CASE REPORT

Mediastinal and Retropharyngeal Abscesses in a Neonate

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Mediastinal abscess following retropharyngeal abscess is a rare entity. We report the first neonate presenting with a large mediastinal abscess as a complication of a retropharyngeal abscess. The initial manifestations of this newborn were fever and stridor. The chest sonography revealed a mediastinal mass, and the neck and chest computed tomography showed multiple abscesses in the retropharyngeal space, parapharyngeal space, and superior mediastinum. The mediastinal cystic mass was excised, and antibiotic treatment was completed for 7 weeks. She did well without any sequelae at follow-up clinic. Pediatricians should consider retropharyngeal and mediastinal abscesses among the differential diagnoses when confronting a newborn with fever and stridor. Copyright © 2011, Taiwan Pediatric Association. Published by Elsevier Taiwan LLC. All rights reserved.

1. Introduction

Retropharyngeal abscess is most common in infants and young children, with 75% of patients younger than 5 years and 16% younger than 1 year.1 Regarded as potentially life-threatening diseases, both mediastinal abscess2,3 and retropharyngeal abscess4–7 are extremely rare in neonates. The association between these two diseases has not been reported. In addition, the importance of sonography in identifying these diseases remained unclear.

In this report, we describe a neonate whose initial presentation was fever and stridor. A mediastinal mass was subsequently identified by a chest sonography. She was ultimately confirmed to have retropharyngeal and mediastinal abscesses.

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2. Case Report

A 17-day-old baby girl was born to a Gravida 1 Para 1 24-year-old mother through cesarean section after an uneventful pregnancy at the 39th week of gestation with a birth weight of 3170 g and Apgar scores of 8 and 9 at 1 minutes and 5 minutes, respectively. There was no history of maternal fever, chorioamnionitis, premature rupture of membrane, or perinatal insults. The patient was admitted at 12 days of age because of fever and stridor. A chest X-ray demonstrated bilaterally increased infiltration without mediastinal widening, and laboratory data showed white blood cell count of 30,060/mm$^3$ (segmented neutrophils: 73%, banded neutrophils: 8%, basophils: 1%, lymphocytes: 11%; monocytes: 6%); hemoglobin 14.8 g/dL; platelets 487 K/mm$^3$; and C-reactive protein 1.07 mg/dL. The fever subsided soon after the administration of ampicillin and gentamicin. However, stridor and modest respiratory distress continued. Dysphagia developed 3 days after admission, and an orogastric tube was inserted. Chest sonography revealed a superior mediastinal mass, 3.6 x 2 cm in size, with cavi-
tation. Hence, the patient was referred to a medical center for further management.

On arrival to the neonatal intensive care unit, vital sign measurements revealed body temperature of 37.1°C, pulse rate of 122/min, respiratory rate of 30/min, and blood pressure of 119/65 mmHg. A physical examination revealed a mildly swollen neck without any erythema, induration, or palpable mass. Laboratory data showed white blood cell count of 21,800/µL (segmented neutrophils: 53.5%, banded neutrophils: 2%, metamyelocytes: 1.5%, lymphocytes: 25.5%); hemoglobin 13.1 g/dL; platelets 591 K/µL; and C-reactive protein 3.04 mg/dL. Neck and chest computed tomography (CT) (Figure 1) illustrated multiple abscesses in the retropharyngeal space, parapharyngeal space, and superior mediastinum, with mass effects on the trachea.

![Figure 1](image_url) The computed tomographic scan of the neck and mediastinum showed (A) retropharyngeal and parapharyngeal abscesses and (B) mediastinal abscess. (C) A frontal view demonstrated the longitudinal involvement of retropharyngeal, parapharyngeal (big arrow), and mediastinal abscesses (small arrow).
patient was intubated electively to protect the airway and received antibiotic treatment with vancomycin, cefotaxime, and metronidazole. CT-guided aspiration was done on the third hospital day, and about 1 mL of serosanguinous fluid was aspirated from the neck lesion. An anterior minithoracotomy approach was performed for exploration on the following day. A cystic mass lesion anterior to the superior vena cava was noted and was removed. Pathological reports of the excised mass showed acute and chronic inflammation, fibrosis, with some thymic tissue. The blood culture and aspirated fluid culture did not yield any pathogens. A follow-up neck and chest CT, done on the 14th hospital day, illustrated almost complete resolution of the retropharyngeal and mediastinal abscesses. An immunological survey was normal, and no abnormalities were found on an esophagogram study.

