Case Report

Management of retropharyngeal abscess in adult patient

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ABSTRACT

Background: Retropharyngeal abscess is an infection of the inner neck that mostly occurs in the pediatric population, although they can also arise in adults. While numerous resources discuss the diagnosis, treatment, and complications of retropharyngeal abscess in children, there is a scarcity of information available concerning its manifestation in adults. **Purpose**: To study the disease course, and management of retropharyngeal abscess in adults. **Case report:** A 41-year-old female patient came with chief complaints of difficulty of swallowing, snoring while sleeping, shortness of breath, and weight loss. These complaints had been going on for about 3 months. **Clinical question:** What is the management and overall disease course of retropharyngeal abscess in adult? **Method:** The literature search was conducted through Google Scholar, PubMed, and manual searches of e-books. **Result**: Thirteen articles concerning retropharyngeal abscess were found, but only 4 literatures were relevant to clinical question and inclusion criteria. **Conclusion:** Retropharyngeal abscess may present with a variety of symptoms. Management for retropharyngeal abscess in adult patient includes abscess incision and drainage, along with medication administration.

Keywords: retropharyngeal abscess, adult, management

ABSTRAK

Latar belakang: *Abses retrofaring merupakan infeksi leher bagian dalam yang paling banyak terjadi pada populasi anak, meskipun dapat juga terjadi pada orang dewasa. Meskipun banyak literatur yang membahas diagnosis, pengobatan, dan komplikasi abses retrofaring pada anak-anak, namun terdapat kelangkaan informasi yang tersedia mengenai manifestasinya pada orang dewasa.* ***Tujuan:*** *Untuk membahas perjalanan penyakit dan penatalaksanaan abses retrofaring pada orang dewasa.* ***Laporan kasus:*** *Seorang pasien wanita berusia 41 tahun datang dengan keluhan utama kesulitan menelan, mendengkur saat tidur, sesak napas, dan penurunan berat badan. Keluhan ini sudah berlangsung kurang lebih 3 bulan.* ***Pertanyaan klinis:*** *Bagaimana penatalaksanaan dan perjalanan penyakit abses retrofaring secara keseluruhan pada orang dewasa?* ***Metode:*** *Pencarian literatur dilakukan melalui* Google Scholar, PubMed*, dan pencarian manual* e-book*.* ***Hasil:*** *Ditemukan 13 artikel mengenai abses retrofaring, namun hanya 4 literatur yang relevan dengan pertanyaan klinis dan kriteria inklusi.* ***Kesimpulan:*** *Abses retrofaring dapat muncul dengan berbagai gejala. Penatalaksanaan abses retrofaring pada pasien dewasa adalah insisi dan drainase abses, beserta terapi medikamentosa.*

Kata kunci: *abses retrofaring, dewasa, penatalaksanaan*

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INTRODUCTION

Retropharyngeal abscess (RA) is an infection of the inner neck that mostly occurs in the pediatric population. Although rare in adults, this condition can be dangerous and life-threatening if not diagnosed and treated promptly, leading to airway obstruction and asphyxia. It is an infection that can rapidly escalate into significant problems, as it has the potential to spread to the brain or mediastinum.[1,2] Based on the national databases, there had been a significant increase in the incidence of RA from 2000 to 2012.[1] RA tend to be more common in children, especially those under 5 years old, although they can also occur in adults. One retrospective study in Eastern India conducted from 2016 to 2021, conveyed 132 adult patients with deep neck abscesses, within the range of 18 years to 54 years. This study showed male-to-female incidence ratio of 1.64:1. The most common deep neck abscess were peritonsillar abscess (28.78%), followed by parapharyngeal abscess (21.96%), and retropharyngeal abscess (15.90%).[3]

