Retropharyngeal abscesses: Revisited

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Abstract

Retropharyngeal abscesses were fairly common in preantibiotic era but the advent of antibiotics has reduced the overall incidence of these abscesses. They still continue to occur specially in developing world and carry significant morbidity and even mortality if not managed properly. The prevalence of this abscess in the young children pose a bigger challenge, as the examination of oral cavity is difficult. Emphasis is placed on the age, sex, type, and duration of symptoms, bacteriology, methodology of diagnosis, therapy and complications. With proper antibiotic cover and surgical management, majority of patients today survive without major residual sequel. Hereby we present a series of 15 cases of retropharyngeal abscess.

Keywords Retropharyngeal abscess · Pharyngeal abscess

Introduction

Deep neck infections have been recognized and described since the time of Galen in the 2nd century A D. Widespread use of antibiotics has dramatically reduced their incidence and has altered their mode of presentation [1]. Retropharyngeal abscesses generally occur secondary to a local infection that extends into the lymphatics in the potential space formed by the posterior wall of the pharynx and the prevertebral layer of the deep cervical fascia [2]. These abscesses are mainly encountered before 6 years of age (50% of patients aged between 6 and 12 months). The etiology, clinical presentation and radiological features are different in children from adults. It is vital to diagnose this condition early so as to prevent major complications which can be life threatening if not managed properly.

Anatomy

Retropharyngeal Space is an anatomical space located anterior to the alar layer of deep cervical fascia, posterior to the visceral or middle layer of deep cervical fascia. It extends superiorly from the base of the skull to the superior mediastinum to about the seventh cervical or first thoracic vertebra where the alar fascia fuses with the visceral fascia anteriorly. “Danger Space” is located between the alar and prevertebral layers of the deep cervical fascia and extends from the base of the skull superiorly into the posterior mediastinum to the diaphragm inferiorly. The prevertebral space extends from the base of the skull to the coccyx and makes it possible for deep neck infections to extend as far inferiorly as the psoas muscle sheath. Retropharyngeal lymph nodes are found distributed in two chains, one on either side of midline in the retropharyngeal space. Rich lymphatic drainage to this area comes from adjacent muscles and bones, the nose and paranasal sinuses, nasopharynx, pharynx, middle ear and eustachian tube. These nodes are found in greatest numbers in children and may account for the greater incidence of retropharyngeal abscesses reported in this group.

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Fig. 1 Infection symptoms and signs

Case series

We hereby present a series of 15 patients who presented in ENT OPD of Himalayan Institute of Medical Sciences, Dehradun and were diagnosed as retropharyngeal abscesses. This study was conducted over a period of 2 years from November 2004–October 2006. Those patients who had bulge in the posterior pharyngeal wall clinically and radiologically were included in this study.

Age of these patients ranged from 3 months to 53 years (mean age – 6.5 years). There were 9(60%) males and 6 (40%) females. 12(80%) patients were in age group of less than 5 years while 3(20%) patients were adults.

The clinical presentation of retropharyngeal abscess in children differs from that in adults, and the diagnosis can be difficult in infants and young children. The onset of infection can be insidious with few symptoms and signs (Table 1).

On examination, bulge in post pharyngeal wall was seen in 10 (66%) of the patients., which was unilateral in 9 (60%) of patients while it was bilateral in 3 (20%) of the patients. Moderate to high-grade fever was seen in 9 (60%) of patients. Trismus was seen in 5 (35%) of patients. Muffling of voice was present in 9 (60%) of patients (Fig. 1).

Clinical Presentation

All these patients were hospitalized and started on i.v. fluids. They were started on an empirical therapy of antibiotic regime of ceftriaxone, gentamycin and metronidazole. All these patients were investigated on following lines: Complete Blood Count, Blood Sugar, X-ray STN-lateral view, X-ray Chest, CT Scan (if required), Pus culture and sensitivity, Mantoux test.

Fig. 2 Results of Investigations

Raised ESR (80%) and leucocytosis (60%) were present in majority of patients while 6 (40%) patients were diabetic (Fig. 2). Four patients were known diabetics and on treatment while 2 patients were diagnosed after admission. X-Ray STN-Lateral view is the key investigation for these patients. X-rays were taken preferably during inspiration. The measurements of retropharyngeal space greater than 7 mm in both children and adults and measurements of retrotracheal space greater than 14 mm in children and 22 mm in adults were considered as pathognomonic [7,8] (Fig. 3).

Aspirated / drained pus was sent for culture and sensitivity. It was sterile in 8(53%) cases. Seven cases had 24 isolates. Hence, it was a polymicrobial infection mainly consisting of *Staphylococcus aureus* (81.25%) *Alpha haemolytic streptococcus* (68.75%). Many other authors have isolated *Streptococcus pyogenes* as the commonest organism, besides *E. coli*, *H. influenzae* and anaerobic bacteria.

