Case Report

# A Hidden Timebomb: Unusual Presentation of Retropharyngeal Abscess in Adult

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## Abstract

Retropharyngeal abscess (RPA) is a deep neck tissue infection. It is an uncommon but potentially life-threatening diagnosis due to its anatomical location. RPA occurs more commonly in children due to the abundance of retropharyngeal lymph nodes. In adults, RPAs are rare and can occur as a result of local trauma, such as foreign body ingestion (fishbone) or instrumental procedures (laryngoscopy, nasogastric tube placement, and endotracheal intubation). We described a case of an unusual presentation of RPA in a morbidly obese adult without a history of local trauma. This report highlights the importance of considering RPA for atypical presentations and the value of lateral neck radiographs in primary settings and emergency departments.

keywords: *Retropharyngeal abscess, adult, morbidly obese.*

## BACKGROUND

Retropharyngeal abscess (RPA) in morbidly obese adults is a rare but significant medical concern. Although RPAs are more commonly observed in children, they can also occur in adults, especially in individuals with certain risk factors, including obesity.[1] The symptoms of RPA in morbidly obese adults are similar to those in other populations and may include severe sore throat, difficulty swallowing, fever, neck stiffness, and swelling in the neck.[2]

Diagnosing an RPA in morbidly obese adults may be complicated by the challenges associated with examining and imaging the neck region in these patients. Special considerations may be necessary during physical examinations and imaging studies to ensure accurate diagnosis and appropriate treatment.

## CASE PRESENTATION

A 30-year-old lady presented with complaints of headaches, odynophagia for the past 1 week, and pain on the left side of her neck for the past 5 days. She denied having any local trauma to her throat or any history of foreign body ingestion. She had previously visited a community clinic, and she was treated for an upper respiratory tract infection. She was prescribed a course of amoxicillin for her diagnosis. After 3 days on antibiotics, she returned to the community clinic due to unresolving yet worsening neck pain. She was then referred to the Emergency Department with suspicion of cervical spondylosis.

On examination, the patient appeared non-septic and afebrile. Her weight was 125kg, and her height was 165cm, resulting in a BMI of 45.9 kg/m$^2$. Neck examination revealed no swelling or any skin changes, although there was tension in the left sternocleidomastoid muscle, which was tender upon palpation. The oral cavity was poorly visualized due to trismus. There was no cervical lymphadenopathy, and other systemic examinations were unremarkable. Full blood counts revealed leucocytosis of 15.2 x 10$^5$ /L. Her random blood glucose level was 12.7 mmol/L. Other blood parameters were within the normal range.

Her lateral neck radiograph revealed widening of the prevertebral soft tissue between C2 and C4 (Figure 1). She then underwent CECT of her neck, which revealed an ill-defined peripheral enhancing collection within the retropharyngeal space measuring 2.1 cm x 3.6 cm x 8.5 cm, predominantly on the left side, with superior and inferior extension, up to the level anterior to the clivus and down to the level of C4/C5, causing narrowing of the nasopharyngeal and oropharyngeal lumen, but no evidence of foreign body or bone erosion (Figure 2). She was subsequently admitted to the hospital by an ORL specialist and underwent incision and drainage under general

anaesthesia. Her C&S pus was positive for *Klebsiella pneumoniae*, which was sensitive to amoxicillin-clavulanic acid and cefuroxime. She was then discharged well 1 week postoperatively and completed a 2-week course of amoxicillin-clavulanic acid. During her follow-up 1 month later, she has achieved complete resolution of her symptoms.

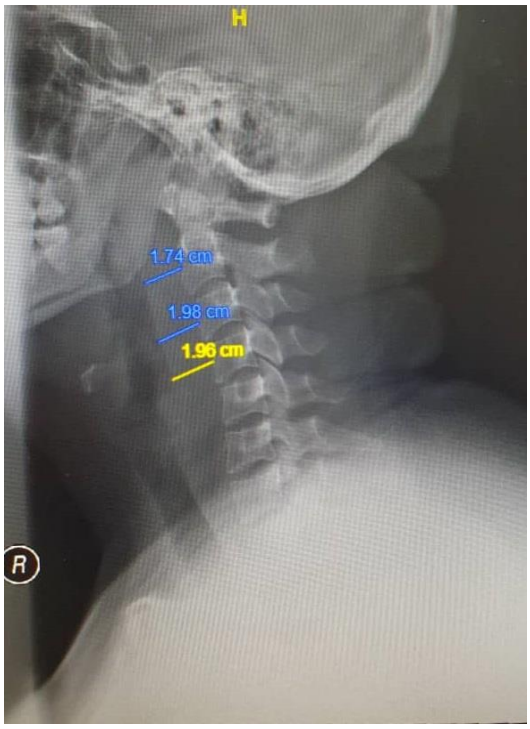


**Figure 1**: Widening of prevertebral soft tissue between C2-C4. Annotations showing the width of the prevertebral soft tissue shadows at the various cervical levels.