In physical examination, the oropharyngeal part of patients with suspected RA should be thoroughly examined by palpation, or examination by an experienced physician in emergency airway management. Abscess rupture could occur during posterior pharyngeal examination, leading to aspiration and potential respiratory distress. It is advisable to perform this examination with the patient in the Trendelenburg position to prevent aspiration if abscess rupture occurs, and suction equipment should be available.[3,4] Clinical findings in throat examination may include protrusion in the posterior pharyngeal wall, which is fluctuant upon palpation. Stridor and retractions may also be observed as signs of upper airway obstruction. Fever and cervical lymphadenopathy may occur.[4]

Symptoms that may appear in patients with RA include low-grade fever, dysphagia, odynophagia, decreased oral intake, neck stiffness, changes in vocal quality, respiratory distress, neck swelling, and trismus. Chest pain is found in patients with spread to the mediastinum.[5,6] Additionally, patients with reported chest pain should undergo chest X-rays to investigate mediastinal involvement. Contrast-enhanced CT scans of the neck are the most definitive imaging modality for evaluating patients with RA. The sensitivity of CT scans to detect RA varied in the literature from 64% to 100%.[5]

Trauma to the posterior pharynx resulting in retropharyngeal infection, and subsequent abscess formation is typically the etiology of RA, in both adults and children. One-quarter of RA were caused by trauma to the posterior pharynx. This trauma could be caused by foreign body ingestion or the presence of retropharyngeal tumor, facilitating the entry of bacteria into the retropharyngeal space and subsequent abscess formation.[7] The most common bacteria associated with RA include *Streptococcus pyogenes* (Group A Streptococcus/GAS), *Staphylococcus aureus* (including MRSA), and respiratory anaerobes (*Fusobacteria, Prevotella*, and *Veillonella* species).[8]

Complete blood count usually shows leucocytosis, often with a left shift, and chemistry testing may reveal evidence of dehydration if the patient's fluid intake is poor due to painful swallowing. Blood cultures should be obtained if the patient is septic, and cultures should be obtained from purulent secretions in the affected area. Soft tissue lateral neck X-rays of retropharyngeal abscesses typically show retropharyngeal space widening of more than 7 mm in children and adults, and retrotracheal widening of more than 14 mm in children and more than 22 mm in adults.[8]

As the abscess grows, it can lead to serious complications such as upper airway obstruction, bronchial erosion, sepsis, acute respiratory distress syndrome (ARDS), cranial nerve palsies, esophageal perforation,

and erosion into vital structures like the carotid artery or jugular vein.[8] One case report presented mediastinitis as complication of abscess rupture in adults. Mediastinitis, which is inflammation of the tissues in the mid-chest region, can indeed occur if the abscess ruptures and spreads into the mediastinum. Furthermore, if the infection spreads, it can lead to complications such as meningoencephalitis, further highlighting the importance of prompt diagnosis and treatment.[9] Hospitalization for immediate intravenous antibiotics and surgical incision and drainage are the hallmark for effective outcome.[10]

While numerous resources discuss the diagnosis, treatment, and complications of RA in children, there is a scarcity of information available concerning its manifestation in adults. Decompensation of retropharyngeal abscesses can lead to airway obstruction, pericarditis, mediastinitis, septic embolization, thoracic empyema, dural sinus thrombosis, intracranial abscesses, septic shock, and death.[11] Therefore, it is important to establish an accurate diagnosis, recognize emergencies, and provide early intervention for RA in adult population.

This case report was presented to discuss the disease course, and management of retropharyngeal abscess in adults.

CASE REPORT

A 41-year-old female patient came into the ENT clinic in W.Z. Johannes Kupang Hospital, referred from Atambua Hospital, with chief complaints difficulty of swallowing, snoring while sleeping, shortness of breath, and weight loss. These complaints had been going on for about 3 months, and was described as something stuck while swallowing her food, and felt intensified over time. No pain was felt when swallowing. The complaint felt more burdensome when eating solid foods, and was relieved by drinking warm water. According to the patient, the complaint started with hoarseness after she had been singing during choir duty at the church. Afterwards, she began to snore frequently while sleeping, and started to feel shortness of breath. As a result of her eating difficulty, the patient's weight decreased from 65 kg to 47 kg. She could not remember if there was previously a feeling of fishbone or chicken bone stuck in the throat. Complaints of trismus, fever, cough, nausea, vomiting, double vision, hearing disturbance, and headache were denied.

