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Case report

Retropharyngeal abscess in a neonate: A case report and literature review

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ABSTRACT

We report a rare neonatal case of retropharyngeal abscess (RPA). A 4-day-old neonate was seen for stridor without fever. CT and MRI examinations detected an RPA together with the air-bubble sign. Surgical drainage of the abscess yielded copious pus. He was treated with antibiotics after surgery and made an uneventful recovery. Respiratory symptoms develop more easily than fever in neonatal RPA. According to previous reports, air-bubble findings and a mass localized on the left side tend to be found during radiological examinations. These radiological features are common in neonates with pyriform sinus fistulae, which can cause RPA.

1. Introduction

Retropharyngeal abscess (RPA) is a potentially serious deep space neck infection. RPA commonly occurs in infants, but is very rare in neonates [1]. Many reviews of RPA have described cases involving neonates, infants, and young children together. However, neonates should be clinically distinguished from infants and young children because they could have unique symptoms and pathogeneses depending on their anatomical and immunological characteristics. This article describes a rare case of RPA in a 4-day-old male infant, including the presenting symptoms and etiology.

2. Case report

A 4-day-old male neonate was seen for stridor and hoarseness. He was born by spontaneous vaginal delivery with a birth weight of 2476 g. His antenatal history was uneventful. There was no premature rupturing of the membranes, and the amniotic fluid was clear. He had not required any airway instrumentation since birth. However, noisy breathing developed on day 2 of life, and he was admitted on day 4.

After birth, he was afebrile, not irritable, and feeding normally. However, slight stridor and hoarseness were noted concurrently. He displayed an oxygen saturation level of 97% in room air. His laboratory data revealed $20.3 \times 10^3/mm^3$ white blood cells (neutrophils: 77%) and a C-reactive protein level of 8.0 mg/dl, and a blood culture was negative.

Endoscopy revealed swelling of the posterior wall of the hypopharynx and that his airway was obstructed (Fig. 1). Magnetic resonance imaging (MRI) showed a double abscess with an air-bubble sign anterior to the prevertebral muscle (Fig. 2), which was considered to be derived from a congenital defect, such as a piriform sinus fistula (PSF)[3,4]. However, a barium swallowing examination showed no fistula between the abscess and the aero-digestive tract.

Then, respiratory distress developed, and so endotracheal intubation was performed, and the abscess was drained transorally, which resulted in the aspiration of copious pus. A culture of the abscess revealed the growth of *Staphylococcus hominis*. Histopathologically, the abscess wall had been subjected to non-specific chronic inflammation by lymphocytes. He was transferred to our Neonatal Intensive Care Unit (NICU) and intubated after surgery. Antibiotics were administered for 12 days, and extubation was carried out on day 16 of life. Endoscopy showed no swelling of the posterior wall of the hypopharynx (Fig. 3), oral feeding was commenced on day 17, and he was discharged uneventfully on day 28 of life. Contrast enhanced CT performed after extubation indicated that no abscess remained but did detect a pocket of air between the left thyroid gland and the perithyroidal soft tissue (Fig. 4). Direct laryngoscopy was not able to detect a fistula orifice, and a second barium swallowing examination performed after 3 months of life showed no fistula between the previous RPA and the aero-digestive tract.

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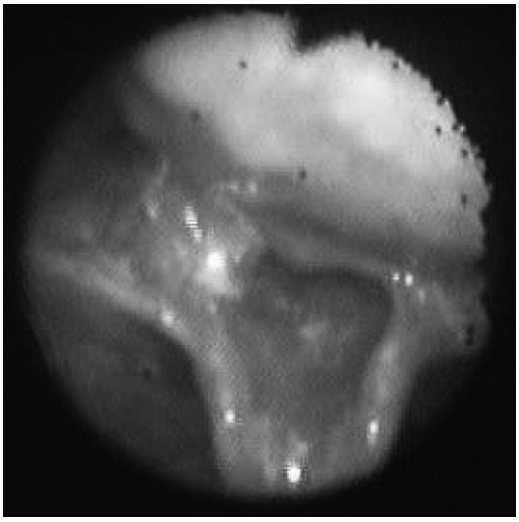

Fig. 1. An endoscopic examination showed swelling of the posterior wall of the hypopharynx and airway obstruction.

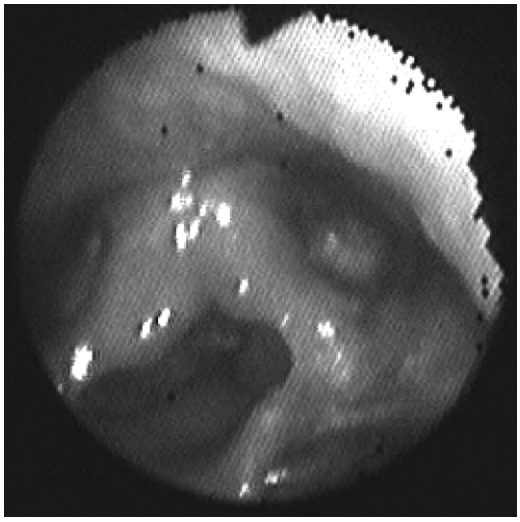

Fig. 3. An endoscopic examination showed no swelling of the posterior wall of the hypopharynx.

