

SHORT COMMUNICATION

Adult Retropharyngeal Abscess: A Retrospective Case Series

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ABSTRACT

Introduction: Retropharyngeal abscess (RPA), is a deep tissue neck infection. It is a serious and occasionally life-threatening infection due to the anatomic location and the potential for obstruction of the upper airway. The retropharyngeal space is found posterior to the esophageal wall and anterior to the prevertebral fascia. Lymph nodes found in this space drain the nasopharynx, paranasal sinuses and middle ear. Often infections of these areas will lead to infection in the retropharyngeal space. Atrophy of these lymph nodes at or before puberty has been found as an explanation of the predominance of RPAs in young children. In fact, some believe that they atrophy after 4 years of age. Once almost exclusively a disease of children, is observed with increasing frequency in adults. Retropharyngeal abscess poses a diagnostic challenge for the ENT surgeon because of its infrequent occurrence and variable presentation.

Materials and methods: Ten cases of adult retropharyngeal abscess were reviewed. The diagnostic criteria were radiological evidence of widening of pre-vertebral soft tissue shadow and presence of pus in the swelling.

Results: Sore throat, fever, muffled speech, painful swallow and stiffness of the neck were common presenting symptoms. Lateral X-ray of the neck was diagnostic. Commonest organism isolated was *Streptococcus pyogenes*. Airway obstruction was the commonest complication.

Discussion: Most of the patients had history of trauma prior to the development of RPA. Computed tomography (CT) scan of neck and thorax has an important role in planning the management in addition to lateral X-ray of the neck. Transoral surgical drainage in association with antibiotics is the treatment of choice in abscesses confined to the retropharyngeal space.

Conclusion: Tuberculosis is no longer the commonest cause of adult retropharyngeal abscess. Sore throat or dysphagia, disproportionate to clinical findings in the throat should arouse suspicion of RPA. Early intervention with antibiotics reduces the chances of the development of complications.

Keywords: Airway obstruction, X-ray/CT scan, Neck and surgical drainage, Retropharyngeal abscess.

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INTRODUCTION

The retropharyngeal space is a potential space in the fascial plane between the prevertebral fascia and the pharyngeal constrictor muscles. This space is continuous with mediastinum, hence, the infections in neck may spread up to the diaphragm.¹

Retropharyngeal abscess (RPA) is described as uncommon but potentially lethal infection usually affecting the pediatric age group. Retropharyngeal abscess is usually described as a disease secondary to suppurative lymphadenitis in infants suffering from upper respiratory infection, pharyngitis, and otitis media. Regression of retropharyngeal lymph nodes in children may account for the low incidence of RPA in adults.^{2,7} More than 90% of cases occurred in children below the age of 6 years.¹ Availability of antibiotics and improvement in medical care has brought down the incidence of RPA over the years. Its clinical presentation and microbiology have also changed.² There has been a gradual shift in this disease from children below 6 years of age to older children and adults.^{3,4} Numerous articles and textbooks of otolaryngology and emergency medicine describe the presentation, management and complications of RPA in children. However, there has been a paucity of information on the subject in case of adults.⁵ Ten cases of adult RPA were analyzed for this article along with review of the available literature.

MATERIALS AND METHODS

A retrospective review of 10 cases of adult RPA treated from 2007 to 2015 was performed. Diagnoses were based on the clinical features and radiological evidence of widening of the prevertebral soft tissue shadow to at least more than the width of the corresponding cervical vertebra⁶ and demonstration of pus, either drained surgically or aspirated by wide-bore needle aspiration. Age, sex, history, clinical presentation, methods of



diagnosis, microbiology, treatment modalities, need for airway intervention, complications and outcome of the cases were reviewed.

RESULTS

A total of 10 adult patients who were admitted under the first author in a tertiary care hospital and medical college between 2007 and 2015 were reviewed. Seven were males and three females. The mean age was 44 ± 15.9 years with a range of 18 to 72 years. During the same study period, a total of 15 pediatric RPA patients were encountered. Thus, the percentage of adults among RPA patients was about 40%.

Seven patients presented with sore throat, fever, muffled speech, odynophagia without airway obstructive symptoms. Three patients had partial airway obstruction but its onset was preceded by symptoms of sore throat, dysphagia and neck pain for a few days.

Etiologically, the RPA was divided into idiopathic (with no prodrome/precipitating illness), secondary to preceding illness or traumatic. Traumatic cases were sub-classified into foreign body ingestion or other trauma to neck and pharynx. Five of the patients in this series had history of previous trauma. Three cases were secondary to impaction of foreign body (fish bone) in the throat (Fig. 1).