The patient had history of hypertension, which was regulated by medication. She had already tried to seek treatment at the primary clinic several times and was given medications such as antibiotics, mefenamic acid, and ranitidine, because she was diagnosed with tonsillitis. Then on January 22, 2024, the patient sought treatment again at Atambua General Hospital and was diagnosed with nasopharyngeal tumor, thus referred to W.Z. Johannes General Hospital Kupang. The patient was a housewife who spent her daily life at home. She did not smoke, nor consume alcohol.

During the physical examination, the patient was found to have elevated blood pressure (measuring 150/90 mmHg), while other general condition showed no abnormalities. Examination of the ears and nose revealed normal findings. However, the mucous membrane lining the pharynx appeared smooth, swollen, and red due to inflammation. There was a noticeable protrusion of the pharynx, with narrowing of the palatopharyngeal arch, and the presence of a necrotic tissue. The tonsils displayed normal T1/T1 characteristics, pinkish coloured, and no detritus. Neck swelling predominantly palpable in left upper jugular, mid jugular, lower jugular region. Neck swelling was tense, with normal skin temperature. There was no pain in neck palpation, nor trismus. Laboratory examination was within normal

limits, with normal white blood cell count. Aspiration of the abscess was performed on the second day, and the result of abscess pus culture revealed Staphylococcus bacteria. The procedure was shown in Figure 1.

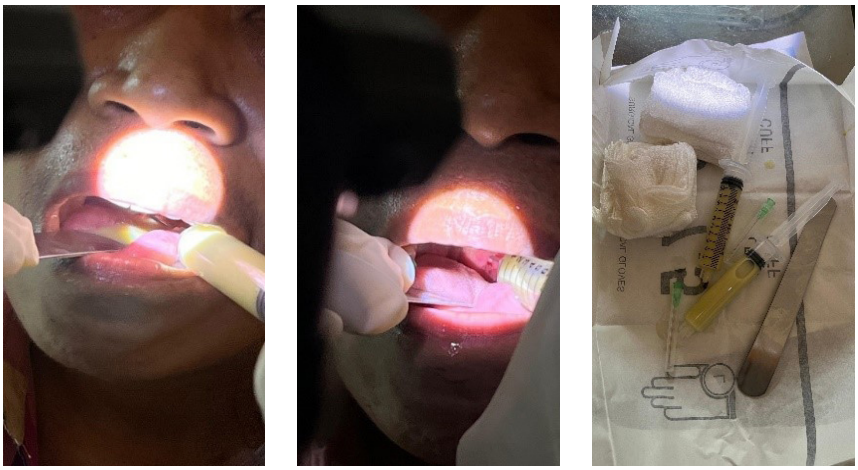

Figure 1. Abscess aspiration

The CT scan result showed some fluid collection with peripheral contrast enhancement in the retropharyngeal space, extending to the bilateral parapharyngeal spaces (predominantly on the left) from C2 to C5, suspecting abscess formation. There was also intralesional calcification fragments approximately 0.2 cm in size. The lesion appeared to cause narrowing of the oropharyngeal lumen, up to the supraglottic larynx, with bilateral cervical lymphadenopathy. The CT scan result could be seen in Figure 2.

Sagittal View **Axial View** **Coronal View**

Figure 2. CT scan examination

The incision and drainage procedure were carried out on the 7th day; and the patient was given IV fluid therapy with Ringer's Lactate at 20 drops per minute, methylprednisolone 125 mg IV once a day, ketorolac 30 mg IV three times a day, ceftriaxone 1 gram IV twice a day, and metronidazole 500 mg IV three times a day. The patient was informed the need for bed rest with Trendelenburg position, and to be cautious when eating fish or chicken to avoid trauma to the posterior pharyngeal wall. Patient showed major symptoms improvement, and was discharged on 12th postoperative day.

