

Case report

Early neonatal *Chlamydia trachomatis* pneumonia: A case report

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Chlamydia trachomatis pneumonia, a cause of pneumonia in infancy, results from perinatal transmission from an infected mother to a newborn. Early diagnosis and intervention are necessary to prevent hypoxia and other complications. Our study is the first case report that describes the presentation of an 11-day-old female infant diagnosed at the early onset of *Chlamydia trachomatis* pneumonia. We report the clinical presentation and clinical course of the child with *Chlamydia trachomatis* pneumonia at Chiang Mai University Hospital. For young infants who present with tachypnea and a persistent cough, where hyperinflation is evident on a chest X-ray, and where symptoms do not improve with conventional treatment, *Chlamydia trachomatis* infection may be the cause of the infection. **Chiang Mai Medical Journal 2019;58(3):177-9.**

Keywords: *Chlamydia trachomatis*, pneumonia, young infant, paroxysmal cough

Case presentation

An 11-day-old female infant was admitted with a history of rhinorrhea, non-productive cough and low grade fever 3 days prior to admission. She had nasal congestion, lost her appetite and had a paroxysmal cough and discharge per both eyes. Her mother had no vaginal discharge and no history of sexually transmitted disease during pregnancy. The infant was born by vaginal delivery without premature rupture of the membrane at the gestational age of 38 weeks.

She appeared dyspneic and her vital signs were temperature 37.5°C, BP 80/40 mmHg, HR 150/min, RR 82/min, O₂ saturation (room air) 85%, body weight 2,850 grams. She had yellowish discharge per both eyes and rhinorrhea. Chest

examination showed intercostal and subcostal retraction of the chest wall with rhonchi and wheezing in both lungs. Other signs were normal.

Laboratory tests found Hb 13.5 g/dL, Hct 38.5%, white blood cell 15,600 mm³, neutrophil 44.8%, lymphocytes 40.3%, eosinophil 1.7%, basophil 0.3%, monocytes 8.1%, platelets 404,000 mm³ (absolute eosinophil count=265), glucose 100 mg/dL, BUN 5 mg/dL, creatinine 0.32 mg/dL, Na 139 mmol/L, K 4.3 mmol/L, Cl 101 mmol/L, CO₂ 26 mmol/L, Ca 9.2 mg/dL, P 6.5 mg/dL, and Mg 1.47 mEq/L. Flu-RSV rapid test was negative. Her chest X-ray demonstrated hyperaeration and perihilar infiltration. Her serum for *Chlamydia trachomatis* was IgM 8.75 RU/mL (<0.8 RU/mL = negative, 0.8-<1.1 RU/mL = borderline, >1.1 RU/

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mL = positive), and IgG 11 RU/mL (<16 RU/mL = negative, 16-<22 RU/mL = borderline, >22 RU/mL = positive).

The infant was given oxygen therapy and treated with azithromycin suspension (20 mg/kg/day) for 7 days after which her symptoms resolved completely.

Discussion

Chlamydia trachomatis is frequently one of the causes of afebrile pneumonia in infants (1). Vertical transmission of infection from mother to infant can cause the development of conjunctivitis and pneumonia (2). *Chlamydia trachomatis* pneumonia is usually characterized by its insidious onset within the first three months of life. The most remarkable features of the disease are the afebrile course, paroxysms of staccato coughing, tachypnea, inspiratory rales and hyperinflation. A study by Chawla R, et al. found that *Chlamydia trachomatis* was more common in infants between 4-12 weeks of age (66.6%) and in patients who had a cough of more than 7 days duration (100%), presence of conjunctivitis (50%), hyperinflation (83.3%), and absence of fever (83.3%) (3). Chiang YC reported that among 30 patients with a diagnosis of *Chlamydia trachomatis* pneumonia 96% were less than 4 months old, 10% presented with apnea, 13% with conjunctivitis, and 10% with fever. Of the total, 47% had an eosinophil count >400/mm³ and 50% had hyperinflation detectable on a chest x-ray (4).