The antibiotic regime was changed according to culture and sensitivity. One (7%) patient responded to medical management and aspiration of pus and 14 (93%) patients required incision and drainage. This procedure was performed under general anaesthesia. Trans- oral approach (Fig. 4) was used to drain the abscess in 12 (80%) of cases, while latero- cervical approach was used in 2 (14%) of the patients. Latero-cervical approach was used in abscesses extending to parapharyngeal space or lower into the neck (Fig. 5). Incision in the post. pharyngeal wall was made with the patient in the lateral extreme head down position (Rose Position). The abscess cavity was spread open widely to ensure adequate drainage. Two suction catheters were simultaneously used for drainage. A vertical incision was made along the anterior border of sternocleidomastoid and abscess drained. Two (14%) patients required a revision incision and drainage as there was recollection of pus. 2 (14%) patients had airway compromise and tracheostomy was performed to secure the airway. 2(14%) patients were diagnosed as tuberculosis of spine and were put on antitubercular treatment. One patient developed mediastinitis as a result of spread of infection to superior mediastinum and died due to cardiac tamponade.

Fig. 3 X-ray STN Lateral view showing straightening of cervical spine and widening of prevertebral shadow

Fig. 4 CT Scan(axial cut) showing retropharyngeal abscess with extension into parapharyngeal space

Fig. 5 MRI (sagittal section) showing retropharyngeal abscess

Fig. 6 Endoscopic view showing incision made at the post.pharyngeal wall to drain the abscess

Discussion

Antibiotics have so effectively reduced the incidence of retropharyngeal abscesses that many clinicians no longer consider it as a possibility in the differential diagnosis of a patient with sore throat and fever. These abscesses still pose a major challenge specially in our part of world. Several important observations and findings were noted in the study. Every patient of such history should undergo a detailed clinical and radiological check-up. Dysphagia, drooling of saliva and sore throat are 3 cardinal symptoms of patients [3] of retropharyngeal abscess. Examination of the oral cavity may be difficult in a young child. The child may

maintain his neck in extended position and hold his head slightly forward in the so-called “Sniffing position” [4]. If spontaneous rupture of abscess does not occur, respiratory difficulty with tachypnoea and stridor can develop as the abscess size increases. Since the larynx of the child is relatively higher in the neck, respiratory embarrassment may occur more frequently in the child [5, 7, 8]. The etiology of retropharyngeal abscesses differs in a child from the adults. In child, the abscess develops usually as a result of suppuration of retropharyngeal lymph nodes and so is more likely to be present in midline while in adults it occurs secondary to tuberculosis of cervical spine [6]. As a result it is more likely to be unilateral. Palpating the mass is not recom-

Table 1 Symptomatology of patients

SYMPTOMS	Total cases (%)	Adults (%)	Children (%)
Dysphagia	8/15 (%)	3/3 (100 %)	5/12 (41/%)
Pain Throat		3/3(100 %)	9/12 (75%)
Drooling of Saliva		1/3(33 %)	10/12 (83%)
Dyspnoea		1/3(33 %)	7/12 (60%)
Neck Stiffness		2/3(66 %)	8/12 (66%)

mended because of the risk of inadvertent rupture of well advanced abscess and compromising the patency of already at risk airway [7]. Roentgenogram of soft tissue neck lateral view preferably during inspiration with fully extended neck is a mandatory investigation for such patients [5, 7, 8]. The enormous pliability of posterior pharyngeal soft tissues leads to dramatic changes in thickness of the prevertebral soft tissues with different phases of respiration, cycling, swallowing, as well as in various neck positions [6]. The enlargement of the prevertebral shadow to be considered significant varies with the age of the patient. Measurements of a retropharyngeal space greater than 7 mm in children and adults, and measurements of the retrotracheal space greater than 14mm in children and 22 mm in adults are suggestive of pathologic process [3, 7, 8]. If the thickness of soft tissue exceeds the AP measurements of the adjacent vertebra, the bulge probably represents a retropharyngeal abscess. A few other conditions, notably disk infection, osteomyelitis of spine, retropharyngeal tumours (cystic hygroma, hemangiomas, neuroblastomas), hematoma, non-opaque foreignbody, retropharyngeal thyroid extension, myxematous thickening, histiocytosis X, lymphoma can produce a similar bulge but a proper clinical examination makes the diagnosis of retropharyngeal abscess straightforward. CT Scan of neck can distinguish retropharyngeal abscess from retropharyngeal cellulitis and identify cervicomedial and cervicothoracic extension as well as extrapleural effusion [2] (Fig. 6).

Pus sent for culture and sensitivity came out to be sterile in many patients inspite of the historic importance attached to this investigation. This could be due to the fact that our

being a tertiary institution, these patients were treated and given broad spectrum antibiotics earlier which could lead to the culture being rendered sterile. Parenteral antibiotics should be started on empirical basis at the outset but they are no substitute for surgical drainage. Antitubercular drugs should be started in patients diagnosed as tubercular. An adequate airway is very essential and no time should be wasted in securing the airway.

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