CASE REPORT

Hoarse voice: a rare presentation of tuberculosis lymphadenitis

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SUMMARY

A man aged 37 years from Indian descent presented to an inner city London hospital with hoarseness of voice, fatigue, night sweats and a 2 kg weight loss. Laryngoscopy demonstrated a left vocal fold palsy. Extensive investigations were undertaken with disseminated malignancy being primarily investigated. CT/MRI scanning showed non-specific necrotic mediastinal lymph nodes. Tuberculin skin testing, cytology and PCR were eventually undergone. Tests yielded results consistent with tuberculosis (TB) infection and the patient was started on standard TB treatment protocol, with excellent results. TB infection can result in multiple atypical presentations of disease, including hoarseness of voice secondary to vocal cord paralysis. This is a rare but important presentation for community clinician's to consider, especially in populations where TB is epidemiologically thought to be prevalent.

BACKGROUND

To the author's knowledge, we present the first reported case of tuberculosis (TB) lymphadenitis causing an isolated vocal fold palsy in the UK. This is primarily due to the epidemiology of the condition and the non-specific nature of the symptoms. The diversification of populations within the UK has undoubtedly resulted in the increased diagnosis of TB-related pathology. TB with involvement of the mediastinal lymph nodes is common in developing countries and UK physicians should remain aware of the related presentations in high-risk populations.^{1 2}

CASE PRESENTATION

A man aged 37 years from the Indian subcontinent presented to the ENT department following a 4-month history of hoarseness of voice. The hoarseness was worse at the end of the day, and at times, his voice was uninterpretable. He had been previously seen by his GP and was treated for an upper respiratory tract infection. There was no improvement in his symptoms, and now also admitted to some associated odynophagia and dysphagia. On further questioning, he reported having lost 2 kg in weight and was suffering with intermittent night sweats. He had recently (1 year ago) emigrated from India and was now working in the City of London. He had no relevant family history, no recent unwell contacts and a 1 pack year history of smoking. Clinical examination of the oropharynx and palpation of the neck was unremarkable and revealed no palpable lymphadenopathy. Blood

pressure was 128/89, pulse rate of 90/min, temperature of 37.3 and respiratory rate of 20.

INVESTIGATIONS

Blood testing revealed unremarkable results: Hb was 136 g/L, white cell count was $5.9 \times 10^9/L$, C reactive protein was 3 mg/L, platelet count was $186 \times 10^9/L$ and erythrocytes sedimentation rate was 12 mm/hour. Fibreoptic nasolaryngoscopy revealed a fixed left vocal cord in the paramedian position with no visible overlying macroscopic changes. These findings were consistent with a left vocal fold adductor paralysis and a CT scan of the neck and chest was arranged. The CT of the neck and chest revealed prominent lymph nodes within the mediastinum and prevascular space, besides a necrotic adenopathy within the right paratracheal region (figure 1). A magnetic resonance (MR) scan was sought to help define this further. MRI analysis showed non-specific mediastinal adenopathy and changes typical of that of a vocal fold palsy (figure 2).

Further analysis based largely on the CT/MRI imaging resulted histological testing. Results yielded no malignant cells. Tuberculin skin testing was then undertaken, demonstrating a 23 mm strongly positive reaction. Multiple sputum samples failed to culture acid-fast bacilli (AFB). Microscopic examination of samples obtained from endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) of the mediastinal lymph nodes showed a necrotising granulomatous lymphadenitis. The EBUS sample was tested with PCR detection techniques. This returned positive for *Mycobacterium tuberculosis* (MTB) complex—PCR wild-type. The same sample cultured mycobacterium TB complex.

Figure 1 This image demonstrates a cross-sectional axial image of the vocal folds shown on CT. It displays typical changes of a left vocal fold palsy, including widening of the laryngeal ventricle (a).

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Figure 2 This image demonstrates a cross-sectional axial image of the vocal folds shown on MRI. It displays typical changes of a left vocal fold palsy, including medialisation of the arytenoid cartilage (b) and widening of the pyriform fossa (c).

