benign condition. In neonates and infants it is often very aggressive, and they are commonly septic and systemically unwell at presentation [1,2,7].

The reason is that the growth plates are not barriers to infection and the intervertebral discs are vascular, and micro-organisms can traverse the disc through fine vascular anastomoses and infect the adjacent vertebral bodies [4-7].

Early diagnosis and treatment are critical as delay may result in vertebral destruction with potentially life-threatening complications [4,8,9].

CASE REPORT

A 5-week-old male child was admitted to the emergency department with respiratory distress, convulsions and loose

stools. Child was born at 36 weeks of gestation with a birth weight of 3 kg. Post natal period was uneventful. On physical examination child was afebrile, pale, tachypneic and irritable. His pulse was 146/min and respiratory rate 48/min. General examination showed kyphosis. Respiratory examination revealed bilateral crepitations and subcostal retractions. Other systems were normal.

Blood investigations revealed total white blood cell count to be 12,400 cells/cumm. Differential count showed increased neutrophils (55%), and C-reactive protein was elevated (69.35 mg/L). In view of severe respiratory distress, child was admitted in intensive care unit, and ventilatory support was provided.

Radiographs showed features of acute respiratory distress syndrome and consolidation. Computed tomography scan demonstrated kyphosis and spondylodiscitis with destruction of T₅-T₆ vertebrae and abscess of right lower lobe of lung [Figures 1-3]. Pus culture from abscess area showed growth of staphylococcus species. With a provisional diagnosis of bronchopneumonia and septicemia, child was treated with IV antibiotics and other supportive drugs. The child was

stabilized, thoracotomy was done, and a biopsy was taken from apical and posterior segments of the lower lobe of the right lung.

Gross examination of the biopsy received in the department of pathology revealed multiple grey brown soft tissue bits altogether measuring 5 cm × 3 cm × 1 cm. On cut section, necrotic areas were observed. Histopathological examination showed lung tissue with dilated bronchioles, destruction of lining epithelium and presence of extensive inflammation consisting of neutrophils, lymphocytes plasma cells and macrophages within the bronchioles [Figure 4]. Adjacent alveoli were collapsed. Areas of congestion and hemosiderin-laden macrophages were seen. Pleura was thickened. There were necrotic areas with entrapped bony spicules [Figures 5-8] and foreign body giant cells [Figure 9]. Focally granulation tissue was also seen.

Subsequently, child recovered well and was extubated. Child's infection markers improved and was discharged from the hospital.



Figure 1: Computed tomography showing kyphosis (arrow)

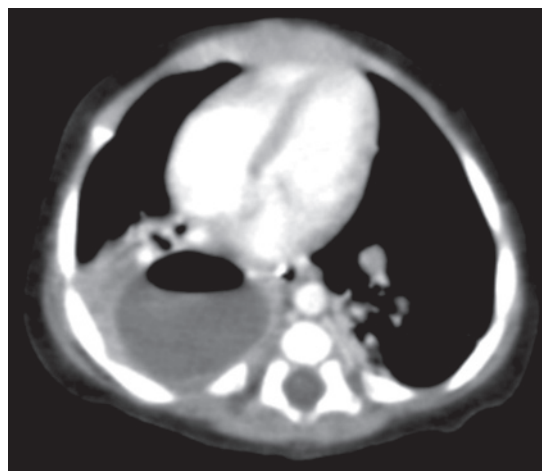


Figure 2: Contrast-enhanced computed tomography axial

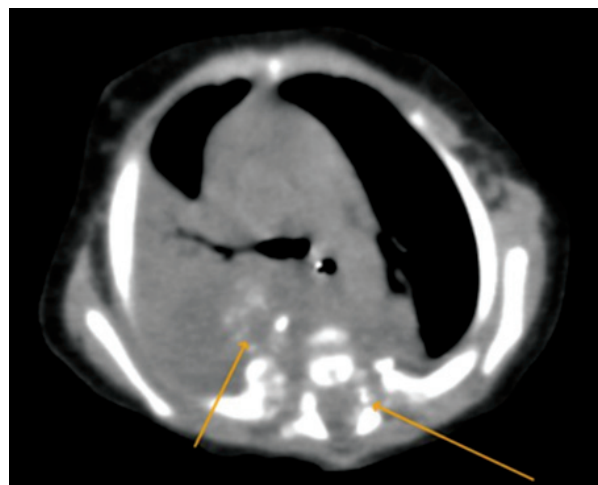


Figure 3: Plain axial computed tomography showing destroyed vertebrae with pre and paravertebral soft tissue and right lower lobe lesion (arrows)

