

Two cases of tuberculous retropharyngeal abscess in adults

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Abstract

Retropharyngeal abscess (RPA) is an acute or chronic deep neck tissue infection. Tuberculous RPA is chronic and extremely rare in adults. A 20-year-old female patient visited the local hospital due to cough and sputum. The sputum smear was positive for acid-fast staining, and lung computed tomography (CT) indicated pulmonary tuberculosis (TB). The patient received the standard regimen of isoniazid+rifampicin+pyrazinamide+ethambutol (HRZE) for 6 months. After HRZE, pulmonary symptoms improved, but some pharyngeal discomfort remained. In another case, a 25-year-old male patient was admitted to our hospital because of a mass on the left side of his neck. Lymph node TB was considered after a puncture biopsy. Lung CT showed no obvious abnormality. After HRZE for 5 months, the mass had progressively enlarged. Both patients underwent B-ultrasonography-guided puncture, and Xpert[®] MTB/RIF of the abscess was positive and rifampin-sensitive. Tuberculous RPA was diagnosed and treated with isoniazid+rifampicin (HR) for 12 months. After combination anti-TB therapy and surgical drainage, both patients fully recovered. Tuberculous RPA is rare in adults; because of pharyngeal symptoms or progressive enlargement of a neck mass with anti-TB treatment, clinicians need to suspect tuberculous RPA in adults, which is treated with anti-TB therapy and surgery.

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Keywords

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Introduction

Retropharyngeal abscess (RPA) is an infection of the deep neck tissue that is often acute in children.^{1,2} However, RPA is uncommon in adults, and it is usually chronic. In tuberculosis (TB)-endemic areas, TB is the most common cause in adult chronic RPA. However, this complication is an uncommon presentation of TB. Therefore, tuberculous RPA should be an important consideration whenever there is a patient with a chronic neck mass or symptoms suggesting RPA. We report the cases of two patients with TB who later developed neck symptoms and were diagnosed with tuberculous RPA.

Case presentation

Case 1

A 20-year-old woman was admitted to the Department of TB at Hangzhou Red Cross Hospital on 14 August 2015 with complaints of cough and sputum for 8 months and pharyngeal discomfort for 4 months.

About 8 months before admission, the patient had a cough with white sticky sputum and a fever that fluctuated between 38°C and 39°C, and she received antibiotics at the local hospital. The symptoms improved temporarily, but later recurred. Six months before admission, her sputum smear was positive for acid-fast bacilli. Lung computed tomography (CT) showed scattered patchy nodules in both upper lobes. She was then diagnosed with pulmonary TB and received isoniazid + rifampicin + pyrazinamide + ethambutol (HRZE) for 6 months until admission to our hospital. Her cough and sputum

subsided after 2 months with anti-TB medication. Re-examination of the lung CT showed significant absorption of the two upper pulmonary lesions. Four months before admission, she developed pharyngeal discomfort. During this period, she was evaluated by the outpatient physician at our hospital and continued to receive HRZE. However, there was no significant improvement in pharyngeal discomfort and bilateral alternate nasal congestion. The patient had no chest symptoms at this time. One week before admission, a neck CT at the local hospital suggested that there were space-occupying lesions in the left nasopharynx and oropharynx, so the patient attended our hospital for further treatment.

After admission, a neck magnetic resonance imaging (MRI) showed a fusiform long T1 and long T2 signal shadow in the retropharynx, with the upper edge reaching the nasopharynx and the lower edge reaching the epiglottis. The size was about $32 \times 22 \times 56 \text{ mm}^3$, and the boundary was clear. There was separation inside, and the signal was relatively uniform with visible vascular travelling. An enhanced scan showed that the surrounding ring was enhanced, while there was no obvious enhancement in the interior (Figure 1a). An electronic laryngoscopy indicated an epiglottal abscess. The patient immediately underwent a B-ultrasonography-guided puncture of the RPA. An Xpert[®] MTB/RIF of the abscess was performed, and the results were positive. A rifampin-resistant gene was not detected. Therefore, the patient was diagnosed with tuberculous RPA.