DIFFERENTIAL DIAGNOSIS

The investigation of this patient was a lengthy process. This was primarily due to the fact that the clinical history and the association of TB with primary presenting symptom (hoarseness) was atypical. During the early stages of the diagnostic work-up, initial differentials were thought to be a lymphoproliferative disorder or a disseminated malignancy with an unknown primary.

TREATMENT

Multidrug antituberculous treatment was started in line with the local TB guidelines (with rifinax 300 OD, ethambutol 1 g OD and pyrazinamide 1.5 g OD) for 12 weeks. The patient responded well to treatment with minimal side effects of the antitubercular medication.

OUTCOME AND FOLLOW-UP

After 4 months from initial presentation, the patient had progressed well. He had not suffered any further night sweats and had been maintaining his weight. For him, improvement in his voice was the most notable change due to the effect it had on his work and quality of life. Follow-up in the infectious diseases and ENT clinic revealed the patient to be phonating clearly and reporting his voice was 'almost back to normal'.

Functionality of the cord had also markedly improved.

DISCUSSION

There are only five similar cases published in the literature.¹⁻⁵ All five of these reported cases have occurred in Asia and the Middle East and hoarseness of voice was the initial presenting symptom in four. From our limited knowledge of this condition, we can only draw restricted conclusions regarding the mechanism of this presentation. There is no consensus regarding the process; however, it is thought to be either a result of entrapment from enlarged lymph nodes or direct invasion/damage of the recurrent laryngeal nerve (RLN) (figure 3).¹⁻³ The left RLN is in a unique location in the aortopulmonary window. It leaves the RLN exposed to direct compression; traction or entrapment from enlarged surrounding mediastinal lymph nodes. Detailed imaging (CT), as in our case, revealed para-aortic and paratracheal nodes. Similar findings were found in the literature and this supports the idea that the anatomical location of the enlarged lymph nodes could result in the presentation of hoarseness.¹⁻²⁻⁴ Furthermore, an important comparison between our case and the published literature is the signs and symptoms of

Figure 3 This image demonstrates a cross-sectional coronal image of the thorax shown on CT. It shows the anatomical relationship between the largest of the TB-related necrotic lymph nodes (d) and the location of the left recurrent laryngeal nerve as it traverses the descending thoracic aorta.

TB lymphadenitis, particularly dysphonia, resolve effectively with antitubercular treatment.¹⁻⁴⁻⁵ Finally, the difficulty with this presentation is identifying the initial pathological process. The detection of AFB on microscopy and culture still proved to be a problem in identifying patients suffering from TB infection, and the diagnosis of mediastinal TB lymphadenitis still proves difficult for clinicians.² This can lead to diagnostic uncertainty, delays and possible misdiagnoses.

Learning points

- ▶ It is important that clinicians consider a suspected cancer referral pathway (for an appointment within 2 weeks) for laryngeal cancer (in people aged 45 and over) with persistent (lasting over 3 weeks) and unexplained hoarseness of voice or a lump in the neck.⁶
- ▶ Little is known of the mechanism behind an isolated vocal cord palsy secondary to tuberculosis (TB) lymphadenitis. Current theories include entrapment of the recurrent laryngeal nerve from enlarged lymph nodes or direct invasion/damage.
- ▶ This presentation is more common in the Asian subcontinent. In the UK, it is thought to be under-reported in regions of a higher prevalence of TB. With the diversity of the UK population broadening, we believe it is an important case to highlight.
- ▶ Clinicians working in areas where TB is prevalent should be mindful of TB lymphadenitis as a rare differential for isolated vocal fold palsy, despite normal fiberoptic nasolaryngoscopy findings.
- ▶ Good outcomes, particularly the significant improvement in dysphonia, are achieved with antituberculin treatment.

Contributors The authors worked under the direct supervision of consultant surgeon AT. LRS is the primary author, was responsible for the drafting of the text and takes responsibility for the integrity of the manuscript. KR, DN and AT revised all drafts of the manuscript and analysed the images included. All the authors have

contributed to the manuscript in significant ways, have reviewed and agreed on the manuscript content.

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