

# Retropharyngeal Abscess: A Case Report

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**Abstract:** Retropharyngeal abscess is a rare but potentially fatal condition, often misdiagnosed as other respiratory conditions in children due to its nonspecific symptoms. This case highlights the importance of clinical awareness and timely radiological evaluation to ensure early diagnosis and appropriate treatment, preventing severe complications like mediastinitis and ensure effective treatment.

**Keywords:** Retropharyngeal Abscess; Deep Neck Infections; Cervical Infections.

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## 1. Introduction

Infections of some cervical spaces, namely the submandibular, lateropharyngeal, retropharyngeal and prevertebral spaces, are potentially life-threatening because they can obstruct the airways or spread the infection to vital areas such as the mediastinum or carotid sheath, while infections involving other deep spaces only become dangerous when they spread to the aforementioned spaces [1]. The retropharyngeal space refers to the space that contains loose areolar tissue and lymph nodes and is located anterior to the alar fascia and posterior to the pharynx and esophagus, from the base of the skull to the superior mediastinum, at the level of the tracheal bifurcation (T4) and posterior to the pharynx and esophagus [1].

Directly beyond this space is the potential space, situated between the anteriorly positioned alar fascia and the posteriorly located prevertebral fascia. When these lymph nodes become infected and suppurates, we have a retropharyngeal abscess that can spread inferiorly to the anterior mediastinum. This space in children contains lymph nodes which are distributed in two groups, a lateral group, which is situated close to the tubercles of the atlas, the sympathetic and the external carotid artery; and medial group, which is situated prevertebral and whose lymph nodes are the largest in volume. They are all interconnected by the corresponding lymphatic vessels [1]. These lymph nodes receive lymph from the pharynx, the nasal cavity and partly from the oropharynx [2].

Usually, the infectious process starts as adenitis, which evolves into an adenophlegmon and, subsequently, an abscess; banal adenitic involvement often occurs secondary to episodes of catarrhal or bacterial rhinosinusitis and especially with acute adenoid infections (acute adenoiditis infections or exacerbated chronic adenoiditis). The latter two routes of infection are due to infectious spread via the lymphatic pathway from the adenoids to the lymph nodes in the retropharyngeal space. The germs involved are generally gram-positive, including streptococci and pneumococci. The initial banal adenitis becomes more serious in those patients who go on to develop adenophlegmon and abscess [2]. These abscesses are rare infections but can be fatal. They mainly affect children up to 5 years old and, in some cases, adults and are usually preceded by a viral infection of the

upper airways or following trauma to the oropharyngeal region, dental problems [3] or presence of foreign bodies in the pharynx (4).

This case was reported following the CARE guidelines.

## 2. Case Report

The clinical history and examination findings are summarized in Table 1. Diagnosis is usually uncomplicated based on local infectious signs and clinical examination. In older children, the presence of an abscess can be confirmed by puncture; however, a CT scan with axial and sagittal projections is a more practical and less traumatic method [2]. The differential diagnosis should include the presence of tuberculous adenitis of a retropharyngeal lymph node, septicaemia [2], malignant and benign prevertebral tumours, deforming spondylarthrosis of the cervical spine [5], foreign bodies, supraglottitis and viral croup or laryngotracheitis [6]. Retropharyngeal abscesses, in both childhood and adult, are treated with drugs in the adenitis or cellulitis phase. In the abscess phase, surgical drainage is necessary [2].

**Table 1.** Clinical progression of a pediatric patient with retropharyngeal abscess, from initial symptoms to definitive treatment.

