CASE REPORT

Retropharyngeal abscess complicating 'innocent' foreign body ingestion

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SUMMARY

An adult patient presented to the emergency department with pharyngeal discomfort on swallowing, persisting several hours after lunch. Transnasal fibre-optic endoscopy performed by an otolaryngologist identified a hypopharyngeal foreign body, and the stalk of a dry leaf partially penetrating the mucosa was easily removed under general anaesthesia. Symptoms regressed completely and the patient was discharged. Two days later he presented again, reporting slight dysphagia without odynophagia or other associated symptoms. Meticulous physical examination by the same otolaryngologist revealed this time a slight asymmetry of the posterior pharyngeal wall. A history of recent pharyngeal trauma and findings on clinical examination raised clinical suspicion of retropharyngeal abscess which was supported by CT scan findings. The diagnosis was confirmed in the operating theatre where a purulent collection was drained under new general anaesthesia.

BACKGROUND

This article describes a didactic case of retropharyngeal abscess (RpA) formation in adult patients, where pharyngeal wall trauma is a leading cause in contrast to pathophysiology in young children where retropharyngeal lymph nodes abscedation is the main cause. RpA is a potentially life-threatening complication of a deep neck infection and early diagnosis and treatment are crucial for a favourable outcome. In our patient symptoms were mild, hence a high index of clinical suspicion and thorough clinical examination were essential for prompt management. Moreover, the question of 'prophylactic' antibiotic treatment in cases of even minor penetrating trauma of the posterior pharyngeal wall arises.

CASE PRESENTATION

An otherwise healthy 40-year-old male patient presented to the emergency department with sudden onset, persisting pharyngeal stinging discomfort, which appeared during lunch 6 h earlier. Fibre-optic transnasal endoscopy performed by the on-call otolaryngologist revealed a toothpick-like foreign object extending from the posterior left to the lateral right wall of the hypopharynx, just above the level of the arytenoid cartilages. It was removed under general anaesthesia, using a Macintosh-blade laryngoscope and long forceps and consisted of a dry, 3.5 cm-long leaf stalk with small lateral spikes (figure 1). Extraction was easy and uneventful and was followed by careful examination revealing a paramedian left punctiform

mucosal lesion on the posterior pharyngeal wall, precisely at the site of contact of the tip of the small branch with the mucosa. The size of the lesion was insignificant, the small foreign body seemed 'intact' after removal and no antibiotic treatment was prescribed. Pharyngeal discomfort resolved and the patient was discharged a few hours later.

After a 24 h free-of-symptoms interval, he presented again due to newly settled slight dysphagia without odynophagia or foreign body sensation. He was afebrile, could eat and drink with no effort, there was no voice alteration and the overall condition was excellent.

INVESTIGATIONS

Careful clinical examination by the same otolaryngologist, 36 h after the initial extraction of the foreign body, revealed a moderate bulging of the left half of the posterior pharyngeal wall at the junction of the oropharynx and hypopharynx. The rest of the physical examination was unremarkable. Leucocyte count was 12.8 G/L and C reactive protein (CRP) concentration was 81 mg/L. The patient was admitted for treatment with intravenous coamoxicillin and for observation. Painkillers and anti-inflammatory drugs were avoided.

The following morning, 3 days after the foreign body ingestion, the patient was totally asymptomatic, CRP remained stable and leucocyte count returned to normal (8.8 G/L) while the posterior pharyngeal wall bulging persisted. It was decided to complete the workup with a contrast-enhanced neck CT which revealed significant thickening of the posterior pharyngeal wall, a hypodense area measuring 30×15×20 mm containing an air bubble and a contrast enhancement of the left

Figure 1 Picture of the foreign body, 3 days after being removed.

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Figure 2 CT scan revealing a hypodense area measuring 30×15×20 mm (containing an air bubble) and a posterior pharyngeal wall thickening extending down to the level of the 5th–6th cervical vertebra; (A) axial cut (compare with figure 3) and (B) reconstruction on a paramedian left sagittal plane (compare with figure 4).

retropharyngeal space extending down to the level of the fourth cervical vertebra (figure 2A, B).