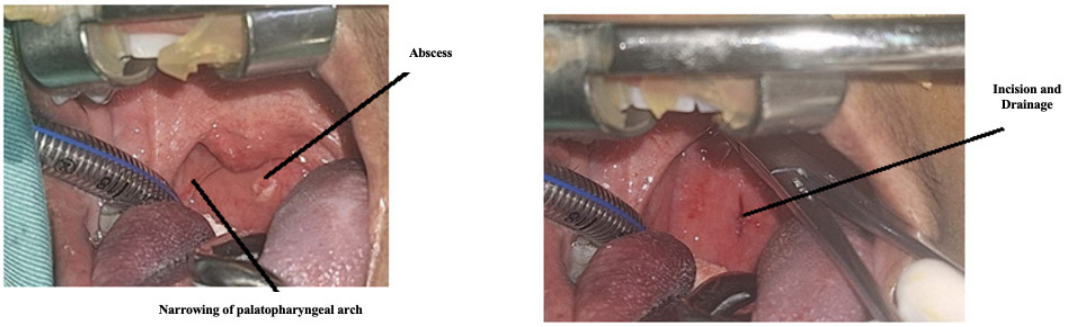

Figure 3. Abscess incision and drainage.

CLINICAL QUESTION

Based on the case report presented, the clinical question formed was: "In adult patients with retropharyngeal abscess, what is the management and overall disease course of retropharyngeal abscess in adult?"
PICO Question:

- Patient : Adult patient with retropharyngeal abscess
- Intervention : Incision and drainage
- Comparison : Conservative treatment
- Outcome : Recovery state

METHOD

The literature search was conducted using the keywords "retropharyngeal abscess," AND "adult", AND "management", AND "incision and drainage", AND "conservative treatment", across various electronic databases such as Google Scholar, PubMed, and manual searches of e-books. The search was conducted utilizing a combination of keywords and Medical Subject Headings (MeSH) terms, employing a Boolean search system to effectively combine and analyze the terms. The inclusion criteria encompassed: 1) adult patients diagnosed with retropharyngeal abscess; 2) The article published in the last 10 years. The exclusion criteria were: 1) Article not available in full text; 2) Article published more than 10 years; 3) Articles in language other than English.

RESULT

The literature search found 13 articles published from 2015-2024, discussing over retropharyngeal abscess; only 4 literatures were relevant to clinical question and inclusion criteria. Basak et al.[2] reviewed 3 cases of retropharyngeal abscess with various difficulties such as dysphagia, dyspnea, generalized neck swelling. Kar et al.[9] found a case of retropharyngeal abscess with subcutaneous emphysema and mediastinitis. Sari et al.[12] showed a case of retropharyngeal abscess with type 2 diabetes mellitus, dental cavity, and oral candidiasis. Singh et al.[13] conveyed 2 cases of prior fishbone ingestion and severe trismus.

DISCUSSION

Retropharyngeal abscess (RA) is a rare but potentially fatal infection, especially in pediatric patients. RA is the accumulation of pus in one or more potential spaces between the neck fascia, caused by the spread of infection from various sources such as teeth, oral cavity, throat, paranasal sinuses, middle ear, and neck, that mostly occurs in the pediatric population. Personal medical histories in adult patients most often related to alcoholism, diabetes, smoking, and obesity.[1,2] Classic retropharyngeal abscess is a secondary infection of respiratory tract infections, particularly oropharyngeal

infections, while in adults, it is usually due to secondary infections resulting from trauma, foreign bodies, or complications of dental infections.[3,4]

Causes of retropharyngeal abscess in adults include trauma to the posterior pharyngeal wall by foreign bodies such as fish or chicken bones, as well as medical procedures such as adenoidectomy, endotracheal intubation, and endoscopy. Other risk factors for infection in the retropharyngeal space include tuberculosis, diabetes mellitus, and immunocompromised conditions.[2,3]