The most common methods for diagnosing *Chlamydia trachomatis* infection are antigen detection using direct immunofluorescence (DIF), enzyme immunoassay (EIA) agent detection (tissue culture and PCR methods) and detection of specific IgM and IgG antibodies (serologic tests). Taking tissue culture as the recognized gold standard, the sensitivity, specificity and positive predictive value of DIF have been reported as 93%, 98% and 93%, respectively (5). Indirect evidence of chlamydial pneumonia includes hyperinflation and bilateral diffuse infiltrates on chest radiographs as well as measurable eosinophilia

of $0.3-0.4 \times 10^9/L$. However, the absence of these findings does not exclude the diagnosis.

Classical chlamydial pneumonia presents in late onset, usually around 6 weeks of age (range 2-19 weeks) (6,7). In fact, this case report represents early neonatal chlamydia pneumonia at less than 2 weeks of age. The *Chlamydia trachomatis* ELISA IgM and IgG antibodies are used for diagnosis and have a sensitivity of 90% and 96%, respectively. Both have a specificity of 100%. Although the drug of choice for treatment is erythromycin (50 mg/kg/day) orally divided into 4 times a day for 14 days, azithromycin (20mg/kg/day) orally once daily for 3 days can be an alternative treatment as well (8). With this patient, the duration of treatment was adjusted based on clinical response, e.g., reduction of tachypnea and coughing. Azithromycin was prescribed for 7 days in order to improve her symptoms.

In conclusion, if a young infant (age <2 weeks) presents with tachypnea and a persistent cough, hyperinflation is evident on a chest x-ray, and symptoms don't improve with conventional treatment, *Chlamydia trachomatis* infection may be the cause.



Figure 1. Chest x-ray showing hyperaeration, plate-like right upper lung atelectasis, and perihilar infiltration

Ethics approval and consent to participate

Our ethics committee waived the requirement for ethics approval because all medical and laboratory procedures were routinely carried out and did not affect decisions concerning treatment.

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Chiang Mai University Hospital

Consent for publication

Patient/guardian consent was obtained for publication of this case report.

Competing interests

No competing interests.

Conflict of Interest

The authors declare that we have no conflict of interest.

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รายงานผู้ป่วยโรคปอดบวมจากเชื้อคลาไมเดียในเด็กทารกแรกเกิด

กนกกาญจน์ สันกลกิจ และ สนิท เรืองรองรัตน์

ระบบทางเดินหายใจและเวชบำบัดวิกฤตเด็ก ภาควิชากุมารเวชศาสตร์ คณะแพทยศาสตร์ มหาวิทยาลัยเชียงใหม่

โรคปอดบวมจากเชื้อ *Chlamydia trachomatis* เป็นหนึ่งสาเหตุของโรคปอดบวมในเด็กเล็ก ซึ่งเกิดจากการติดเชื้อในมารดาและถ่ายทอดจากแม่สู่ลูก การวินิจฉัยและให้การรักษารวดเร็วจะช่วยป้องกันภาวะพร่องออกซิเจนและภาวะแทรกซ้อนอื่น ๆ รายงานผู้ป่วยฉบับนี้กล่าวถึงผู้ป่วยทารกเพศหญิงอายุ 11 วัน ซึ่งได้รับการวินิจฉัยเป็นโรคปอดบวมจากเชื้อ *Chlamydia trachomatis* แสดงถึงอาการ อาการแสดงและการดำเนินโรคของโรคดังกล่าว ดังนั้นหากพบผู้ป่วยเด็กเล็กที่มาพบแพทย์ด้วยอาการหายใจเร็ว ไอติดต่อกัน ภาพถ่ายภาพรังสีปอด hyperinflation และไม่ตอบสนองต่อการรักษาแบบประคับประคอง เชื้อ *Chlamydia trachomatis* อาจเป็นสาเหตุของภาวะปอดบวมดังกล่าวได้ **เชียงใหม่เวชสาร 2562;58(3):177-9.**

คำสำคัญ: *Chlamydia trachomatis* โรคปอดบวม เด็กเล็ก paroxysmal cough