DIAGNOSIS AND TREATMENT

Diagnosis of retropharyngeal abscess was retained and confirmed in the operating theatre under general anaesthesia. The initially punctiform lesion had evolved to an aphthous-like erosion of the mucosa covering the bulging and measuring 2–3 mm. Transoral surgical drainage was achieved with a vertical incision on the posterior pharyngeal wall; a moderate quantity of pus was drained, material was sent for bacterial culture and the cavity was widely opened and rinsed.

OUTCOME AND FOLLOW-UP

In the postoperative period the patient remained completely asymptomatic and was discharged 48 h after surgery with oral coamoxicillin for eight more days. *Streptococcus pyogenes* sensitive to coamoxicillin was detected in bacterial culture.

A week later the patient was doing fine and clinical examination was unremarkable.

DISCUSSION

RpA is a purulent collection in the retropharyngeal space (RS), situated between the buccopharyngeal and the alar fascia. RS is partially divided on the sagittal plane in a left and a right compartment, by an incomplete longitudinal fusion of the two fascias along the midline and extends inferiorly as far as the first 2–3 thoracic vertebral bodies and the level of the tracheal bifurcation (figures 3 and 4). Posterior to the RS lies the so-called 'danger' and prevertebral space, which extend inferiorly to the level of the diaphragm and the coccyx, respectively.¹

RpA is more frequent in young children, arising in most cases during the course of an upper respiratory tract infection with abscedation of retropharyngeal lymph nodes.^{2 3} These lymph nodes naturally regress with ageing and pathophysiology in adults is different; in most cases there is history of posterior pharyngeal wall injury, often iatrogenous or following foreign body ingestion.^{2 3} Presentation may be noisy with fever, severe

throat pain, dysphagia, drooling, voice alteration, dyspnoea, snoring, neck pain or some degree of nuchal rigidity.^{2 3 4} Locally advanced cases may threaten the airway and the infection may spread inferiorly (danger space) involving the mediastinum.¹ Data on microbiology of RpA are more readily available for children; they reveal a major role of anaerobic bacteria (*Bacteroides*, *Peptostreptococcus*, *Fusobacterium*) and the presence of mixed isolates of aerobic–anaerobic species in most cases.⁵ The most frequent aerobic species involved are

Figure 3 Axial cut at the level of the oropharynx, illustrating fascias and deep neck spaces; pharyngobasilar fascia (phb), superior pharyngeal constrictor muscle (spc), buccopharyngeal f (bph), alar f (al), prevertebral f (pv), retropharyngeal space (RS), danger space (DS), prevertebral space (PS).

Figure 4 Median sagittal cut demonstrating the lower extension of the neck spaces; retropharyngeal space (RS), danger space (DS), prevertebral space (PS).

streptococci, *Staphylococcus aureus* and *Haemophilus* spp. while less frequent cases of mycobacterial⁶ or fungal⁷ involvement have also been reported. Imaging with CT scan or MRI determines the extension of the infection^{2,3} and to some degree may differentiate inflammation from abscess.

In our case, a minor mucosal trauma allowed a theoretically 'innocent' foreign body to inoculate *S. pyogenes* in the RS. Interestingly, almost all typical symptoms were absent and symptoms regressed after only two doses of intravenous antibiotics despite the persistence of posterior wall asymmetry. Laboratory was not helpful and high clinical suspicion, arising from history and clinical examination was crucial in establishing the diagnosis.

There is no way to predict if prescription of antibiotics after the foreign body's extraction would have prevented the abscess

formation but it is certainly an option to consider in such cases. In literature, there are several reports for favourable outcome of conservative management of paediatric patients with deep neck space abscesses when treated with intravenous antibiotics without drainage.⁸ Nevertheless, early surgical drainage in combination with antibiotics remains the mainstay treatment in most cases. In our patient's case, transoral approach was a simple and safe procedure yielding material for bacterial culture and offering the best chances for rapid and uneventful recovery, avoiding at the same time any visible scarring.

Learning points

- ▶ Retropharyngeal abscess (RpA) in adult patients is often associated with posterior pharyngeal wall trauma.
- ▶ The risk of RpA should be considered in cases where removal of a pharyngeal foreign body with potential penetration of the posterior wall mucosa is not followed by rapid and complete regression of all symptoms and signs.
- ▶ Prescription of antibiotics should be considered in cases of penetrating trauma of the posterior pharyngeal wall, even if this appears to be minor.

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