

Case Report

Retropharyngeal Candidal Abscess in a Neonate: Case Report and Review of Literature

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ABSTRACT

Retropharyngeal abscess (RPA) in a newborn baby is very rare. It is usually caused by group B hemolytic streptococci and other aerobic or anerobic bacteria. The abscess may cause compression of airway and breathing difficulties with resultant life - threatening complications. We report here a rare case of RPA caused by *Candida*

albicans in a newborn, who presented with cyanosis to the Neonatal Intensive Care Unit (NICU) in Jahra Hospital and was treated successfully after thorough investigations. To the best of our knowledge this is the first such case report, considering the causative organism, cyanosis and age of the baby.

KEY WORDS: *Candida albicans*, neonate, retropharyngeal abscess

INTRODUCTION

Retropharyngeal abscess (RPA) is a potentially serious deep space neck infection. RPA can be of medical or traumatic origin. Non-traumatic RPA is largely a disease of younger children, as a result of developmental aspects of the neck lymphatic system¹⁻³. Among children it is very rare in the newborn. The abscess occurs either by lymphatic or hematogenous spread from oral or upper respiratory tract infections. Also transmission of infection from maternal circulation or the genital tract is known. Aerobes, anerobes and gram negative organisms were involved as causative organisms, more commonly the *Staphylococci* and group B hemolytic *Streptococci*^{2,3}. Review of literature revealed that RPA due to *Candida albicans* in early neonatal period has not been reported.

CASE REPORT

A newborn female baby weighing 3.5 kg was delivered by normal spontaneous vaginal delivery with an Apgar score of 8/9. At one hour after delivery she developed two cyanotic attacks with stridor (without feeding) and the baby was shifted to the NICU by the neonatologist with a provisional diagnosis of congenital laryngomalacia. In the next 48 hours the stridor was controlled and mild hypocalcemia was corrected. At the end of the 1st week, it was found that the child was developing cyanosis and stridor in supine position and was better and more comfortable in prone position

without cyanosis or stridor. Also, extensive oral mucosal candidiasis was noted.

While searching for the causes of laryngeal obstruction and doubtful swelling in the neck, the ENT surgeon had asked for an X-ray of the neck lateral view. It showed widened prevertebral space with smooth indentation over posterior pharyngeal wall (Fig. 1). Ultrasound (US) scanning revealed a non-compressible cyst like lesion with possible entrapped air pockets in the retro and left parapharyngeal region (Fig. 2). No change in size of the lesion was observed when the child cried. Since the lesion was inconclusive on US, CT scan neck was suggested. This showed a 37x 28x 20 mm sized (approximate), well margined lesion with enhancing thick wall and internal air fluid levels in the retropharyngeal and left parapharyngeal spaces (Figs. 3 and 4). Pharyngolarynx, carotid sheath and esophagus were compressed and displaced. No communication with airway or esophagus could be appreciated. A CT diagnosis of a RPA was made.

As the diagnosis of abscess in the newborn without obvious risk factors is unconvincing, the neonatologists insisted on a MRI scan to exclude congenital lesions. The MRI neck also showed similar findings as the CT scan i.e., retro and left parapharyngeal lesion with thick enhancing wall and air fluid levels in the lesion causing compression of the airway (Figs. 5, 6 and 7). No communication with pharyngolarynx or esophagus

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Fig. 1: Lateral X-ray neck showing widened pre-vertebral space and smooth posterior indentation over airway

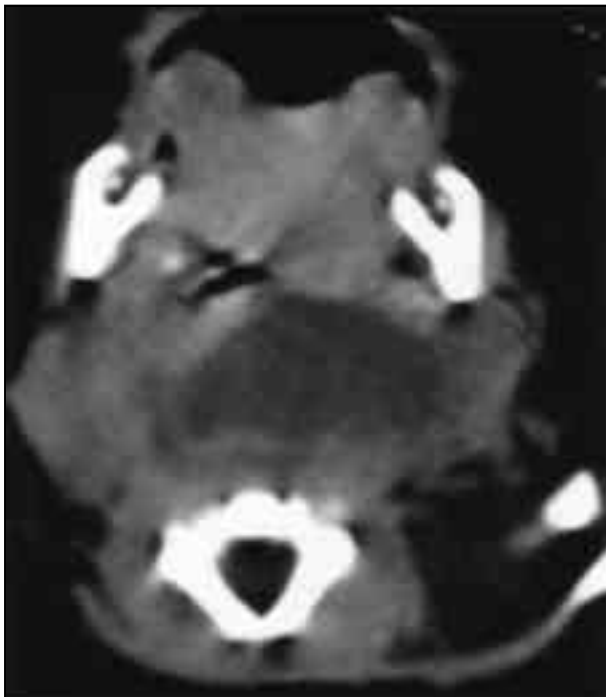


Fig. 3: Plain CT scan neck showing fluid attenuating lesion in retro and left parapharyngeal space causing elevation and compression of airway