One developed following traumatic endotracheal intubation for ventilatory support (iatrogenic trauma) and one patient developed RPA following cervical spinal surgery. Two of the abscesses were tubercular in nature. Two patients had a history of recurrent upper respiratory tract infection while a definite cause could not be established for another patient. The most common presenting signs were fever, sore throat, torticollis, dysphagia, pharyngeal mucosal congestion and pharyngeal swelling. Lateral X-ray and CT scan of the neck (Figs 2 and 3) were taken in all cases which showed widening of the prevertebral soft tissue space. Treatment consisted of surgical drainage or aspiration in all cases and IV antibiotics. Tracheostomy was done in three cases which presented with difficulty in breathing. The single most common organism isolated was *Streptococcus pyogenes* followed by *Klebsiella* species. Antibiotics were chosen empirically in various combinations of ceftriaxone, co-amoxiclav, amikacin and metronidazole. One case of tubercular RPA required repeated aspirations with wide bore needle and one patient with simultaneous involvement of the parapharyngeal space (Fig. 4) required external drainage. Airway obstruction was the main complication observed in our patients. There was one death secondary to septicemia in our series.

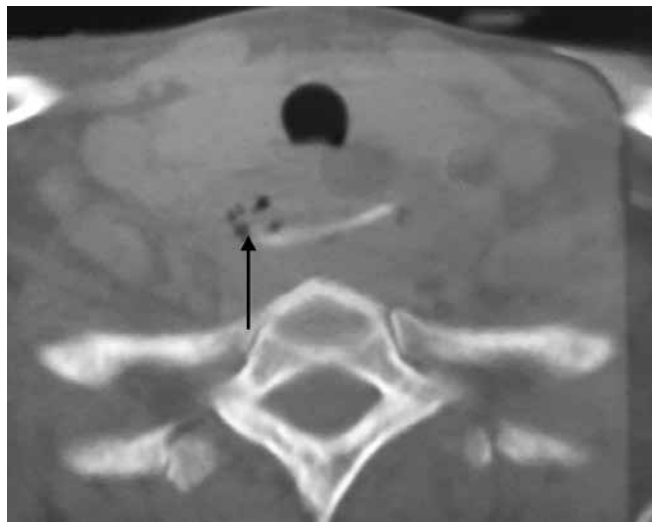


Fig. 1: Computed tomography scan of neck showing impacted fish bone with retropharyngeal abscess



Fig. 2: Computed tomography scan of neck sagittal view showing retropharyngeal abscess (arrow)



Fig. 3: X-ray of neck lateral view showing widened retropharyngeal space due to collection pus

DISCUSSION

In adults, an acute nontuberculous retropharyngeal abscess mostly develops as a result of trauma to the pharynx and the esophagus, either by a foreign body or

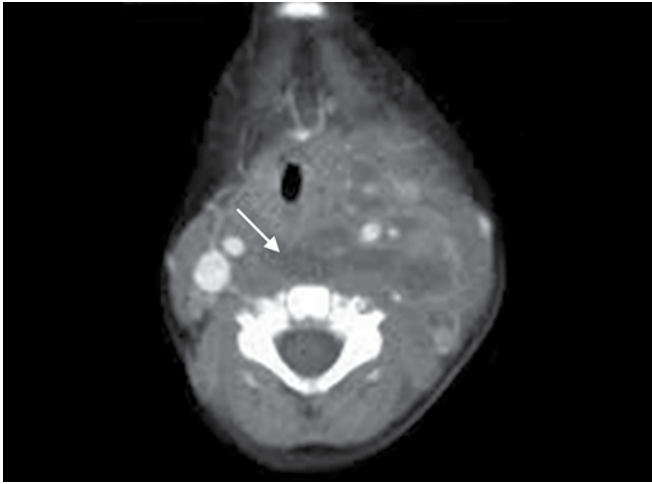


Fig. 4: Computed tomography scan of neck axial view showing loculated pus collection in retropharyngeal and parapharyngeal space

endoscopy.⁸⁻¹¹ However, it may rarely develop following dental infections or pyogenic osteomyelitis of cervical spine.¹² A recent study¹³ holds upper respiratory tract infections as the most common etiological predisposing factor responsible for retropharyngeal abscess in adults also, presumably due to spread of infection to a persistent retropharyngeal node as in children.