**Figure 2**: A CECT image of the neck showing the presence of an ill-defined peripheral enhancing collection (red arrow).

## DISCUSSION

In adults, RPA poses a diagnostic challenge for both primary care and emergency doctors due to its infrequent occurrence and variable presentation. The most common cause in adults is local trauma. The most common symptoms in adults are sore throat, fever, dysphagia, odynophagia, neck pain, and dyspnoea. The most common positive physical examination findings are posterior pharyngeal oedema, nuchal rigidity, cervical adenopathy, drooling, and stridor.[3]

This case underscores the importance of considering RPA in the differential diagnosis of patients who present with acute oropharyngeal symptoms, even in adults without a history of local trauma. The presentation of RPA can be atypical and may overlap with that of other common upper respiratory tract infections, making early diagnosis challenging. Therefore, maintaining a high index of suspicion, conducting a thorough clinical evaluation, and utilizing appropriate imaging are crucial for achieving accurate and timely diagnosis.

In our case, the lack of a common physical presentation and the limited oral view further complicated the diagnosis of an RPA. However, it is essential to remember that the absence of any positive physical findings does not rule out the possibility of an RPA.

Widening of the prevertebral soft tissue shadow from radiographic imaging is considered diagnostic of an RPA. While CT scan of the neck is the gold standard for diagnosing RPA, lateral neck radiographs are the imaging study of choice for the initial evaluation of any suspected case. In addition to being less costly and readily available in primary care settings, it also offers the benefit of lower radiation exposure and is better tolerated by patients with signs of airway compromise.[2, 4, 5, 6]

In lateral neck radiographs, the prevertebral soft tissue shadow is typically compared to its normal upper limit, as reported in various previous studies. In adults, the normal upper limit of the prevertebral space is 7 mm at C2 and 22 mm at C6. Another common technique used to assess the prevertebral soft tissue shadow is by using the ratio of the prevertebral soft tissue to the vertebral width. Specifically, the width of the prevertebral soft tissue shadow should be 1/3 of the width of the adjacent vertebral body at C2 to C4, while it should be equal to that of the adjacent vertebral body below C4.[7, 8]

A case study conducted by Patel et al. in 2013 demonstrated that there was no significant difference between the two methods, and both approaches had low sensitivity yet high specificity, making them suitable for initial diagnostic imaging in patients suspected of having an RPA.[8]

As clinicians, timely recognition and appropriate management of RPA can significantly impact patient outcomes and avert potentially life-threatening complications. Continued research and clinical awareness are essential for improving the diagnosis and management of RPA in both paediatric and adult populations.

## CONCLUSION

Retropharyngeal abscesses are rare in adults, and they can lead to serious life-threatening conditions. The diagnosis of a retropharyngeal abscess is based on both clinical and radiological examinations, and it can be challenging, especially when normal clinical findings are absent. Obtaining lateral neck radiographs are essential to aid in its diagnosis.

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Wang WC acquired all the data, analysed the data and drafted the manuscript. Soo KF participated in providing important content and helped to draft the manuscript. Fauzi MH provided important content and revised the manuscript. All the authors have read and approved the final manuscript.

## CONFLICT OF INTEREST

The authors declare that they have no conflicts of interests and do not receive any financial support.

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### What is new in this case report compared to the previous literature?

- The physical appearance of a morbidly obese patient may obscure physical findings that are normally present in retropharyngeal abscess patients.
- The absence of positive physical findings does not exclude the diagnosis of a retropharyngeal abscess.
- Red flags for retropharyngeal abscess can help raise suspicion of retropharyngeal abscess.
- Lateral neck radiographs play a vital role in aiding diagnosis despite their limitations.
- Simple lateral neck radiographs, which are easily available in primary settings and emergency departments, could provide useful information to aid in obtaining a difficult diagnosis

### What is the implication to patients?

Patients can benefit significantly from this case report through a better understanding of the potential severity and challenges associated with retropharyngeal abscesses. Timely recognition of atypical presentations and the role of lateral neck radiographs can lead to more effective diagnosis and management in primary settings and emergency departments, thus reducing the risk of life-threatening complications.

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