

Retropharyngeal Abscess: A Clinical Experience At The University College Hospital Ibadan

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ABSTRACT

Background: Infection within the retropharyngeal space could progress on to an abscess formation resulting into retropharyngeal abscess (RPA), which can either be acute or chronic. RPA can be a life-threatening emergency, with potential for airway compromise and other catastrophic complications. This review is aimed at highlighting our experience with patients with a diagnosis of retropharyngeal abscess.

Methods: Retrospective review of thirty patients with a confirmed diagnosis of retropharyngeal abscess, who were admitted and managed within an eleven-year period (1993 to 2003) in the Otolaryngology department of the University College Hospital Ibadan.

Results: There were fifteen males and females each with M: F ratio of 1: 1, consisting of twenty-five children and five adults and their median age was 21 months and twenty three (77%) were younger than 5 years. It was observed that while the adult patients presented early for specialist treatment, the paediatric patients presented late.

The major complaints were fever (87%), respiratory distress or stridor (57%), cough (53%), neck pain/swelling (43%), and refusal of feeds (30%). Other minor complaints were throat pain, difficulty in swallowing, anorexia, and weight loss. The commonest associated symptoms seen especially among the younger age group were nasal discharge, nasal blockage, tooth-ache, snoring and limitation of neck movement.

Conclusion: The treatment of retropharyngeal space infections in children and adults should include accurate clinical diagnosis, empirical usage of broad-spectrum antibiotics, and timely surgical drainage.

KEY WORDS: Retropharyngeal abscess; Tracheostomy; Tuberculous spine; Nigeria.

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INTRODUCTION

The retropharyngeal space is one of the deep spaces of the neck and is posterior to the pharynx, bounded by the buccopharyngeal fascia anteriorly, the cervical vertebrae and their covering muscles

and prevertebral fascia, posteriorly, and the carotid sheaths laterally¹. It extends superiorly from the base of the skull to the mediastinum inferiorly and is further divided into two lateral compartments that is the prevertebral space (space of Gillette) by a fibrous raphe¹. It also consists of prevertebral space that lies between the vertebral bodies and prevertebral muscles posteriorly and the prevertebral fascia anteriorly. Each lateral space contains retropharyngeal nodes, which usually disappear after 4-5 years of age.

Infection could progress on to an abscess formation within the retropharyngeal space resulting into retropharyngeal abscess (RPA), which can either be acute or chronic. Acute RPA is commonly seen in children below 4-5 years and is usually due to suppuration of retropharyngeal lymph nodes, secondary to infection in adenoid, nasopharynx, posterior pharyngeal wall, sinuses and tonsil^{1, 2}. However, in adults, it may result as a direct infection due to some penetrating injury or sharp foreign body. A chronic form of RPA is usually seen in adults or slightly older children and is due to tuberculous infection of the cervical spine or when a prevertebral tuberculous abscess ruptures the prevertebral fascia where pus directly spreads through the anterior longitudinal ligament into the space².

An abscess in this location can be a life-threatening emergency, with potential for airway compromise and other catastrophic complications. This retrospective review is aimed at highlighting our experience with regards to the clinical features/course, pathogenic organisms, and management of retropharyngeal space abscess in our environment.

PATIENTS AND METHODS

The medical records of thirty patients, who were admitted and managed with a final diagnosis of retropharyngeal abscess over an eleven-year period, (January 1993 to December 2003) at the Otorhinolaryngology Department of the University College Hospital, Ibadan, were retrieved for analysis.

The information extracted included factors such as age, sex, aetiology, duration and nature of symptoms, radiological workup, surgical approaches, bacteriological findings, complications,

and duration of hospitalization.

The results were documented in a simple descriptive form and the computation and analysis of the data was done using the SPSS version 11 analytical software.

RESULTS

The sources of referral for the thirty patients to the ORL Department were tertiary (from within UCH Ibadan) (37%), secondary (10%), primary (3%), private (20%) and not documented (30%). There were fifteen males and females each with M: F ratio of 1: 1, consisting of twenty-five children and five adults. The median age of the thirty patients was 21 months while the age range was 3 months to 38 years. Twenty-three (77%) were below 5 years while twenty of these were initially managed mostly for upper/lower airway infection or malnutrition. Those in the adult age group had antecedent history of trauma to the throat especially from fish bone and instrumentation.

The overall mean duration of symptoms before presentation to the hospital was 10.17 days (SD 12.58, range of 3 - 60 days). However, for the younger age group, the mean duration was 10.80 days (SD 13.64, range of 3 - 60 days) while it was 7 days (SD 4.00, range of 4 - 14 days) for the older age group. The major complaints were fever (87%), respiratory distress or stridor (57%), cough (53%), neck pain/swelling (43%), and refusal of feeds (30%). Other minor complaints noted included throat pain, difficulty in swallowing, anorexia, and weight loss. The commonest associated symptoms observed especially among the younger age group were nasal discharge (33%), nasal blockage (20%), tooth-ache (17%) and snoring (15%). Also, a four-year old had night sweats and loss of neck control. There was limitation of neck extension in 20 patients (67%), torticollis in 15 patients (30%), and limitation of neck flexion in 8 children (27%).

