

CASE REPORT

Deadly Retropharyngeal Abscess With Concurrent COVID-19 Infection: A Case Report

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ABSTRACT

Retropharyngeal abscess is life-threatening with potential airway emergency. A 53-year-old lady with diabetes mellitus presented with diffuse painful neck swelling for a week and difficulty in breathing with stridor. Video laryngoscopy done in operating theatre showed edematous laryngeal inlets with bulging posterior pharyngeal wall. Patient was tested positive for COVID-19 infection. The management was taken with high precautions, careful planning with unconventional and multidisciplinary approach. Management included airway protection, antibiotic, surgical drainage and correction of hyperglycaemia besides the compliance to COVID-19 SOP. Prognosis is good if identified early, managed aggressively and complications are avoided albeit the comorbidity and COVID-19 infective status. *Malaysian Journal of Medicine and Health Sciences* (2023) 19(SUPP19):19-21. doi:10.47836/mjmhs.19.s19.5

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INTRODUCTION

Retropharyngeal abscesses are uncommon but potentially life-threatening. They are most commonly found in children under the age of five. Without proper management, it can fatally compromise the upper airway. A concomitant Coronavirus disease 2019 (COVID-19) infection may occur which poses a threat not only to the patient but to the healthcare providers as well.

CASE REPORT

A 53-year-old Indonesian lady with diabetes mellitus presented with one week history of painful neck swelling. She initially had been experiencing sore throat and fever for one week, which progressed to dysphagia, odynophagia, and hoarseness along with gradually enlarging neck swelling. Subsequently, she had difficulty in breathing for 2 days. Initially, the swelling was a peanut-size mass over the right neck which progressively enlarged within a week. No history of toothache, foreign body ingestion, ear pain or neck trauma. She denied any sick contact, including tuberculosis (TB) or COVID-19

contact.

Upon presentation at the Emergency Department (ED), she was dehydrated, dyspnoeic with stridor, and muffled voice. She was also febrile, tachycardic and tachypnoeic but otherwise normotensive with SpO₂ at 98% on high flow mask. Her neck was diffusely swollen, tender, firm, with limited range of movement (Fig. 1). She had trismus and drooling of saliva. The oropharynx was inflamed, bulged with injected tonsils but no exudate. The floor of mouth was not inflamed and the tongue was in normal position. Other intraoral and other physical examinations were unremarkable. A lateral neck radiograph was done at ED and subsequently referred to the Otorhinolaryngology (ORL) team.

She was treated as severe acute respiratory infection by multidiscipline teams; Anesthesiology, ORL, and Emergency Medicine. Although her main complaint was neck swelling, all healthcare personnel donned full personal protective equipment (PPE) as precaution for COVID-19. Nasopharyngeal swab for COVID-19 Rapid Test Kit (RTK-Ag) was performed prior to aerosol generating procedure (AGP), as per COVID-19 protocol, which turned out to be positive.

She was brought to the operating theatre (OT) for airway assessment and endotracheal intubation as difficult intubation was anticipated. Tracheostomy was planned in case intubation failed. Video laryngoscopy



Figure 1: Diffusely swollen neck especially at submandibular and submental region bilaterally

by the anaesthetist in full PPE and Powered Air Purifying Respirator (PAPR) revealed oedematous epiglottis, bilateral vocal cords, and arytenoids. Posterior pharyngeal wall bulged anteriorly with pooling of saliva at the hypopharynx. No pus discharge was seen and she was successfully intubated.

Her blood parameters showed leucocytosis of $18 \times 10^9/L$ (reference interval (RI), $4.0-11.0 \times 10^9/L$) with neutrophil predominance and C-reactive protein (CRP) of 80 mg/L (RI, < 8.0 mg/L). She had acute kidney injury secondary to dehydration with urea of 13 mmol/L (RI, 3.5-7.2 mmol/L) and creatinine of 126 micromol/L (RI, 52-92 micromoles/L). Arterial blood gas showed metabolic acidosis; pH 7.21, bicarbonate 4.8 mmol/L (RI, 22-26), and lactate 1.8 mmol/L (RI, < 2 mmol/L). Random blood sugar level was high and urine ketone was present. Sodium and potassium were normal. Chest radiograph was normal. Lateral neck radiograph and an urgent computed tomography (CT) scan of neck was done (Fig. 2 & 3).

