

Tubercular laryngeal abscess

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Abstract

Tuberculosis, with its varied presentations and numerous complications, is a relatively common disease in developing countries like India. Amongst its many presentations, pulmonary tuberculosis is the commonest. A tubercular laryngeal abscess is an extremely rare entity. We report a 37-year-old male, diagnosed with a tubercular laryngeal abscess which was successfully treated under local anaesthesia by incision and drainage and in whom a tracheostomy could be avoided.

Key words: Neck; Abscess; Tuberculosis, Laryngeal

Introduction

Tuberculosis is a common disease in India. Approximately 1.5×10^6 new cases are diagnosed annually.¹ The literature mentions laryngeal abscesses secondary to trauma, irradiation, tumours and foreign bodies.² Tuberculosis of the cervical lymph nodes with their subsequent caseation is a common extrapulmonary manifestation of the disease. Though tubercular laryngitis has been reported in the literature, a laryngeal abscess of tubercular origin has not been described before.

Case report

A 37-year-old male presented with gradually increasing dyspnoea for 13 days accompanied by hoarseness of one-week duration. At presentation, mild stridor was evident. There was no history of fever, trauma, voice abuse or dysphagia. The patient was a non-diabetic, non-smoker without any history of tuberculosis or contact with tuberculosis. On general and systemic examination, there were no stigmata of tuberculosis. Inspection and palpation of the neck did not reveal any obvious swellings or tenderness and the neck movements were normal.

Flexible laryngoscopy revealed oedema of the left aryepiglottic fold, the left true and false vocal folds and an immobile left true vocal fold, which was pushed medially. However, the laryngeal mucosa was intact. A contrast-enhanced computed tomography (CT) scan of the neck showed a peripherally enhancing loculated collection in the region of the left aryepiglottic fold with glottic and subglottic extensions and a left antero-lateral extension into the strap muscles (Figure 1). This was suggestive of a laryngeal abscess with both intra- and extralaryngeal extensions. The airway at the level of the glottis was significantly compromised. All haematological parameters, the blood sugar level and chest X-ray were normal and the patient tested negative for HIV.

With all prior preparations for an emergency tracheostomy, the abscess was drained under local anaesthesia. After infiltration of the site of incision and the surrounding region with two per cent lignocaine with one in 200 000 adrenaline solution, a horizontal incision was made on the

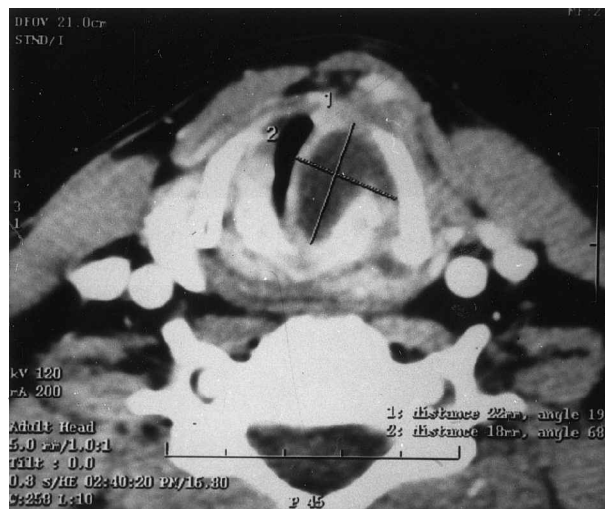


FIG. 1

An axial contrast CT scan at the level of the vocal folds showing an abscess cavity lateral to the left vocal fold. The left vocal fold can be seen pushed medially thereby compromising the airway. Note the extension of the abscess antero-laterally deep to the strap muscles and posteriorly behind the thyroid cartilage.

left side of the neck at the level of the cricoid cartilage. Following elevation of the flaps, the strap muscles were cut transversely, and the abscess cavity encountered deep to the strap muscles was drained. The abscess was found to track through the crico-thyroid membrane, which accounted for the corresponding vocal fold being pushed medially. Drainage of the intra-laryngeal extension was facilitated through this communication. The pus obtained was sent for smear and culture-sensitivity tests. Granulations from the walls of the abscess cavity were examined by frozen section, which revealed a tubercular granuloma. Following irrigation of the cavity with saline, the wound was closed in layers. Flexible laryngoscopy performed immediately following the drainage revealed an intact



FIG. 2

A post-operative CT scan done after two months showing complete resolution of the disease with a normal airway.

laryngeal mucosa with oedema of the left ary-epiglottic fold and the left true and false vocal folds. The true vocal fold had returned to its normal position thus restoring the airway. Post-operatively the patient was given cefotaxime, hydrocortisone and diclofenac sodium for five days. Acid-fast tubercular bacilli were detected on the pus smear. Histopathology of paraffin block sections confirmed a caseating tubercular granuloma with giant cells and lymphocytes. A four-drug anti-tuberculous regimen with rifampicin, isoniazide, ethambutol and pyrazinamide was started.