was noted. Hemogram showed leucocytosis with neutrophilia, lymphocytosis, eosinophilia. (WBC $16.7 \times 10^9 / l$, NE 49%, LY 36%, MO 6%, EO 9%) and normal RBC and platelet count. Diagnostic and therapeutic US guided percutaneous needle aspiration yielded approximately 15 ml of light greenish yellow pus which showed a cell count of RBC 3840 cells/ mm^3 , WBC 181,760 cells/ mm^3 with 97% neutrophils and 3% lymphocytes. Culture of this pus yielded the growth of *Candida* species which on yeast culture was identified as *Candida albicans*, sensitive to amphotericin B, fluconazole and 5 - flucytosine. Further blood test detected candidal antigen 1:2 by latex agglutination test.

Treatment was then started with ambisone, 3 mg once a day as infusion over two hours and increasing daily by 1 mg for ten days with total dose not exceeding 50 mg. Also, antibiotics were given



Fig. 2: 2D B-mode Ultrasound showing cystic lesion with echogenic debris and thick wall causing displacement of carotid sheath contents



Fig. 4: Contrast enhanced CT scan neck showing moderate enhancement of the lesion wall with air-fluid levels

simultaneously. With this clinical course and management the baby improved within two weeks with no cyanotic spells or stridor. During the course, CT and US scans were repeated to see the radiological improvement. Resolving air fluid levels with collapsed abscess and opened up airway was noted after ten days (Fig. 8). Further follow up was advised with the pediatric and ENT surgeon and the child was discharged.

DISCUSSION

A deep space neck infection, RPA is a serious and occasionally life-threatening condition due to its anatomic location and the potential to obstruct the upper airway^[3]. The presentation of RPA is sometimes subtle, and the constellation of findings is apparently variable. However, eighty-five percent of newborns with early-onset infection present within 24 hours^[4,6]. Common presenting

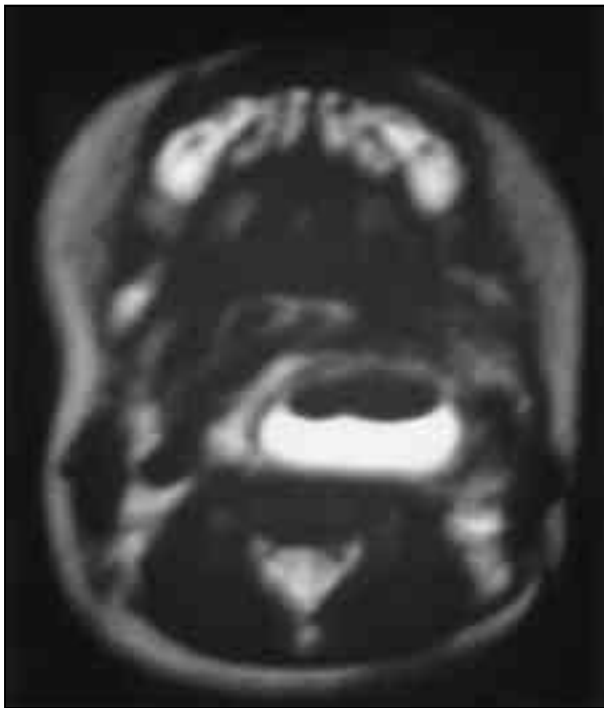


Fig. 5: MRI neck T2W axial image showing globular lesion with air-fluid levels and isointense rim in retro and left parapharyngeal spaces



Fig. 6: Post Gad T1W axial image showing enhancing thick abscess wall with compression of the oropharynx

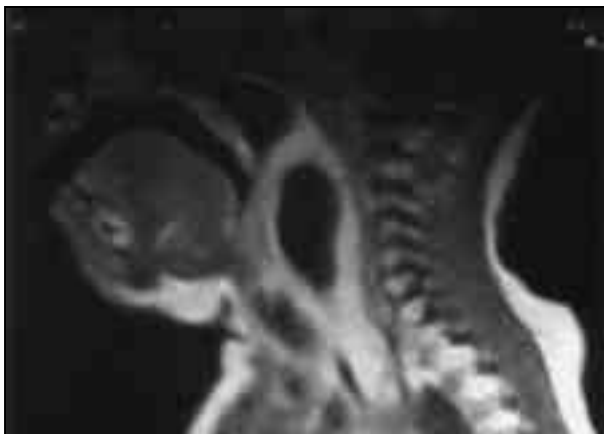


Fig. 7: Post Gad T1W sagittal image showing vertical extent of the abscess with compression and anterior displacement of pharyngolarynx

symptoms in infants include fever (100%), neck swelling (84%) and anorexia (58%). The physical signs include cervical adenopathy (69%), retropharyngeal bulge (43%; do not palpate in children), fever, stridor (23%), torticollis (18%) and rarely, cyanosis^[5,6]. Early-onset of sepsis in neonates is associated with acquisition of microorganisms from the mother. The microorganisms most commonly associated with early-onset infection include group B *Streptococcus* (GBS), *Escherichia coli*, *Haemophilus influenzae*, and *Listeria monocytogenes*. Late-onset sepsis occurs at 7-90 days of life and is acquired from the care-giving environment. Organisms that have been implicated in causing late-onset sepsis include *Staphylococcus aureus*, *E coli*, *Klebsiella*, *Pseudomonas*, *Enterobacter*, *Candida*,