3. Discussion

RPA develop in the retropharyngeal space anterior to the prevertebral muscle and differ from prevertebral abscesses, which develop in the perivertebral space posterior to the prevertebral muscle. RPA is rare in neonates. To date, only 15 cases (including our case) of neonatal RPA have been described in the medical literature [1–11]. In the 14 reports that describe the perinatal period, all of the neonates were born by spontaneous vaginal delivery after an uncomplicated pregnancy to healthy mothers and suffered no medical or traumatic injuries after birth. The major presenting symptom in these cases (Table 1) was airway symptoms (87%), such as stridor and hoarseness, while fever (27%), which is common in infants and young children, was a minor symptom [4]. Therefore, it could be easy to overlook neonatal RPA because it involves a reduced frequency of fever and neck swelling in healthy-looking neonates born by normal delivery. The neonatal pharyngeal space is underdeveloped so it is easily narrowed by

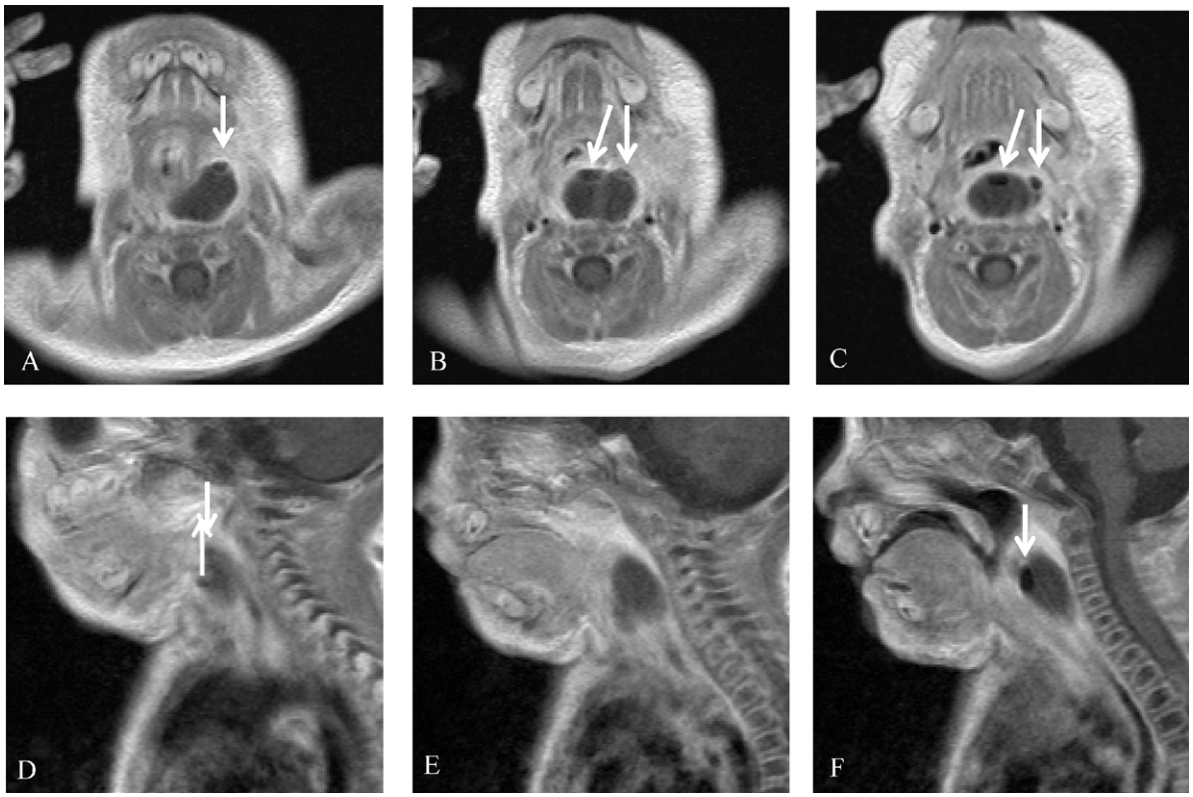

Fig. 2. MRI showed a double abscess with an air-bubble sign (arrow). (A)–(C) Three contiguous slices of an axial image obtained using gadolinium-enhanced T1-weighted MRI. (D)–(F) Three contiguous slices of a sagittal image obtained using gadolinium-enhanced T1-weighted MRI. (A) Inferior slice, (B) intermediate between A and C, (C) superior slice, (D) left slice, (E) intermediate between D and F, and (F) central slice.