The voice improved significantly over one week and the wound healed completely. Flexible laryngoscopy done two weeks later showed a normal larynx with minimal oedema of the left true vocal folds and the left ary-epiglottic fold. The left vocal fold mobility was not restored completely. A CT scan repeated after two months corroborated the findings of flexible laryngoscopy with complete resolution of the disease process (Figure 2).

Discussion

Abscesses and perichondritis of the larynx develop secondary to bacterial infections following damage to the mucosa and laryngeal cartilage or in the presence of a laryngocele.³ The other most frequent type of laryngeal abscess occurs as a complication of acute epiglottitis in adults.⁴ Knowledge of the anatomy of various fascial planes is a pre-requisite for proper treatment of infection of the deep neck spaces to assure complete and adequate drainage. The anterior visceral space extends beneath the strap muscles encircles the thyroid gland, trachea, oesophagus and is in complete communication with the retropharyngeal space bordered posteriorly by the visceral fascia.⁵ Infection of the visceral space usually results from trauma to the upper aerodigestive tract or secondary to infection from a surgical procedure such as thyroidectomy. Other less common causes include laryngocele, thymic cyst, bronchogenic cyst, thyroid cyst, branchial arch anomalies and thyroiditis.⁶

Lymph node tuberculosis is one of the commonest presentations of extrapulmonary tuberculosis. The lymph nodes are initially discreet but subsequently caseate to form abscesses, which may rupture leading to tubercular sinuses.⁷ The abscess in our case most probably originated with caseating tubercular infection of a pre-laryngeal

lymph node. It tracked along the anterior visceral space, inferior to the lamina of the thyroid cartilage and through the cricothyroid membrane extended intra-laryngeally, pushing the left true vocal fold medially, thus encroaching upon the airway and leading to stridor. A tubercular abscess characteristically dissects its way through tissue planes to considerably enlarge in size. Normal neck movements, absence of an external swelling in the neck, as well as absence of any retropharyngeal bulge, clinically excluded both a retropharyngeal as well as a parapharyngeal space abscess.

A flexible laryngoscopy revealed oedema of the left hemi-larynx, which suggested an inflammatory pathology. A contrast-enhanced CT scan done to localize the precise site and extent of the lesion revealed the peripherally enhancing lesion to be a laryngeal abscess with both intra- and extralaryngeal extensions communicating with each other. This situation put us in a dilemma since oro/naso tracheal intubation for drainage under general anaesthesia could not be undertaken for fear of rupture of the abscess into the airway. Since the patient was co-operative and the airway was not significantly compromised on clinical examination, despite all preparations, we were able to avoid a tracheotomy and drain this abscess under local anaesthesia. Thus, the cough reflex was preserved and general anaesthesia with its potential risk of trauma during intubation and subsequent rupture and aspiration of the abscess could be avoided. Since the laryngeal mucosa had been intact on flexible laryngoscopy, the abscess could be drained completely without jeopardizing the airway. Absence of air, bubbling in the abscess cavity irrigated with saline intra-operatively, proved that there was no communication between the airway and the abscess cavity. An immediate post-operative flexible laryngoscopy reconfirmed this. The vocal fold on the affected side had moved back to its normal position. The decision of withholding a tracheotomy must be made depending on each individual case. The general condition of the patient, the degree of compromise of the airway and the experience of the surgeon are important factors to be considered before making this decision. Mosher has rightly stated that 'Pus in the neck calls for the surgeon's best judgement, his best skill and often for all his courage'.⁶ CT scan and flexible laryngoscopy done two months later documented significant regression of the disease process (Figure 2).

Conclusion

Correlation between history, clinical examination, radiological findings and flexible laryngoscopy made it possible for the precise localization of the site and extent of the abscess. Thus it was possible to undertake drainage under local anaesthesia, avoiding general anaesthesia with its attendant complications, particularly in a partially compromised airway. Anti-tubercular treatment instituted at an early stage, allowed for rapid wound healing without formation of sinuses which otherwise commonly occurs in an abscess of tubercular origin.

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