All the patients had plain radiograph of the soft tissue neck and all showed widening of the prevertebral soft tissue shadow and occasional air shadow in few films with anterior displacement of the laryngotracheal air column on lateral view while 10 patients' films showed associated tracheal deviation to the contralateral side of the neck on antero-posterior view. Five patients less than five years were anaemic with the packed cell volume (PCV) ranging from 20% to 27% and associated high white cell count, which ranged from 12,300 to 18,200/mm³.

All had surgical drainage of the abscess under general anaesthesia, of which intraoral approach

was offered to 16 patients, mostly children with nine of them requiring preoperative tracheostomy, while external cervical approach was offered to 10 patients that had evidence of parapharyngeal extension with three requiring preoperative tracheostomy. Four patients had a combination of both approaches with only two requiring preoperative tracheostomy. All were decannulated before discharge from the hospital within four to seven days post operatively.

All the patients received antibiotic therapy prior to presentation in the Department. This affected the microbiological studies in which aspirate from four patients yielded scanty growth of *Staphylococcus aureus*. However, tuberculous bacilli were cultured from a patient's aspirate, while there was no yield in others. The mean duration of hospital admission was 10.33 days (SD 3.68, range 5 - 17 days) and all patients recovered fully with regression of the prevertebral soft tissue widening on repeat plain radiograph of the soft tissue neck. No complications were observed in any of the patients who were also followed up on out-patient basis for varying periods of time with no recurrence in any patient. Majority were lost to follow-up after three or four visits except the only patient with TB spine who was on the anti-tuberculous drugs at the children's out-patient clinic as at the time of this report.

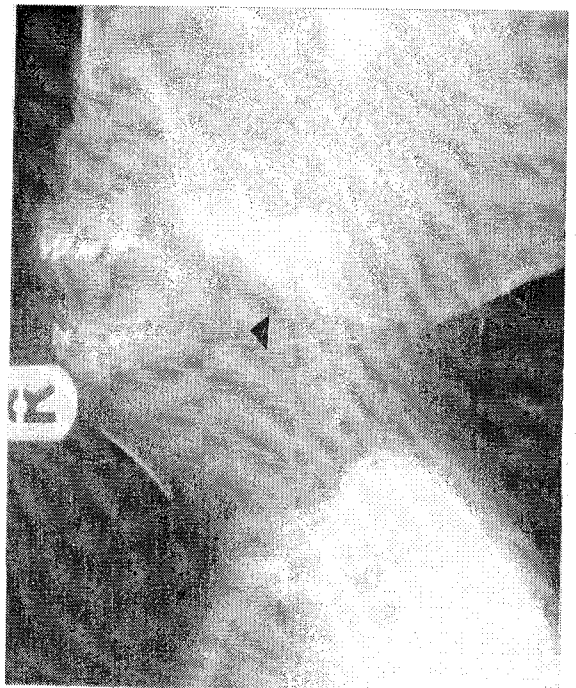


Figure 1. Lateral X-ray of neck soft tissue of a 12 months old child showing widening of the prevertebral soft tissue shadow with anterior displacement of the laryngotracheal air column (dark arrow-head) and mild loss of cervical lordosis.

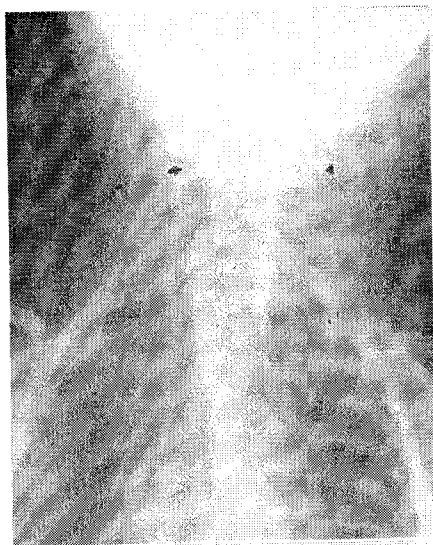


Figure 2. Antero-posterior X-ray of neck soft tissue of the same child showing the displacement of laryngotracheal air column to the right side (short arrow) with evidence of increased soft tissue shadow of the neck on the left side (arrow head).

DISCUSSION

The incidence of acute retropharyngeal abscess (RPA) is expected to be on the decline due to availability of broad spectrum antibiotics used for upper respiratory infection. However, RPA one of the deep neck infections is not uncommon despite the extensive use of antibiotics for any infective process in our environment. Despite all this, it still remains more a disease of children below five years than adults as observed in this review with no gender predilection. This is in conformity with earlier findings in the literature³⁻⁵.

