รายงานผู้ป่วย

Pulmonary nocardia caviae infection: a case report in neonate.

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Pulmonary infections caused by Nocardia caviae are very rare. Only few pediatric cases were reported in the world's literatures. We report a newborn patient presenting with a pulmonary infection resembling infected congenital lung cyst. The patient expired on the third day of admission. Identification of the organism by gram and acid fast stain and culture of the respiratory secretion is essential for diagnosis and proper management.

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Nocardia caviae เป็นเชื้อแบคทีเรียที่ทำให้เกิดโรคในสัตว์เป็นส่วนใหญ่ รายงานผู้ป่วยเด็กที่เกิดอาการปอดอักเสบจากเชื้อดังกล่าว ในวารสารทางการแพทย์ทั้งในและต่างประเทศมีน้อยมาก บทความนี้เป็นรายงานผู้ป่วยเด็ก 1 ราย อายุ 29 วัน รับไว้โรงพยาบาลจุฬาลงกรณ์ด้วยอาการปอดอักเสบ ได้รับการวินิจฉัยแรกรับเป็น infected congenital lung cyst ผู้ป่วยมีอาการหายใจวาย และเสียชีวิตหลังรับไว้ในโรงพยาบาล 3 วัน การเพาะเชื้อจากสิ่งตรวจในท่อช่วยหายใจ พบ Nocardia caviae การย้อมเสมหะหรือสิ่งตรวจจากคอ โดยวิธี gram และ acid fast ยังคงมีบทบาทสำคัญในการวินิจฉัยขั้นต้นอันจะเป็นประโยชน์ในการรักษาต่อไป

Nocardia caviae, a soil saprophyte, was first isolated in 1924 from an infected ear of a Sumatran pig by Snijders[1]. Althought it causes fatal infections in animals, infections in humans are rarely reported. Causey[2] reported thirteen isolations of N.caviae in 1974. Two pediatric patients were included in his report. The first one was a 9-year-old girl with osteomyelitis of the tibia and N.caviae was recovered from the sequestrum. Her underlying disease was chronic granulomatous disease. The other one was a 3-month-old infant with high fever and diarrhea. Her blood culture grew N.caviae. Three cases of disseminated N.caviae in adults were reported by Causey[1] and Arroyo[3], two of these were immunocompromised.

In this report, we described a 29 day old neonate with fatal pulmonary infection caused by N.caviae.

Case report

A 29-day-old Thai male infant was admitted to Chulalongkorn hospital, Bangkok, in September 1986 with fever, cough and dyspnea for 3 days. He was delivered by ceasrean section because of breech presentation with birth weight of 3,000 grams. The child's health had been normal except for mild neonatal jaundice. He was breast-fed. On admission, physical examination demonstrated a drowsy neonate weighing 2,800 grams with rectal temperature of 37.5 C and respiratory rate of 60/min. Oral thrush, inspiratory stridor with suprasternal and subcostal retraction and decreased breath sound over the right upper lung field with occasional rhonchi were detected.

Laboratory data revealed hematocrit level of 45% and total white blood cell count of 37,600 cells/cu.mm. with 76% neutrophils, 23% lymphocytes, 1% eosinophils and normal platelet counts. The urinalysis was unremarkable and the erythrocyte sedimentation rate was 19 mm./hour. The total serum protein was 5.35 gm/100 ml. with an albumin of 2.6 gm/100 ml and a globulin of 2.75 gm/100 ml. The patient's capillary blood gas while he was in oxygen hood, showed pH 7.28, PaO_2 162.6 mm.Hg, $PaCO_2$ 74.4 mm.Hg and bicarbonate 34.0 mmol/L. His blood electrolytes, liver enzymes and cerebrospinal fluid findings were normal. Chest x-ray showed a large non-calcified right anterior mediastinal mass with mediastinal shift to the left (Fig). The ultrasonogram showed a 4 × 4.5 × 6 cm. solid mass occupying superior, anterior and posterior mediastinum with multiple small ill defined low echoic areas.