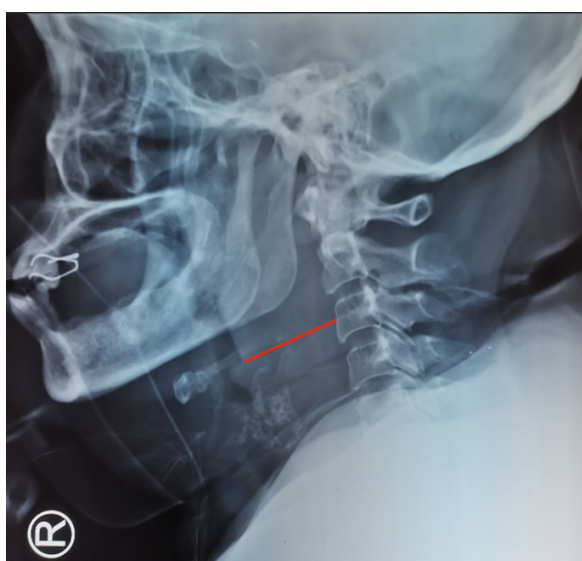


Figure 2: Lateral neck radiograph showed prevertebral soft tissue thickening (red marking) with loss of cervical lordosis

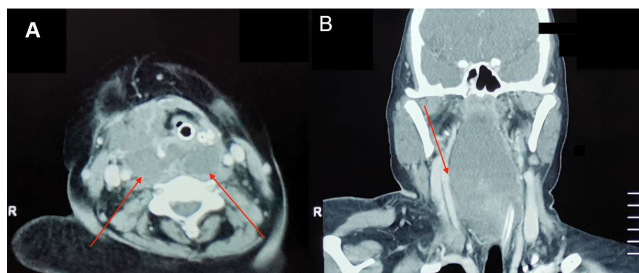


Figure 3: (A) Computed tomography scan of an axial section of the neck showing a large rim enhancing collection (red arrows) centred at the retropharyngeal space measuring 4 x 6 x 13 cm

The patient was diagnosed with acute retropharyngeal abscess, concurrent category 2 COVID-19 infection, acute renal failure and metabolic acidosis secondary to diabetic ketoacidosis.

She was admitted to the intensive care unit. Intravenous (IV) Amoxicillin/clavulanic acid 1.2g TDS and tab Faviparivir for 6 days were commenced. Blood sugar level, acid-base balance and hydration were optimised. After 4 days stabilized in ICU, neck exploration and drainage of the retropharyngeal abscess was done via transcervical approach in a designated OT for COVID-19 cases; where all healthcare staff donned full PPE with PAPR. A total of 25cc of pus collection was drained. The pus culture was positive for *Klebsiella pneumoniae* and negative for TB. The patient's condition improved tremendously. She was extubated a day after operation and transferred to the general COVID-19 ward. After achieving good diabetic control and completed COVID-19 treatment, the patient was discharged well.

DISCUSSION

Retropharyngeal abscess is a life-threatening emergency with potential for airway compromise and other catastrophic complications, therefore timely identification and treatment is crucial. They are uncommon in adults and usually occur in immunocompromised patients or as a foreign body complication. In this case, the likely aetiology was pharyngeal infection. Patients usually presents with non-specific and variable symptoms such as sore throat, fever, neck pain, and dyspnoea. The diagnosis is supported by radiological investigations which includes lateral neck radiograph, ultrasound, computed tomography (CT) or magnetic resonance imaging of the neck (1). In this case where the patient presents with stridor and impending airway collapse, performing a lateral neck soft tissue radiography during the first encounter is actually unnecessary as it delays securing the airway. CT scan helps greatly in diagnosing and viewing the extension of disease. Besides stabilization of comorbidity, high dose broad-spectrum antibiotics should be administered empirically and parenterally (2). The management of retropharyngeal abscesses in a patient with COVID-19 should adhere

to COVID-19 standard operation procedures (SOP) to prevent viral transmission and ensure healthcare workers' safety.

For the best outcome, surgical drainage is done (2). Transoral aspiration or image-guided percutaneous drainage is recommended for small collection (3). Larger abscesses require incision and drainage via transoral and/or transcervical approach. In this case, transcervical drainage was achieved by a transverse cervical skin incision, raising the flaps, retracting and dissecting the neck muscles and vital structures in layers up to the hypopharynx to open the retropharyngeal space and drained the abscess. The mortality rate of retropharyngeal abscess is up to 2.6%, which increases with airway obstruction, mediastinitis, aspiration pneumonia, epidural abscess, jugular venous thrombosis, necrotizing fasciitis, sepsis, and carotid artery erosion (4). Whereas the mortality rate of COVID-19 is estimated to be 5.6% for China and 15.2% outside of China, which increases with the presence of co-morbidities and in immunocompromised patients (5). However, early identification, aggressive management and absence of complications will lead to good prognosis.

CONCLUSION

Retropharyngeal abscesses are uncommon but usually occur in immunocompromised individuals following pharyngeal infection or as a complication of foreign body ingestion. Timely identification and treatment is crucial to avoid fatal airway complications. Although the patient's main complaint was painful neck swelling, thorough assessment should be done to avoid COVID-19 transmission. Compliance to COVID-19 SOP and donning full PPE is mandatory, especially prior to AGPs. There is scarce data on the various sequelae of COVID-19 infection, including pathogenesis and

prevalence of abscess formation, which needs to be explored.

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