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CLINICAL REPORT

A Rare Case of Primary Laryngeal Aspergillosis Simulating as Glottic Malignancy

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Abstract Primary laryngeal aspergillosis is a rare clinical entity seen commonly in immunocompromised individuals. Here we report a case of a 63 year old male with hoarseness of voice. Laryngeal lesions may be confined to the glottis and may mimic malignancy. Surgical excision followed by antifungal therapy has shown promising results.

Keywords Primary Laryngeal Aspergillosis · Aspergillus · Itraconazole · Glottic malignancy

Introduction

Primary localised laryngeal aspergillosis is a rare clinical entity [1, 2] and is known to occur most commonly in immunocompromised individuals. Lesions may be confined to the glottis or may involve multiple other sites in the larynx. These lesions often mimic various premalignant and malignant conditions of the larynx, but responds very well to antifungal therapy. Here we present a case of a 63 year old immunocompromised male diagnosed as primary laryngeal aspergillosis.

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Case Report

A 63 year old male farmer by occupation presented to our otolaryngology department with complaints of progressive hoarseness of voice since 3 months. There was no history of voice abuse, respiratory distress or difficulty in swallowing. He gave no history of recent loss of weight or any visible swellings in the head and neck region. He gave past history of pulmonary tuberculosis 10 years ago, for which he was treated with anti tubercular therapy for 9 months and was presently asymptomatic. He is a known case of Type 2 Diabetes Mellitus and on oral hypoglycemics since 20 years. He additionally gave history of chronic smoking and alcoholism for almost 20 years. Patient did not give any history of using steroidal nasal sprays or inhalers for long duration for treatment of allergic rhinitis or allergic bronchitis. He gave no history of use of steroid sprays of allergic rhinitis or allergic bronchitis. Routine haematological investigations were unremarkable. His blood glucose and glycated haemoglobin levels were within normal limits. Videolaryngoscopic assessment revealed a small whitish ulcerative growth over the anterior one third of the right vocal cord with similar changes seen on the left vocal cord (Fig. 1). Bilateral vocal cords were mobile. Bilateral vestibular folds appeared oedematous. Rest of the visualised supraglottis and hypopharynx was normal. There were no noticeable scars, sinuses, fistula seen or enlarged palpable cervical lymph nodes felt on examination of the neck. Radiological examination of the chest revealed a scar in the right upper lobe of the lung suggestive of healed tuberculosis. The rest of the otolaryngological examination was within normal limits. With a provisional diagnosis of glottic malignancy, he was planned for direct laryngoscopic evaluation and excision biopsy under general anaesthesia. Biopsy was taken from the lesion and the

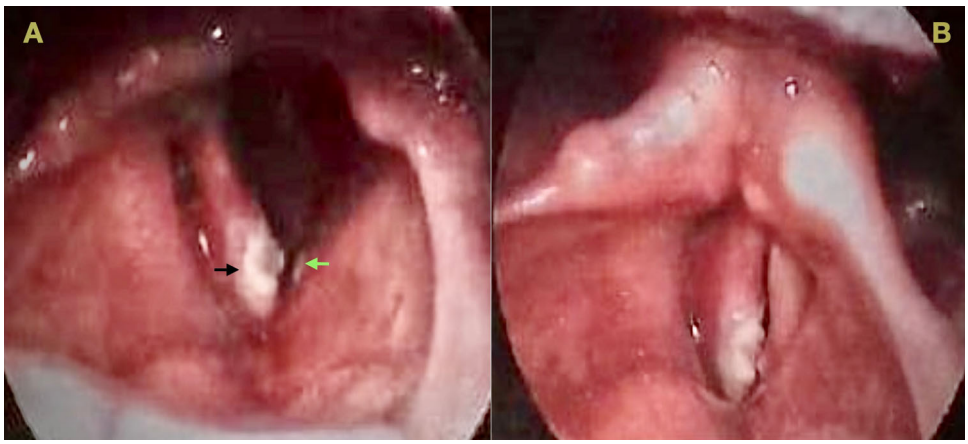

Fig. 1 Videolaryngoscopic image showing Laryngeal Aspergillosis of bilateral vocal cords, right (black arrow) more than left (green arrow). **a** During Abduction and **b** During Adduction

tissue was sent for microbiological and histopathological examination (HPE). In the immediate postoperative period patient was on intravenous fluids, antibiotics, analgesics and was advised for an absolute voice rest.

Histopathology and Microbiology

The HPE from the biopsied tissue revealed necrotic exudates in the stroma crowded with spores and broad septate spaghetti like fungal hyphae. The majority of the fungal hyphae morphologically showed 45° acute angle branching resembling Aspergillus (A) (Fig. 2). KOH mount of the tissue revealed dichotomously branching, septate fungal hyphae and culture on sabourands dextrose agar revealed fungal growth with bluish green velvety and powdery surface confirming it to be A. fumigatus.

Investigations such as flexible bronchoscopy and diagnostic nasal endoscopy were also done to look for the focus of fungal infection in the tracheobronchial tree and nasal cavity. However both the investigations showed no focus of infection. With the confirmed diagnosis of primary laryngeal aspergillosis due to A. Fumigates patient was subsequently treated with itraconazole 300 mg per orally once a day for 3 weeks which showed marked improvement of the symptoms. Following 3 weeks patient was again assessed with videolaryngoscopy which revealed complete disappearance of the lesion. He was followed up every three months. At six months, his voice had returned to normal, and no residual or recurrent lesion was visualised.