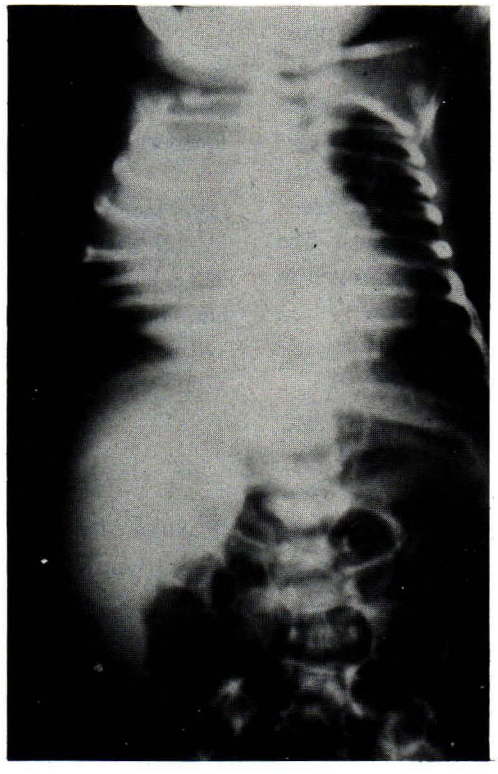

Figure Chest X-ray showed a large non-calcified right anterior mediastinal mass.

Endotracheal intubation was performed on the first day of admission because of respiratory failure secondary to upper airway obstruction. Massive greenish yellow thick mucous secretion was obtained and its gram stain showed numerous polymorphonuclear leukocytes without definite organisms. Cloxacillin and gentamicin had been given because of the suspicion of infected congenital lung cyst. In spite of ventilatory support and postural drainage, the patient developed intermittent cyanosis due to endotracheal tube obstruction from copious secretion. The patient remained afebrile on the second day of admission and his total white blood cell count showed marked leukocytosis of 67,400 cells/cu.mm with 64% neutrophils. Exploratory laparotomy and removal of the mass had been planned, but needle aspiration and decompression of the suspected infected cyst had to be done preoperatively because of his rapid deteriorating condition. The patient died on the third day of admission before being operated. The hemoculture gave a negative result and N.caviae was recovered from his tracheobronchial secretion.

Postmortem examination disclosed shift of the mediastinum and trachea to the left due to enlarged greenish white consolidated upper lobe of the right lung. Upon sectioning of the lungs, a wide area of liquefaction necrosis was found in the right upper lobe and the other lobes were focally congested and hemorrhagic. The trachea and bronchi were filled with thick greenish mucus.

Histologically, the right upper lobe was diffusely infiltrated with neutrophils and multiple small abscesses were formed. There were caseating like necrotic areas surrounded by chronic and acute inflammatory cells. Gram's and Gomori's stain of the pathologic lung revealed gram positive branching and slender filaments. The organism was indentified to be N.caviae by growth in lysozyme and decomposition of xanthine.

Discussion

Pulmonary nocardiosis may be presented as a solitary lung abscess, and acute necrotizing pneumonia, scattered infiltrates resembling miliary tuberculosis, a pulmonary mycetoma or a progressive fibrosis and extension to the pleura and chest wall.[4-7] Usually, they were caused by N.asteroides whereas N.caviae has commonly been implicated as etiologic agents of mycetoma[8]. The previously reported cases of N.caviae infections were associated with mycetoma, skin abscess, osteomyelitis, primary pulmonary infiltrates and fatal disseminated diseases[2,9].

To date, the youngest patient whose N.caviae had been isolated from the bemoculture was a 3-month-old female infant with fever and bloody diarrhea[2]. It remained doubtful whether of not it was the significant causative agent because she recovered with only supportive treatment.

Our case which was assumed to be immunocompromised by age had primary pulmonary infection without systemic dissemination. The patient most likely acquired his infection by inhalation. Clinical and radiologic diagnosis was first misinterpreted as infected congenital lunf cyst. Unfortunately, the patient rapidly deteriorated and needle aspiration had to be done. The organism was later indentified as N.caviae so that the sensitive antibiotic had not been given before he died.

This report shows that N.caviae, like the more common members of the genus, N.asteroides and N.brasiliensis, can cause fatal pulmonary infection in the newborn period.

The mortality rate among immunocompromised hosts including our patient is high. Nevertheless, early identification of the organism by gram stain, acid fast stain and culture results leading to administration of appropriate antibiotics can improve their survival rate.

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