The prevalence mainly in children was a sequelae of an airway infection especially rhinosinusitis with adenoiditis, and malnutrition which may affect the immune response. Adults still remain at risk of developing acute RPA due to local trauma (such as foreign body ingestion or instrumental procedures) and odontogenic infections^{6,7}. All our adult patients developed RPA as a result of trauma to the pharynx by penetrating fish bone and instrumentation. We anticipate that incidence of chronic RPA could be on the increase due to resurgence of tuberculosis secondary to HIV infection presently. Although, a four-year old child had a chronic form but was retroviral negative, there is still the need to be on the look out for any association with HIV infection.

It was observed that while the adult patients presented early for specialist treatment, the paediatric patients presented late. This could have been due to either non-recognition of the disease process by parents or initial care-givers that

misdiagnose it to be another disease such as asthma. This is more so when there is associated difficulty in breathing mostly in the late stage of the disease. This calls for timely recognition of RPA if there is evidence of oropharyngeal mucosal injury⁸. Therefore the important tools in making early diagnosis are proper clinical history, noting the major symptoms such as neck pain/swelling, difficulty in breathing and refusal of feeds and other symptoms as fever and cough. Acute torticollis may result from an inflammatory process irritating the cervical muscles and is often associated with retropharyngeal abscess⁹. This with other major symptoms is highly suggestive of RPA.

Plain lateral radiograph of neck soft tissue is one major investigation that could be done easily especially in our environment. All our patients had this investigation done. The characteristic features that could be observed are widening of the prevertebral soft tissue shadow which may contain a lucent area within it; with anterior displacement of the laryngotracheal air column and associated tracheal deviation to the contralateral side of the neck on antero-posterior view (Figures 1 and 2).

However, CT scan when available is not specific in differentiating an abscess from cellulitis or inflammatory oedema. Ungkanont and co-workers¹⁰ noted that the sensitivity of computed tomography scan in detecting the presence of an abscess versus cellulitis was high (91%), whereas the specificity was rather low (60%). This therefore emphasizes the importance of correlating radiologic interpretation with clinical examination before surgical intervention¹¹. There is also the need to monitor the haemogram of all paediatric patients since many of them usually present late to the hospital with tendency to having anaemia from the infective process. This will necessitate prompt attention and intervention.

Delay in the diagnosis and management of a retropharyngeal abscess may lead to lethal complications involving vital structures¹². The main complication of obstructive processes with resultant respiratory failure and subsequent cardiopulmonary arrest may result from deep-neck-space abscesses especially in infants. The obstructive process once it occurs usually requires a tracheostomy for airway control¹³. In this study, fourteen patients (47%) consisting of thirteen children and one adult presented only when respiratory obstruction necessitating preoperative tracheostomy had developed. Adults have also been known to develop large retropharyngeal cold abscess completely obstructing the airway and causing acute respiratory

distress¹⁴. However, early clinical diagnosis of retropharyngeal abscess and treatment will halt the progression of the abscess thus reducing the need for tracheostomy and short-term intubation in relieving the airway obstruction^{15,16}.

Complication such as spontaneous rupture of abscess may lead to aspiration into tracheobronchial tree with resultant stridor and pneumonitis. Other documented complications are jugular vein thrombosis, carotid artery rupture, and descending necrotizing mediastinitis, as well as an unusual case of meningitis from a large retropharyngeal-parapharyngeal abscess. Also there could be a relapse of RPA despite surgical drainage and appropriate antibiotic treatment^{17, 18}. Therefore, prompt diagnosis and institution of appropriate medical and surgical drainage is imperative for the prevention of these complications. A transoral approach to these abscesses in the retropharyngeal space is advised in children, while external approaches are for those abscesses medial to the great vessels or those that involve multiple spaces and those due to tuberculous infection^{19,20}.

The low bacterial yield in this study was probably due to prior administration of antibiotics before presentation and preoperatively. Twenty-five cultures of the aspirates were sterile and one grew tuberculous bacilli thus conforming to what is obtained in the literature¹⁹. Other most common organisms that could be cultured from the abscess aspirate include *Streptococcus*, *Bacteroides*, *Micrococcus*, *Neisseria*, *Candida*, *Enterobacter*, *Enterococcus*, *Peptostreptococcus*, *Proteus*, *Propionibacter*, and *Pseudomonas*¹⁷.

In conclusion, when there is delay in the diagnosis and treatment of retropharyngeal abscess the risk of complications with resultant morbidity and mortality is further increased. The management of retropharyngeal space abscess in children and adults should therefore include accurate clinical diagnosis aided by imaging studies, empirical usage of broad spectrum antibiotics that covers Gram-negative and beta-lactamase-producing organisms as well as Gram-positive organisms and anaerobes, and timely surgical drainage¹⁰.

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