Discussion

Aspergillosis is an inflammatory condition caused by infection with any species of the fungi of genus Aspergillus. Aspergillus species are saprophytic, ubiquitous fungi and are seen growing on decaying debris. In 1729, Michele, described aspergillosis and named it because of its resemblance to "rougher head." Most of the fungal infections are commonly seen in tropical regions because of high humidity. A. fumigates and A. niger are common species infecting humans. Aspergillosis is subdivided into superficial and deep. A. fumigates involves the superficial

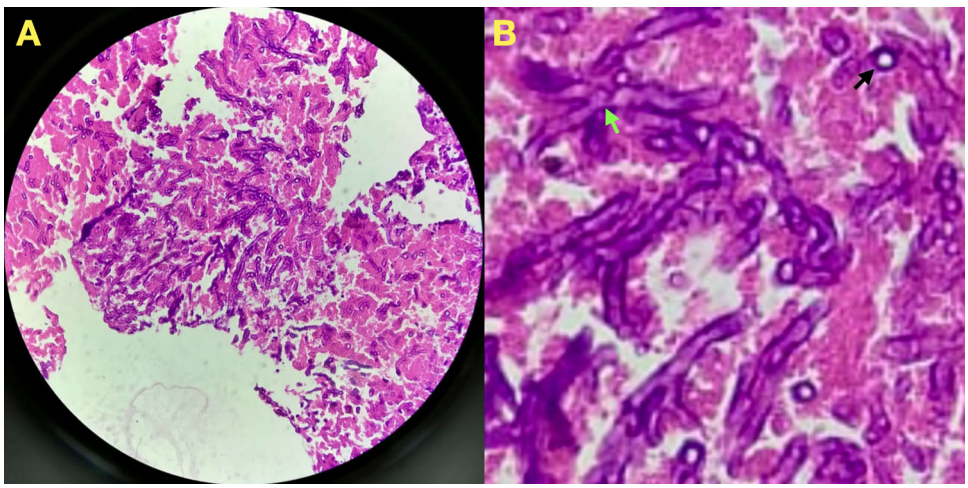

Fig. 2 **a**, **b** Histopathology of biopsy specimen (Haematoxylin and Eosin Stain, (**a**)10X magnification, (**b**) 40X magnification) from the vocal cord lesion showing ulcerated squamous epithelium, fungal spores (black arrow) and branching septate hyphae at acute angles (green arrow) suggestive of Aspergillus species

mucosal lining, whereas A. niger involves more deeper tissues and spreads by haematogenous dissemination to involve the lungs, heart, liver, kidneys and brain [3]. Aspergillosis is also the most common fungal infection of the paranasal sinuses. The incidence of primary aspergillosis of the larynx is still exceedingly rare with very few cases documented in known literature [2]. Primary localised laryngeal aspergillosis is known to occur in immunocompromised individuals particularly in patients with diabetes mellitus, tuberculosis, and human immunodeficiency virus infection [4]. It is also associated with excessive use of inhalational steroids, cytotoxic drugs and in patients after radiotherapy [4]. The laryngeal localization of the aspergillosis is extremely rare and is almost always secondary to severe and invasive aspergillosis of the tracheobronchial tree. The inhaled spores gain access to respiratory mucosa of the paranasal sinuses, larynx, and the tracheobronchial tree and colonize or invade deeper tissues, producing symptoms when host immunity wanes and thus causing necrosis, ulceration, haemorrhage and thrombosis. It is a well known fact that corticosteroids enhance fungal colonisation of the epithelial surfaces and oropharyngeal candidiasis is a well recognised side effect reported in 4% of the patients who were given fluticasone in a dose of 1.5–2 mg daily [5]. It is also known that a substantial proportion of inhaled corticosteroid gets deposited in the upper airway, including the larynx and thus cause colonisation of A. fumigatus on the superior surface of the vocal cords. In the case described here, the patient was immunocompromised and the lesion was localised only to vocal cord. When larynx is involved, patient complains of hoarseness, dysphagia and sometimes symptoms of airway obstruction. On videolaryngoscopic examination most of the lesions in the larynx mimic malignancy. Histopathologically, aspergillosis can be divided as necrotizing, suppurative and granulomatous or pseudomembranous varieties. Surgical management of aspergillosis infection is via direct laryngoscopy and excision biopsy under general anaesthesia. Early diagnosis is crucial to prevent further dissemination of the disease. Aspergillus is identified on HPE by circular, uniform mycelium and broad acute angled septate hyphae with dichotomous branching. Postoperatively antifungal agents may be helpful in treating patients with aspergillosis. Amphotericin B is considered as a first line agent for this infection, although it is associated with severe systemic side effects [6]. Newer antifungal agents such as itraconazole, fluconazole are also promising. Itraconazole was used in our case and was found to be effective antifungal agent with good results.

Conclusion

In conclusion it is always advised to send tissue for histopathological and microbiological examination, for all lesions of the larynx after surgical excision as there is a rare possibility of fungal infections which can be treated very effectively with surgical excision followed by antifungal medication and thus avoiding more aggressive surgeries for malignancy.

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Declarations

Conflict of interest The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Informed consent Informed consent was obtained from the patient regarding submission of case report, publishing their data and photographs to the journal.

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