Although retropharyngeal abscesses are more commonly seen in children, recent researches indicated a significant decrease in their frequency within this demographic over the past few decades. One study in Eastern India conducted from 2016 to 2021, conveyed 132 adult patients with deep neck abscesses within the range of 18 years to 54 years. This study showed male-to-female incidence ratio of 1.64:1. The most common deep neck abscess were peritonsillar abscess (28.78%), followed by parapharyngeal abscess (21.96%), retropharyngeal abscess (15.90%).[3]

According to the symptomatology of retropharyngeal abscess, symptoms may include difficulty swallowing and pain. Breathing difficulties may also arise due to airway obstruction, and if the process affects the larynx, stridor may occur, leading to changes in voice quality known as 'hot potato voice'. Patients may also experience fever, stiff neck, and pain.

Examination may reveal a unilateral lump or fluctuant protrusion in the posterior pharyngeal wall, swollen and reddened mucosa. Stridor and retractions may also be observed as signs of upper airway obstruction. Fever and cervical lymphadenopathy may occur.[4]

In this case report, a 41-year-old woman was diagnosed with retropharyngeal abscess. Based on the medical history, the patient presented with difficulty of swallowing for the past 3 months. The complaint was described as a sensation of obstruction during swallowing, progressively worsening, without associated pain. Swallowing difficulty was particularly noticeable with solid foods, but alleviated by drinking warm water. The patient also experienced frequent snoring during sleep, breathlessness, accompanied by weight loss.

The patient reported symptoms began with hoarseness after singing during choir practice at church. There was no history of trauma, foreign bodies ingestion such as fishbone or chickenbone stuck in the throat, or dental infection.

Physical examination revealed a reddish-pink pharynx with edema, which appeared to be pushed forward. The patient also showed a difficulty of breathing, and exhibited stridor.

In this case, diagnostic tests included a complete blood count, contrast-enhanced CT scan of the head and neck, and pus culture after abscess aspiration. There was no increase in white blood cells, that could be due to the chronicity of the disorder. The CT scan results revealed fluid accumulation in the retropharyngeal space, extending to the bilateral parapharyngeal spaces (predominantly on the left) at the level of C2-C5, suspecting abscess formation, along with cervical lymphadenopathy.

Patient with a confirmed diagnosis of RA should immediately admitted to the hospital and receive IV antibiotics. Crucial indication for immediate surgical abscess and drainage includes a cross-sectional area greater than 2 cm^2, and symptoms persisting for more than 2 days, causing airway obstruction.[8]

Two studies compared the pus culture of children and adults. In children the most common pathogens were *Staphylococcus* and *Streptococcus* species (60% and 27%). In adults, the role of *Streptococcus* species and anaerobes were significantly greater

(61% and 46%, respectively). In addition, *Staphylococcus aureus* was identified in less than 10% of cases. Anaerobes were also significantly less common in children than in adults (13% vs 45%).[5,7]

Treatment for this patient was immediate abscess incision and drainage, which was performed under local anesthesia in the Emergency Room, yielding approximately 60 cc of pus in the first aspiration. Subsequently, abscess incision and drainage were scheduled in the operating room under general anesthesia, obtaning 55 cc of pus. Afterwards, she was hospitalized, laid down in Trendelenburg position, with medication administration of methylprednisolone 1 x 125 mg IV, ketorolac 3 x 30 mg IV, ceftriaxone 2 x 1 gr IV, and metronidazole 3 x 500 mg IV. Her condition improved and she was discharged on 12th postoperative day.

In conclusion, retropharyngeal abscess in adult may present with a variety of symptoms. The chief complaint of the patient consisted of difficulty of swallowing, which worsened with solid foods, and was relieved by drinking warm water. The patient also experienced frequent snoring during sleep, feeling breathlessness, accompanied by weight loss. Supportive medical procedure such as contrast-enhanced CT scan of the neck, and pus culture from abscess aspiration were performed. Management for retropharyngeal abscess in adult patient includes abscess incision and drainage, along with medication administration.

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