Available studies have documented an overwhelming majority of the patients to be infants and reported the incidence of RPA up to 100% in children below the age of 6 years.¹⁴⁻¹⁷ The declining incidence of RPA was reported since 1970s but the proportion of affected adults was found to be on the rise.³⁻⁵ Our report on 10 cases of RPA also underscores the prevalence of the disease in adults with them forming 40% of the total RPA patients. Seventy percent of this series were males. The male predominance has also been reported in other studies.^{4,5} Retropharyngeal abscess in adults has traditionally been associated with tuberculosis of cervical spine.¹⁸ Although tuberculosis is common in our country, only two of the 10 adult RPAs (20%) in this series were tubercular in origin. Recent reports suggest URTI,³ trauma,² foreign body ingestion,^{3,19} odontogenic infections¹⁹ predisposing factors for RPA in adults. Goldenberg et al (1997) found most of the RPAs in adults to be of idiopathic origin⁴ 50% of the patients in our series had history of some form of trauma prior to the development of RPA. None of the patients in this series were immunocompromised due to HIV infection. Two patients had pre-existent diabetes.

Majority of patients presented with sore throat (100%), fever (90%), dysphagia (90%), torticollis (50%) and muffled speech (60%). The presenting symptoms were largely the same as those in the published literature.^{4,5} Only 30% of patients in our study presented with symptoms of airway obstruction requiring tracheostomy. Sixty percent of the patients presented with a pharyngeal

bulge but sometimes it is very difficult to examine the pharynx or there may not be any visible swelling at all on physical examination. Tannebaum (1996) reported a series, where only 37% of the adult RPAs had visible swelling on the posterior pharyngeal wall. Negative physical examination does not in any way rule out RPA.⁵ Computed tomography scan and lateral neck X-rays were taken in all cases and widening of the prevertebral soft tissue shadow was considered to be diagnostic. Wholey et al measured the normal RP diameter on lateral X-ray studies in 1954. He concluded that measurements greater than 7 mm at C2 and 14 mm (children) or 22 mm (adults) at C6 are abnormal and strongly support the diagnosis of RPA.²⁰ A lateral radiograph is considered diagnostic of a RPA, if the retropharyngeal space, measured from the posterior wall of the pharynx to the anterior border of the C2 is widened to more than the width of the cervical vertebra. Other suggestive radiological signs include gas in the prevertebral tissue, air-fluid level, evidence of a foreign body and loss of the normal curvature of the cervical spine. Widening of the retropharyngeal space can be caused by retropharyngeal cellulitis or edema or may even be an artefact due to over-flexion of the neck while filming.⁴ A CT scan plays an important role in differentiating retropharyngeal cellulitis from an abscess and in defining its extension across fascial planes of the neck.^{4,5} Eight of the RPAs were drained by transoral incision on the posterior pharyngeal bulge under general anesthesia. One patient of tubercular RPA underwent repeated aspiration through wide-bore needle. The lone case with associated parapharyngeal space involvement was drained through external approach. Criteria for external drainage should be clinical or radiological suspicion of spread of the abscess across fascial planes to include other deep neck compartments.⁴ Pus drained from the RPAs was subjected to Gram and Ziehl-Neelsen (ZN) staining and culture. Single most common organism isolated was *Streptococcus pyogenes* (5 out of 10) which was sensitive to Coamoxiclav (4 out of 5) and Ceftriaxone (2 out of 5). Ziehl-Neelsen stain detected presence of AFB in one sample. Polymerase chain reaction confirmed tuberculosis in another case with negative culture. *Klebsiella* isolated in one case which was resistant to all antibiotics, subsequently this patient developed mediastinitis and epticemia later succumbed to death due to complications. No growth was reported in another two cases sample but these cases responded well to treatment. Other common organisms found in RPAs are *Staphylococcus aureus*, and *Hemophilus influenzae*.^{2-5,19,21}

All the cases of RPAs in this series were treated with empirical antibiotics in combinations. The culture sensitivity reports in our series suggest the choice of antibiotics

in non-tubercular cases should include cephalosporin, amikacin, clindamycin and penicillin to cover various organisms including anaerobes. Airway obstruction was the main complication observed in our patients which was relieved by tracheostomy.

CONCLUSION

Retropharyngeal abscess is usually associated with some form of trauma in adults, although tuberculosis needs to be excluded as a cause. Sore throat or dysphagia, disproportionate to pharyngeal findings in clinical examination should arouse suspicion of RPA. Early intervention with antibiotics reduces the chances of the development of complications. Airway obstruction is the commonest complication. Bacterial resistance leading to mediastinitis and septicemia may end in losing the patient. Drainage of the abscess under the cover of parenteral antibiotics through the transoral approach is usually sufficient.

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