



Common upper respiratory tract infection leading to uncommon retropharyngeal abscess - A case series on paediatrics

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ABSTRACT

Retropharyngeal abscess is the formation of pus in retropharyngeal space, which occurs as a frequent complication of Upper Respiratory Tract Infection (URI). It is commonly seen in children less than 5 years old. The clinical manifestations includes neck mass, fever, cervical lymphadenopathy, neck stiffness, agitation, cough, drooling, torticollis, respiratory distress, stridor, and with signs of tonsillitis, pharyngitis, and otitis media. The first-line treatment includes drugs such as ampicillin-sulbactam and clindamycin. This case series highlights the complications of untreated upper respiratory tract infection leading to retropharyngeal abscess. Oral hygiene should be maintained to prevent future complications. Two patients were admitted in the paediatric inpatient unit and were diagnosed as a case of retropharyngeal abscess, following for which their management was done. After assessing, the clinical presentations and management scenario of the patients, age, and poor hygienic conditions are associated with the patients' risk factors for acquiring Retropharyngeal Abscess. In paediatrics, maintaining hygiene, especially oral hygiene and early diagnosis can prevent future complications of retropharyngeal abscess.

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INTRODUCTION

Retropharyngeal abscess is the formation of pus in the retropharyngeal space at the back of the throat, which usually begins from lymph nodes (Vieira *et al.*, 2008). It is commonly found in children of age between 6 months to 6 years, with the high-est incidence among children less than 5 years

old, with male predominance (Grisaru-Soen *et al.*, 2010). It is seen as a frequent complication of upper respiratory infection (URI) and commonly seen in low-income settings where access to antibiotics is restricted. Other etiologies of retropharyngeal abscess are dental infection, bacterial infection mainly Group A beta-hemolytic streptococci (*Streptococcus aureus*), *Mycobacterium tuberculosis*, *Fusobacterium*, *Veilonella*, *Hemophilus parainfluenza* (Mydam and Thiagarajan, 2009), poor oral hygiene and immune dysfunction (i.e., HIV, immunosuppression) (Abdel-Haq *et al.*, 2012). The use of instruments for laryngoscopy, endoscopy, endotracheal intubation, feeding tube insertion head, and neck injury, and dental surgery may also increase the risk of pus formation in the retropharyngeal space (Harkani *et al.*, 2011).

The clinical manifestations includes neck mass (91%), fever (86%), cervical lymphadenopathy (83%), neck stiffness (59%), agitation (43%), cough

(33%), drooling (22%), torticollis (18%), respiratory distress (4%), stridor (3%) and with signs of tonsillitis, pharyngitis and otitis media (Craig and Schunk, 2003). Diagnosis of retropharyngeal abscess includes physical examination, assessment of fever, and cervical lymph adenopathy (Maroldi et al., 2012). The laboratory investigations include complete blood count (especially WBC counts can be elevated), Mantoux test, gram staining, radiography (X-ray), computed tomography (CT) scan, magnetic resonance imaging (MRI), ultrasonography, throat swab culture and biopsy (UCSF, 2013). This case series highlights the complications of untreated upper respiratory tract infection leading to retropharyngeal abscess. Oral hygiene should be maintained to prevent later complications.

CASE DESCRIPTION

Case 1

A 4-year-old female child weighing 15kg was admitted to the paediatric department at secondary care public hospital with chief complaints of throat pain on and off, difficulty in articulation for the past 6 months. On examination, it was revealed that the child has GRADE III Tonsillar Hypertrophy and bilateral cervical node enlargement (1mm) on the neck while the laboratory investigations were normal (Table 1). She was diagnosed as a case of retropharyngeal abscess. On admission, she was treated with Injection Ceftriaxone, Injection Metronidazole, Tablet Cetirizine, and Syrup Paracetamol. The patient complaints of throat pain were reduced after initiating analgesics on the second day, which was continued until the day of discharge. Tonsillar hypertrophy and cervical lymphadenopathy showed a good prognosis indicating that the patient was responding to the treatment. On the 5th day, the patient was discharged with Tablet Cetirizine, and her parents were counseled on maintaining oral hygiene to further prevent complications and recurrence of the disease.

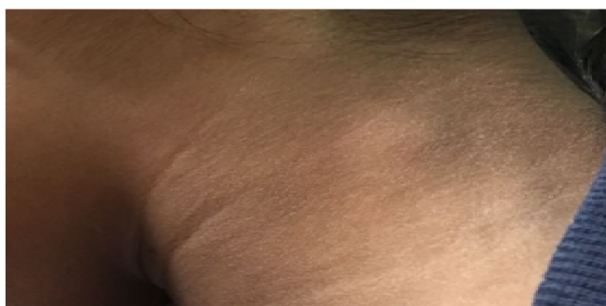


Figure 1: Shows swelling on the sides of the neck



Figure 2: X-ray showing abscess in retropharyngeal space (A)

Case 2

A female child was admitted to the paediatric ward at a secondary care public hospital with chief complaints of swelling in both sides of her neck for one week (Figure 1). The patient aged 7 years and weighed 15kgs, on examination, her posterior pharyngeal wall was congested, and she was diagnosed as a case of GRADE II - Chronic Tonsillar Hypertrophy. Her laboratory parameters were found to be normal (Table 1).