Date and location	Signs/Symptoms and Diagnosis	Treatment
<p><b>15.10:</b> 2-year-old male child with intermittent fever, mouth sores, difficulty feeding and generalized tonic-clonic convulsions.</p> <p>The mother was 21 years old and negative for HIV. The child was taken for traditional treatment by the family. No improvement.</p>		
<p><b>19.10:</b> Rural Hospital's emergency department</p> <p>Provincial Hospital</p>	<p><b>SS:</b> sialorrhoea, dysphagia for solids, dyspnea, stridor and fever. <b>Diagnosis:</b> bronchopneumonia and foreign body aspiration.</p> <p><b>SS:</b> conscious, but with a tendency to drowsiness, dyspnea, hypochromic mucous membranes, decreased vesicular breath sounds in both lung fields, RR: 44 cycles/minute, HR: 112 beats/minute, mouth breathing, with tongue out of mouth.</p> <p><b>Diagnosis:</b> epiglottitis and foreign body aspiration.</p>	<p>Ampicillin, gentamicin and prednisolone IV, paracetamol and multivitamins.</p>
<p><b>20.10:</b> Pediatrics Department of the Central Hospital</p>	<p><b>SS:</b> GCS: 14/15, agitated, Seizures, isochoric pupils reactive to light. symmetrical physiognomy, hypochromic and moist mucous membranes, open mouth, sticking tongue was out, productive cough, stridor, occasional canine cough, severe dyspnea, suprasternal and sternal breathing, RR: 69 cycles/ minute. Bilateral decreased vesicular murmur and snoring on lung auscultation.</p>	<p>Oxygen saturation of 100% with oxygen therapy, intravenous hydrocortisone and ceftriaxone, adrenaline spray and zero diet.</p>

otorhinolaryngologist's  
assessment

**Blood count:** WBC:  $43.4 \times 10^3$ /microliter,  
Hgb: 8.7 /dL. **Diagnosis:** foreign body aspira-  
tion.

**SS:** dysphonic voice, with cervical hyperex-  
tension, laryngeal stridor and substernal re-  
traction.

No cervical tumor was observed. Examina-  
tion of the oropharynx revealed no enlarge-  
ment or bulging of the posterior wall.

Lateral xRay of the neck showed that at the  
level of C2, the retropharyngeal space was  
twice the diameter of the vertebral body  
and at the level of C6, it had increased by  
more than 14 mm (Figure 1).

Chest X-ray showed a decrease in the diam-  
eter of the airway and a displacement of the  
right airway, as well as an increase in the  
mediastinal space and a mass on the right  
side of the neck. (Figure 2).

**Diagnosis:** Retropharyngeal abscess.

**22.10:** 48 hours later, he went to the operating room to have his wound checked. The surgical wound was open and there was no suppuration.

**27.10:** The patient was discharged

Pharyngoscopy under anesthesia: slight  
bulging of the posterior pharyngeal wall  
that extended into the hypopharynx. A  
puncture was performed which showed  
thick yellow pus oozing out, followed by in-  
cision and drainage in this area with pus  
oozing out below the incision in a caudal di-  
rection. Each time the neck was massaged,  
more pus came out, totaling more than 100  
mL (Figure3).

This maneuver was carried out for over an  
hour. The area was washed with physiolog-  
ical saline solution. No drainage was carried  
out. A nasogastric tube was placed for feed-  
ing. There was an immediate improvement  
in symptoms and the post-operative period  
was uneventful.

**Legend.** SS. signs and symptoms. HR. Heart rate. RR. Respiratory rate. R. Respiration.  
WBC. White blood cell count. Hgb. Hemoglobin. GCS. Glasgow Coma Scale.