The patient received isoniazid + rifampicin (HR) after admission. On 8 September 2015, the patient underwent incision and drainage

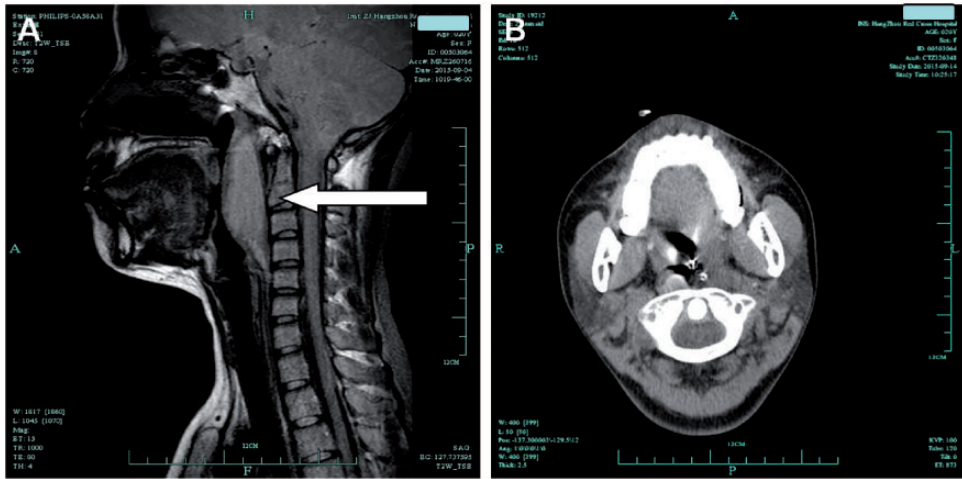


Figure 1. a, Neck MRI shows a fusiform long T1 and T2 signal shadow in the retropharynx with the upper edge reaching the nasopharynx and the lower edge reaching the epiglottis. The purulent lumen of the retropharynx (with arrow). b, Neck CT shows that the RPA was absorbed
CT, computed tomography; MRI, magnetic resonance imaging; RPA, retropharyngeal abscess.

of the TB abscess in the left peripharyngeal and retropharyngeal spaces via the external neck route under general anesthesia. Postoperative pathology indicated chronic suppurative inflammation of fibers and rhabdomytes in the left peripharyngeal and parapharyngeal spaces. Chronic granulomatous inflammation of the left cervical lymph node with necrosis was noted and acid-fast staining (–) was performed. Re-examination using a neck CT on 14 September 2015 suggested that the RPA had been absorbed (Figure 1b). On 21 October 2015, re-examination of the electronic laryngoscope showed that the pus had disappeared. The patient was treated with HR for 12 months. The patient had no symptoms when anti-TB treatment was discontinued. To date, she is considered fully recovered.

Case 2

A 25-year-old male patient was admitted to Hangzhou Red Cross Hospital on 7 October 2014 because of a left neck mass

that had progressively enlarged after 5 months of anti-TB treatment.

It was 5 months before the patient found the left neck mass, which had a diameter of 2 cm without obvious inducement. There were no obvious abnormalities on the lung CT or any respiratory symptoms. He attended the Outpatient Department of Surgery at Hangzhou Red Cross Hospital for a puncture biopsy of the left neck mass. Pathological examination of the mass indicated a large number of lymphocytes and clusters of epithelioid cells in the smear, and lymph node granulomatous lesions were initially considered. These findings were suggestive of lymph node TB. However, after HRZE was administered, the mass progressively enlarged with local skin ulceration and abscess. He was admitted to our hospital for further treatment.

The physical examination results are described below. There was a bulging mass that was $6 \times 5 \times 2 \text{ cm}^3$ in size on the left neck II area with an unclear boundary, mild tenderness, and no redness on the skin surface. There were two visible skin bursts

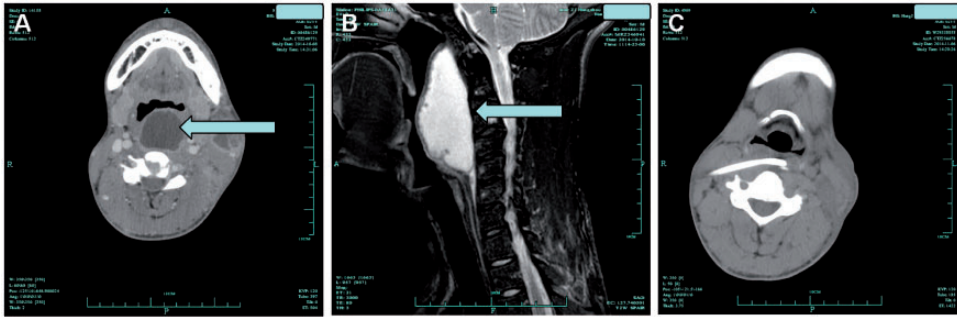


Figure 2. a, Neck enhanced CT shows an abscess in the retropharynx (arrows). b, MRI shows a scan of the cervical spine indicating abnormal signals in the left cervical soft tissues (with arrow). c, Neck-enhanced CT shows that the RPA is not visible
CT, computed tomography; MRI, magnetic resonance imaging; RPA, retropharyngeal abscess.

on the left neck V area with a few light yellow secretions, mild swelling surrounding the tissue, and mild redness on the surface of the skin. There were several enlarged lymph nodes in the right submaxillary neck with a diameter of about 1 cm, a clear boundary, and no sense of fluctuation.