Her X-ray report revealed increased para vertebral shadow with retropharyngeal abscess (Figure 2). She was prescribed with Injection Ceftriaxone, Injection Metronidazole, Injection Ranitidine, Tablet Paracetamol, and Tablet Cetirizine. On the second day, the patient had complaints of cough and sore throat with bilateral cervical lymph nodes enlargement of <1cm, and injection ceftriaxone was changed to Syrup Amoxicillin/Clavulanate. As the patient showed improvement and no new complaints were reported, the same treatment was continued until the day of discharge. The patient was discharged on request after 7 days of admission with the medication Syrup Amoxicillin/Clavulanate and Syrup Paracetamol 5 ml for a week, and parents were advised to come for review after 15 days.

CASE DISCUSSION

Retropharyngeal abscess exists in two types, acute and chronic. An acute abscess is commonly found in young children due to upper respiratory tract infections, while in adults, foreign bodies in gestation, endoscopy, and external penetrating injury are the main causes. Chronic conditions occurs in older children and adults who developed tuberculosis of the cervical spine (Sinha and Ekka, 2015).

The pathophysiology includes the infection in the retropharyngeal space either from an infectious area or directly from an injury (Pediatric Retropha-

Table 1: Laboratory findings of case 1 and case 2

Laboratory Investigation	Case 1 Observed value	Case 2 Observed value	Normal values Reference value
Hemoglobin (Hb)	13.4 g/dL	13.9 g/dL	(11.5-15.5 mg/dL)
White Blood Cells (WBC)	12.9x10 ³ cells/mm ³	14.1 x 10 ³ cells/mm ³	(5.0-14.5x10 ³ cell/mm ³)
Polymorphs	41%	54%	(37-71%)
Lymphocytes	54%	43%	(17-67%)
Monocytes	5%	3%	(0-5%)
Platelet count	358x10 ³ cells/mm ³	489 x 10 ³ U/L	(150-450x10 ³ cells/mm ³)
Red Blood Cells (RBC)	4.78 x 10 ⁶ /UL	5.30x 10 ⁶ /mm ⁶	(4.0-5.5 x 10 ⁶ /mm ⁶)
Hematocrit (HCT)	76.4%	NA	(34-40%)
Mean Cell Volume (MCV)	28.0 fL	77 fL	(76-90 fL)
Mean Cell Hemoglobin (MCH)	36.7pg/cell	26.2 pg/cell	(25-30 pg/cell)
Serum Creatinine (Sr. Cr)	0.6 mg/dL	0.5 mg/dL	(1.2-1.6 mg/dL)
Erythrocyte sedimentation rate (ESR)	NA	30mm/hr	(3-20 mm/hr)

ryngeal Abscess, 2019) by Group A beta-hemolytic streptococci (*Streptococcus aureus*), *Mycobacterium tuberculosis*, *Fusobacterium*, *Veilonella*, *Hemophilus parainfluenza*. The pertinent diagnostic testing includes complete blood count (especially WBC counts can be elevated), Mantoux test, gram staining, radiography (X-ray), computed tomography (CT) scan, magnetic resonance imaging (MRI), ultrasonography, throat swab culture, and biopsy. Differential diagnosis in case 1 and case 2 includes a physical examination and X-Ray, respectively.

According to the UCSF (University of California, San Francisco) Pediatric Guidelines of Head and Neck Infections - Peritonsillar/Retropharyngeal Abscess 2013, when the child is presented with a neck mass, examination for the mass size should be done. If the mass is more than 2mm malignancy, surgery may be required, and if the mass is less than 2mm, the patient should be given antibiotics for 10 days. Before starting antibiotic treatment, investigations such as X-ray, CT scan, and sputum culture should be performed. For in-patients, ampicillin-sulbactam 50 mg/kg/dose IV twice a day or clindamycin 10 mg/kg/dose PO/IV twice a day can be used as the first-line drug of choice for 10 days (UCSF, 2013).

Due to the socio-economic conditions at the secondary care public hospital, the patient was treated with available antibiotics such as ceftriaxone and metronidazole injections for retropharyngeal abscess. CT scan and throat swab should be taken before starting antibiotic therapy, which is important to identify the appropriate antibiotic regimen

according to the culture test. The doses of the drug given to both the patient were appropriate. However, the antibiotics should be given for at least 10 days, and reviewing of the patient should be done (UCSF, 2013). In case 1, the patient had showed improved prognosis after 3 days of initiating antibiotic therapy while case 2 patient did not show any initial improvement, but the symptomatic improvement was observed after switching from ceftriaxone to amoxicillin. Complications such as pneumonia, cellulitis, pleuritis, Leimeirre's syndrome, and empyema can occur if the patient is left untreated (Maroldi et al., 2012; UCSF, 2013).

CONCLUSIONS

In both the patients, the risk factors are their age and poor hygienic condition, which are common etiological factors for upper respiratory tract infections in children. Therefore, the patient's parents were counseled on maintaining necessary hygiene, especially oral hygiene and routine checkups, which can prevent further recurrence and complications.

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