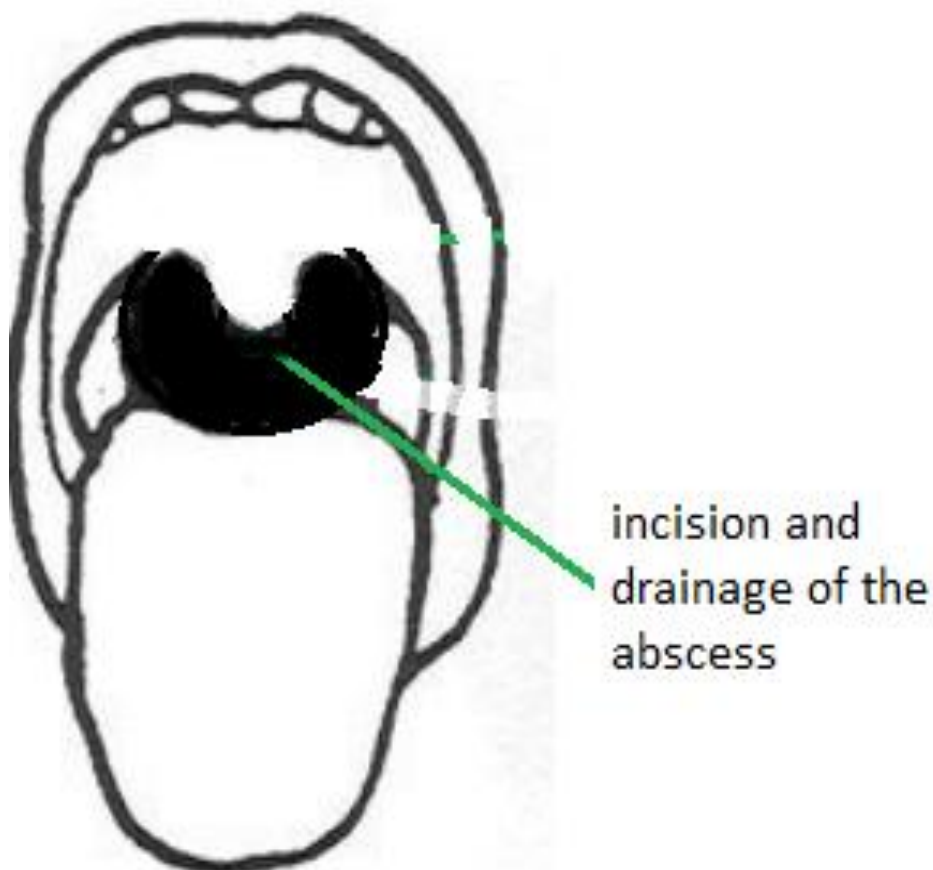
**Figure 1.** Lateral X-ray of the neck showing enlargement of the retropharyngeal space.



**Figure 2.** Chest X-ray showing displacement of the airway and widening of the mediastinum.



**Figure 3.** Drawing showing the incision in the posterior pharyngeal wall and the path of the pus.



### 3. Discussion and Conclusion

Retropharyngeal abscesses represent a diagnostic challenge, as their nonspecific presentation often mimics more common pediatric airway or pulmonary conditions, frequently leading to delayed recognition and treatment. The family initially sought traditional treatment. When his condition failed to improve and febrile convulsions appeared, he was evaluated at the Rural Hospital and subsequently transferred to the Provincial Hospital, approximately 70 km away, where he was diagnosed with bronchopneumonia and suspected foreign body aspiration. He was later referred to the Central Hospital, over 200 km away, where a pediatrician confirmed the suspicion of foreign body aspiration and epiglottitis. This misdiagnosis is not surprising because one of the differentiating diagnoses of retropharyngeal abscess is precisely the presence of a laryngeal foreign body due to the exuberance of dyspnea and because there are many cases of dyspnea of pulmonary cause locally, the initial diagnosis was bronchopneumonia and as it didn't improve it was diagnosed as an aspirated foreign body. Retropharyngeal abscess is rare and therefore not easily mentioned in diagnostic hypotheses and its diagnosis requires visualization of the oropharynx, an evaluation not always properly performed during an initial assessment.

In this case, obtaining the medical history was difficult because the child was accompanied by a relative (aunt) who was not familiar with the detailed course of the illness. In our clinical practice we have seen that cervical abscesses are closely linked to HIV infection, but in this case, there was no such infection in the child or his mother (according to the medical documentation brought from the Rural Hospital). HIV testing is routine for all patients with cervical abscesses seen at the Central Hospital. At the time of this child's observation, specialized human resources were limited, and ENT specialists were available only at central hospitals. This scarcity of trained personnel in peripheral and provincial facilities can delay accurate diagnosis and timely management of complex conditions such as retropharyngeal abscess, requiring multiple transfers and prolonged patient evaluation.

Retropharyngeal abscess causes local and general symptomatology, in addition to the symptoms of the underlying disease (rhinosinusitis or adenoid). In general, retropharyngeal abscesses owe their symptomatology to the causative disease and deriving from the topographical location of the abscess at the aerodigestive junction [2]. The literature confirms that the initial clinical picture of a retropharyngeal abscess is that of a viral or bacterial rhinitis or adenoiditis, but that it rapidly worsens [2]. The fact that the child had respiratory symptoms with a laryngeal focus, and the diagnoses made at the health centers, suggested that it was a laryngeal pathology (epiglottitis or a laryngeal foreign body), which is why retropharyngeal abscess was not considered, especially as the abscess had an unusual location along the hypopharynx.