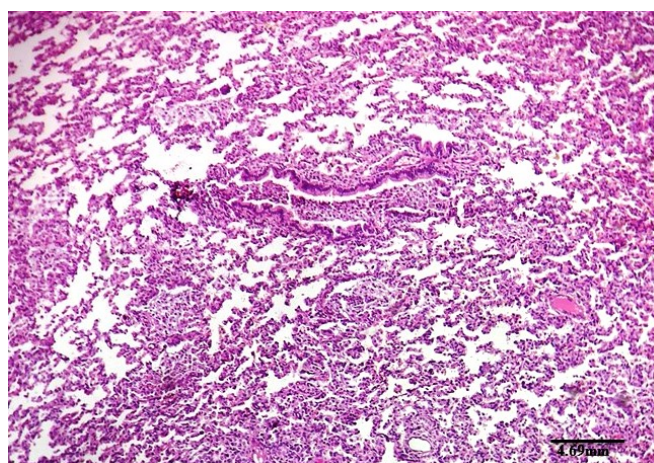


Figure 4: Bronchiole with adjacent inflammation (H&E, ×100)

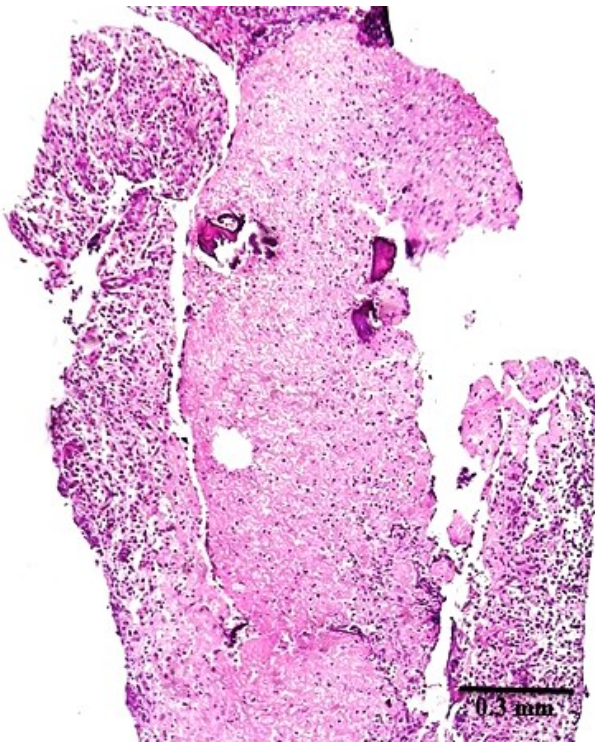


Figure 5: Entrapped bony spicules (H&E, x40)

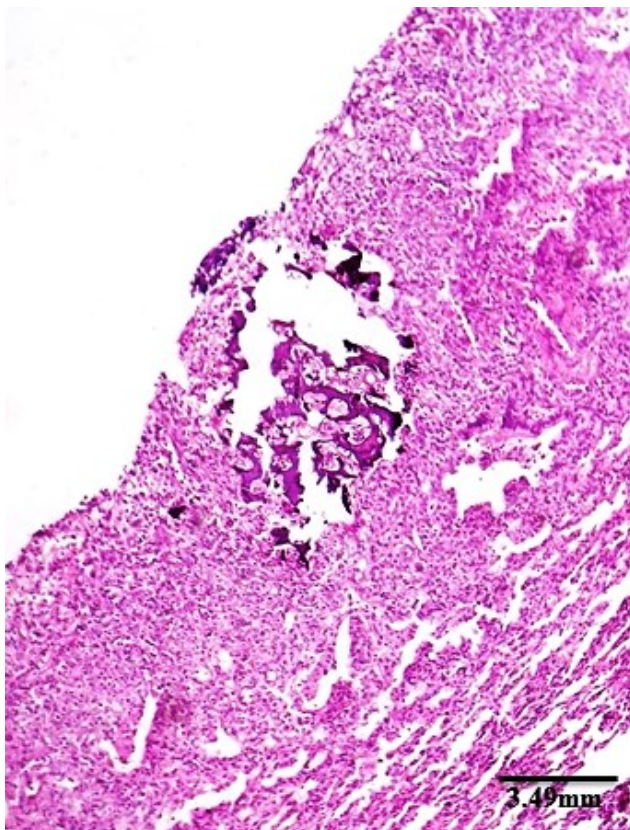


Figure 6: Entrapped bony spicules (H&E, x100)

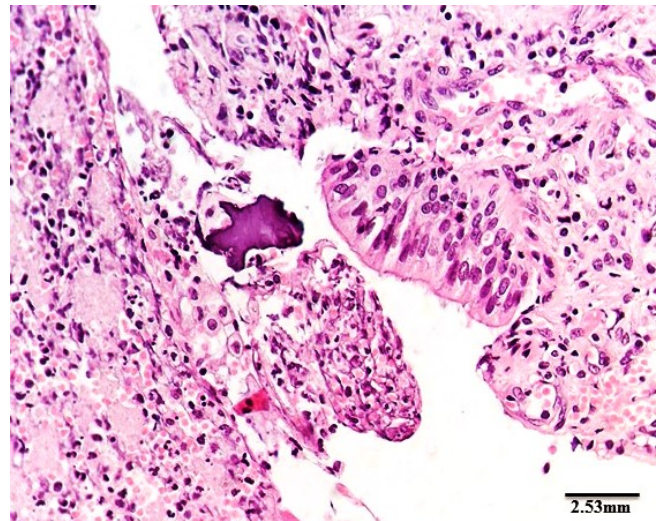


Figure 7: Bony spicule entrapped in the outer surface of lung parenchyma (H&E, x400)