After admission, a neck-enhanced CT indicated RPA and oropharyngeal stenosis (Figure 2a). The electronic laryngoscope indicated mucosal eminence in the left pharyngeal crypt. A cervical spine MRI indicated abnormal signals in cervical 2 and 3 vertebral bodies, vertebral TB with paravertebral abscess formation, and abnormal signals in the left cervical soft tissue (Figure 2b). Lung CT indicated no obvious abnormalities.

The patient received HR after admission. On 15 October 2014, he underwent a B-ultrasound-guided puncture and drainage of the RPA. Results of an Xpert[®] MTB/RIF of the abscess were positive, and a rifampin-resistant gene was not detected. He was diagnosed with tuberculous RPA. On 6 November 2014, re-examination of the neck enhanced CT indicated that the RPA had resolved (Figure 2c). He was treated with HR for 12 months. No abnormalities were observed when anti-TB treatment was discontinued. To date, he is considered fully recovered.

Discussion

RPA is rare and difficult to diagnose in adults. If not treated appropriately in time, RPA can cause sepsis, airway obstruction, mediastinitis, jugular vein thrombosis, carotid artery occlusion, spinal cord infiltration, pericarditis, and pus aspiration, and it can be life-threatening at any time.³ Therefore, clinicians should pay attention to the diagnosis and treatment of RPA in adults regardless of the presence or absence of clinical manifestations and radiologic features.

RPA in adults is mostly chronic, and it occurs mostly in immunocompromised patients.⁴ We report the cases of two adult patients with tuberculous RPA, both of whom developed pharyngeal symptoms or a neck mass after regular anti-TB treatment. Strydom et al.⁵ reported that cavities are the most difficult to treat because the drug concentration often does not reach adequate levels over the course of treatment. The retropharyngeal space lies in the posterior pharyngeal wall between the middle and deep layers of the deep cervical fascia, and it extends from the base of the skull to the mediastinum. Consequently, Prideaux et al.⁶ considered that the anatomic structure of the retropharyngeal space is

very special, and it can result in a lower drug concentration. Moreover, the anti-TB effect is weakened because of immunosuppression in TB patients and an inadequate course of anti-TB treatment.⁷ Therefore, both patients may have developed RPA.

The treatment for tuberculous RPA includes anti-TB chemotherapy and surgical drainage. The standard recommended treatment regimen is 6 months of isoniazid and rifampicin, which is supplemented in the first 2 months with pyrazinamide and ethambutol for pulmonary TB.⁸ For extrapulmonary TB including bone involvement, the recommended duration of anti-TB medication is 9 to 12 months.⁹ If there is a small RPA, intraoral drainage avoids contamination of the tissue planes and a visible scar. However, if there is a large abscess, it is best to treat it using external drainage.^{10,11} The surgical drainage clears the necrotic lesions directly and breaks through the barrier that prevents drug penetration, which improves the drug concentration in the blood at the local lesions.¹² Case 1 was pulmonary TB and case 2 was extrapulmonary TB. The two patients were treated with anti-TB medication, and unblocked abscess drainage was maintained. The duration of anti-TB treatment was 18 months (6 months HRZE in an intensive phase and 12 months HR in a continuous phase) and 17 months (5 months HRZE in an intensive phase and 12 months HR in a continuous phase), respectively. Due to poor absorption in the lesions during HRZE and newly generated RPA, Xpert results of the pus indicated rifampicin sensitivity without evidence of drug resistance. We considered extending the intensive and continuous phase of anti-TB treatment. Both patients have now recovered, and all symptoms have been resolved.

In conclusion, tuberculous RPA is uncommon in adults. Because pharyngeal symptoms or progressive enlargement of

the neck mass may occur after anti-TB treatment, clinicians need to consider the high possibility of tuberculous RPA in adults. Treatment after a confirmed diagnosis is mainly anti-TB treatment combined with surgical treatment to prevent life-threatening disease.

Ethics statement

All patient details have been de-identified, so institutional ethics approval was not required. Both patients provided verbal consent for treatment and publishing of their data.

Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

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Declaration of conflicting interest

The authors declare that there is no conflict of interest.

Author contributions

Xiaofeng Xu was mainly responsible for writing the case report. Xue Hu was mainly responsible for the diagnosis and treatment of the patients.

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