The instrumental examination of the oropharynx must be very careful, so that pharyngoscopy does not produce a violent defensive reaction of the tongue and other pharyngeal musculature [2]. Through local infectious symptomatology and clinical examination data, there is usually no difficulty in diagnosis. In 'older' children, confirmation of the existence of an abscess can be achieved by puncture; however, it is more feasible and less traumatic to perform a CT scan in axial and sagittal projections [2]. Although he had severe clinical symptoms, the diagnosis was made based on imaging and confirmed by hypopharyngoscopy because the lesion was at the level of the hypopharynx, which is difficult to access.

It was not possible to carry out a CT scan to confirm the diagnosis due to the severity of the clinical condition, the need for urgent drainage and CT imaging was not available at the time of presentation. The diagnosis was therefore based on clinical deterioration. Chest and neck X-rays were essential for the ENT team to suspect the diagnosis. Pus was collected for microbiological study, but the result was sterile probably due to prior antibiotic or/and corticoids use in different medical centers or improper collection or transport

technique, and laboratory constraints. Empirical broad-spectrum antibiotics were initiated based on regional epidemiology and subsequently adjusted according to clinical response.

Based on the imaging available and intraoperative findings, the collection was predominantly located in the upper retropharyngeal space with spontaneous caudal drainage observed intraoperatively. Retropharyngeal abscesses should be drained transorally by making an incision with a scalpel in maximum fluctuation, followed by debridement with hemostasis forceps, from top to bottom in the abscess cavity [2]. The child improved rapidly after drainage and antibiotic therapy, and there was no clinical evidence of mediastinal sepsis. Due to its anatomical location, a retropharyngeal abscess remains a potentially life-threatening condition that demands rapid diagnosis and treatment. Retropharyngeal abscesses can develop into airway obstruction, bronchial erosion, mediastinitis, sepsis, acute respiratory distress syndrome, cranial nerve paralysis, esophageal perforation, erosion of the great vessels of the neck (carotid artery and internal jugular vein) and meningoencephalitis [3]. The presence of many lymph nodes in the retropharyngeal space of children under 4 years of age explains the relatively higher incidence of retropharyngeal abscesses in this age group, unlike adults, where infection is rare and most often secondary to trauma [1].

It is important to remind doctors of the symptoms of retropharyngeal abscesses in children and how to diagnose them clinically and radiologically, a nosologically entity that is treatable, but which can be fatal, especially in the case of late diagnosis. The main objective of our work is to draw attention to a serious and potentially fatal condition: a retropharyngeal abscess in a child, suspected of progressing to mediastinitis which, in our context, went unnoticed in multiple initial clinical evaluations. This case clearly illustrates how subtle clinical signs, combined with the variability of the pediatric presentation, can lead to late or incorrect diagnoses, substantially increasing the risk of life-threatening complications.

We fully acknowledge that we do not have the complementary diagnostic tools considered the gold standard, particularly contrast-enhanced computed tomography, essential for the definitive confirmation and classification of mediastinitis. However, the central message we intend to convey is that, even in the absence of advanced technology, timely clinical suspicion, supported by physical examination, basic radiology, and clinical evolution, is crucial for saving lives. In many healthcare settings in low- and middle-income countries, this is a daily reality, and ignoring this limitation would be to disconnect the report from actual clinical practice.

Thus, we deliberately chose to highlight the need for any indication of infectious extension to the mediastinum, even if based on less sensitive methods, to be taken very seriously, leading to immediate and aggressive intervention, as performed in our case. Our central proposal is not to replace the gold standard, but to emphasize that, when it is not available, the approach should prioritize the protection of life with the resources available. The case demonstrates that the approach taken, although technologically limited, was effective, safe, and life-saving, reinforcing the importance of clinical acuity, early recognition of signs of severity, and prompt surgical intervention, even without advanced imaging confirmation.

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