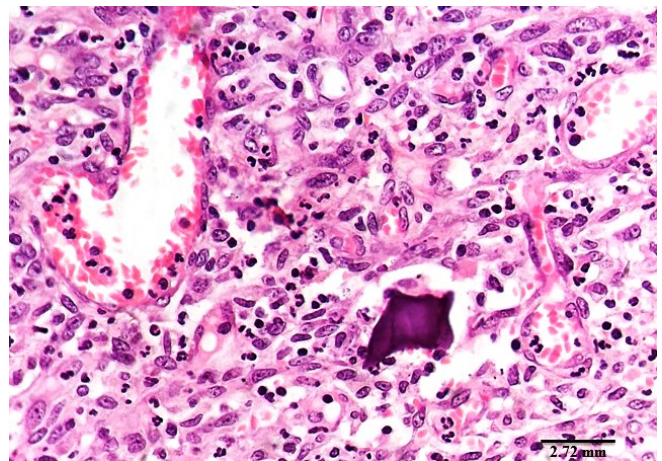


Figure 8: Bony spicule with surrounding inflammation (H&E, x400)

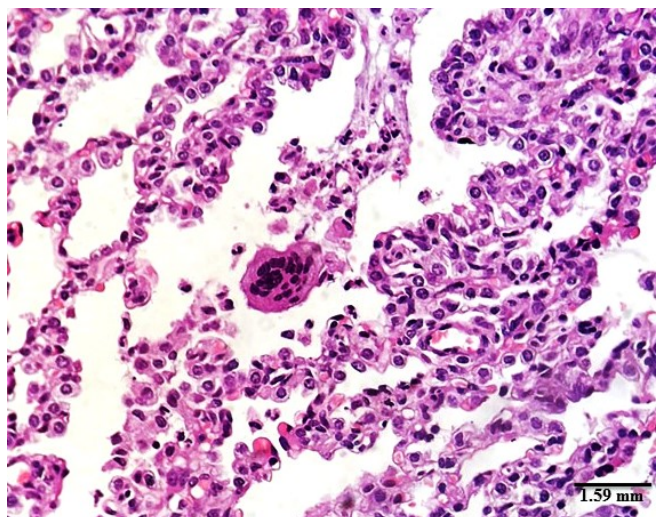


Figure 9: Foreign body giant cell reaction (H&E, x400)

DISCUSSION

Neonatal infectious spondylodiscitis is a rare entity which affects the thoracic and lumbar spine most commonly accounting for 2-4% of bony infections in neonates [10,11]. Respiratory, otopharyngeal, gastrointestinal, urogenital, and skin infections have been identified as sources of hematogenous spread [4,12,13]. A neonate or infant may either present with equivocal symptoms, such as drowsiness, fever, reluctance to feed, irritability and vomiting or with signs of serious infection and sepsis in cases of delayed diagnosis but systemic symptoms are non-specific and often similar to those of septic arthritis, meningitis, or abdominal pathology [1,5,7,8,14]. The clinical course can be very rapid, but the presentation tends to be atypical that may delay diagnosis. Incorrect initial diagnosis is reported in up to 54% of patients [2].

Similar findings as in this case was seen in the study done by Tsirikos and Tome-Bermejo [15] where a an 8-week-old boy presented to the emergency department with a 7 days history of intermittent pyrexia up to 39.5°C, irritability, abdominal discomfort, vomiting, and difficulty breathing and feeding identifying respiratory infection by staphylococcus aureus as the cause. A whole-body magnetic resonance imaging showed destruction of the vertebral bodies and adjacent discs of T₄ and T₅ and a large paraspinal abscess with intraspinal extension causing spinal cord compression similar to the present case.

Spondylodiscitis is a rare entity in infants. Is respiratory infection the causative factor or has spondylodiscitis resulted in respiratory infection and abscess is a question. Not much is described in the literature of these two entities being found together except in very few studies where it is evident that the respiratory infection could have been possibly the cause for spondylodiscitis. This helps us in arriving at a conclusion that respiratory infections in infants have to be diagnosed early and treated appropriately as they can cause spondylodiscitis in them by hematogenous spread. Delay in diagnosis may result in vertebral destruction as seen in this case and could lead to potentially life-threatening complications.

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