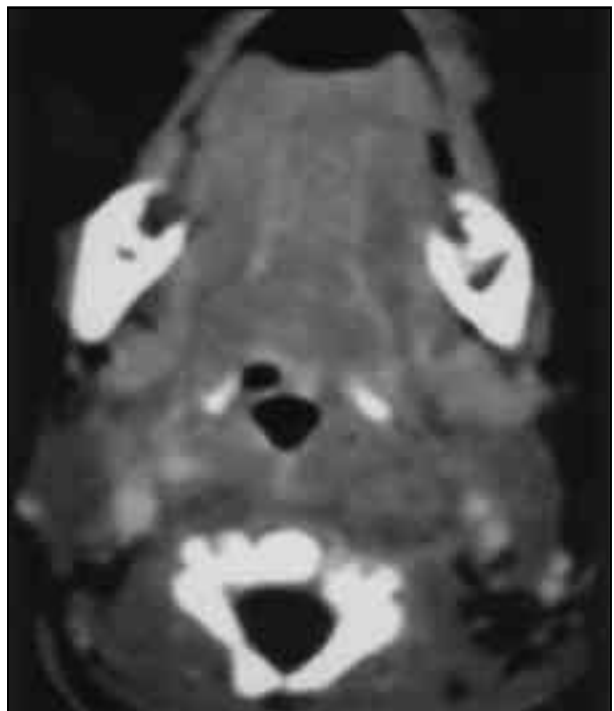


Fig. 8: Follow up CT scan after 10 days showing completely resolved abscess with opened up airway

GBS, *Serratia*, *Acinetobacter*, and anaerobes. Studies have shown that premature infants and low birth weight babies have an increased incidence of sepsis^[6]. RPA of bacterial origin were reported in late neonatal period with *Staphylococcus* as main causative organism.

Candida, like bacteria may infect fetus by hematogenous dissemination from umbilical

vessels. The original source is usually the mother, as in our case or may be hospital nursing staff, contaminated supplies or caretakers. In others, it may be a complication of bacterial pharyngitis or rarely, vertebral osteomyelitis or wound infection. The possible cause in our case was transmission from the maternal genital tract. Oral candidiasis or thrush generally peaks at two weeks of life and subsequently other candidal sepsis like systemic abscesses occur^{6,7}. An abscess in the retropharyngeal space may cause compression of airway or rupture into the pharynx with aspiration of pus or it may dissect into the esophagus or a major blood vessel or into the mediastinum with resultant mortality due to mediastinitis being as high as 50%. The traditional management of RPA has been surgical drainage of the pus collection, with an intra - oral incision. Yet some cases are managed with antibiotics alone⁸. Percutaneous aspiration has also been described as a therapeutic procedure depending on the individual case such as ours, which proved successful. If the baby exhibits signs of severe upper airway obstruction, endotracheal intubation or tracheostomy may be required as definitive treatment. The differential diagnosis in our case should include all congenital cystic lesions and air containing masses of the neck, like laryngocele, airway diverticula, bronchial cleft cysts and cystic hygroma.

A retrospective chart review at the Primary Children's Medical Center (PCMC) in Salt Lake City, Utah, about RPA in children revealed that 64 patients were diagnosed to have RPA of non-traumatic origin in the five year period reviewed. The median age of the patients was 36 months. Overall, 48 (75%) of the 64 patients were younger than five years, and 10 (16%) were younger than one year. Stridor as presenting symptom was found in one patient only. A recent 10 year review at Kings County Hospital in Brooklyn, NY, revealed that 30% of the cases were in pediatric patients aged 16 months to eight years⁹. A 35 year review of cases involving children who were treated for RPA at Children's Hospital in Los Angeles revealed that 50% patients were younger than three years and

71% were younger than six years. A review in Sydney, Australia, found that, in 55% of pediatric RPA cases, the children were younger than one year, with 10% diagnosed in the neonatal period⁹. However none of these studies had a baby affected with RPA in the early neonatal period or soon after birth.

CONCLUSION

In newborn babies, especially those with high risk of sepsis, who present with airway obstruction, stridor or cyanosis, a thorough analysis and investigation into the various etiological factors should be done, in addition to routine cardiac causes, as early recognition and aggressive therapy is mandatory in RPA, to save precious babies from life-threatening complications.

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