Intravenous antibiotic treatment was administered for 3 weeks and switched to oral augmentin for another 4 weeks. The patient did well without any sequelae at the follow-up clinic.

3. Discussion

Neonatal retropharyngeal abscess is extremely rare.4–8 Identified etiologies included traumatic intubations, irritation provided by the use of long nasopharyngeal prongs, bacteremia, pyogenic vertebral osteomyelitis, and branchio- cleft sinus.5,7,8 The neonates may present with stridor and/or respiratory distress, poor feeding, submandibular swelling, irritability, hoarseness, and weak crying.5,7,8 Fever is common in childhood retropharyngeal abscess but is usually absent in neonatal cases.9 A CT scan is mandatory to establish the diagnosis.5,7,8 The recommended treatment is surgical drainage, whereas medical management is a viable alternative.9

The differential diagnoses of neonatal stridor include laryngomalacia, subglottic stenosis, vocal cord paralysis, laryngeal web, and choanal atresia. In most situations, flexible endoscopy establishes the diagnosis.10 There is a debate about the prevalence of stridor in patients with retropharyngeal abscess.1 Our patient did have stridor at admission; we considered that the prevalence of stridor is probably related to age.1,11 Early detection of mediastinal abscess is a big challenge. Widening of12 or abnormal gas collection over the mediastinum on a chest X-ray and abnormal mediastinal intake on gallium scan13 indicate the possibility of mediastinal abscess. In our case, a typical sign of neonatal retropharyngeal abscess and stridor was noted initially, whereas chest X-ray did not reveal any abnormality of the mediastinum at that time. Three days after admission, however, dysphagia developed. Chest sonography showed a superior mediastinal mass, which was confirmed by CT scan as a mediastinal abscess. Therefore, this large mediastinal abscess was regarded as a complication of the retropharyngeal abscess.

Only two neonates with mediastinal abscess have been reported in the literature.2,3 Our patient is the first neonate presenting with a large mediastinal abscess as a complication of the retropharyngeal abscess. Among these three neonates with mediastinal abscesses (Table 1), two of them (67%) were female. Predisposing factors included skin pustules in one patient, septic arthritis in one, and retropharyngeal abscess in one. Fever was found in all of the three patients (100%) and stridor in one (33%). Staphylococcus aureus was isolated from the blood in one patient and from the cerebrospinal fluid and blood in one patient. Surgical manipulation was done in all of these three patients (100%).

In conclusion, we emphasize that retropharyngeal abscesses and mediastinal abscesses should be considered in neonates presenting with fever, leukocytosis, and stridor. Chest sonography is a useful and noninvasive tool for early detection of mediastinal abscess, especially in neonates.

References


Table 1 Mediastinal abscess in neonates

<table>
<thead>
<tr>
<th>Age at onset (d)</th>
<th>Sex</th>
<th>Predisposing factors</th>
<th>Fever</th>
<th>Stridor</th>
<th>Drainage or excision</th>
<th>Organisms Isolated</th>
<th>Reference study</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>Male</td>
<td>A pustule on the right great toe</td>
<td>+</td>
<td>–</td>
<td>+</td>
<td>Staphylococcus aureus from blood and cerebrospinal fluid</td>
<td>Sty and Starshak3</td>
</tr>
<tr>
<td>15</td>
<td>Female</td>
<td>Septic arthritis</td>
<td>+</td>
<td>–</td>
<td>+</td>
<td>Staphylococcus aureus from blood</td>
<td>Krebs et al2</td>
</tr>
<tr>
<td>12</td>
<td>Female</td>
<td>Retropharyngeal abscess</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Blood and aspirate cultures negative</td>
<td>Present study</td>
</tr>
</tbody>
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