

Primary laryngeal aspergillosis due to *Aspergillus flavus* in an elderly immunocompetent patient- a rare presentation

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Abstract

Primary Laryngeal aspergillosis in an immunocompetent patient is rare and very few cases have been reported. Laryngeal aspergillosis due to secondary invasion from tracheobronchial tree is usually seen in an immunocompromised host. We report a case of a 65 year female who presented with 4 months history of breathlessness, hoarseness of voice and cough. She had ischaemic heart disease, hypertension, for which she was taking aspirin. She was known case of bronchial asthma on inhalational steroids. Video-laryngoscopy revealed greenish black debris in subglottic area, without any mucosal changes. Diagnosis of *Aspergillus flavus* was confirmed on culture. Ig E and absolute eosinophil count was within normal limits. Patient was started on oral itraconazole and has responded to treatment. Possibility of Primary fungal infection of larynx should be kept in mind, in elderly patients on inhalational steroids, without any known risk factors for immunocompromised states.

Keywords: Larynx; Aspergillosis, Primary; Laryngeal; Immunocompetent; Aspergillus; Elderly; Inhalational steroids; Bronchial asthma.

Introduction

Primary Laryngeal aspergillosis in an immunocompetent patient is a rare entity with very few cases reported so far. In otorhinolaryngology, aspergillus infection more commonly involves external auditory canal or paranasal sinuses, but is very rarely seen to involve larynx as primary site.⁽¹⁾ Involvement of larynx is mostly due to secondary invasion from tracheobronchial tree.

Aspergillus is a low grade fungus. Hence, it is known to cause opportunistic infection mostly in immunocompromised states, particularly in diabetes mellitus, tuberculosis, human immuno-deficiency virus (HIV), leukaemia, or severe aplastic anaemia, and is associated with use of inhalational steroids and cytotoxic drugs.⁽¹⁻³⁾ The aetiological causes of the disease are increasing and include iatrogenic factors, vocal abuse, vocal-fold cysts and occupational factors, and immunocompetent patients are susceptible to these predisposing factors.

The present case of primary laryngeal aspergillosis caused by *Aspergillus flavus*, in an elderly immunocompetent patient, with ischaemic heart disease

No fungal or tubercular growth was seen on culture. At other centre, Direct laryngoscopy under General Anaesthesia was performed and biopsy was sent for Histopathological Examination, which was negative for malignancy. On the basis of Stroboscopy findings showing yellowish blackish crusting, diagnosis of laryngitis sicca was made by them.

Patient came to our Otolaryngology outpatient department with hoarseness of voice and breathlessness. There was no palpable cervical lymph-node. Routine blood test showed raised cholesterol

and bronchial asthma, on Aspirin and inhalational corticosteroids, is being reported for its rarity and likely association with medications.

Case Report

A 65 year old female presented with four month history of breathlessness, hoarseness, cough and frequent expectoration. She did not have any episode of haemoptysis and had negative history of dysphagia, odynophagia and voice abuse. There was no recent-onset loss of weight and appetite, or evening rise in temperature. Neither she nor her family had history of pulmonary tuberculosis. She had no addictions. The patient was a known case of ischaemic heart disease, and Bronchial asthma, on Inhalational corticosteroids. She was non-diabetic but hypertensive, on medication in the form of Tablet Diltiazem SR 60mg and Tablet Aspirin.

Initially, she underwent bronchoscopy at some other centre, who had reported irregular cauliflower like subglottic growth, biopsy of which was taken and bronchial lavage fluid was examined for cells, however report was inconclusive. She was non diabetic. X – ray chest showed no evidence of active or healed tuberculosis. Stroboscopy was performed which showed greenish black crusts and debris filling laryngeal lumen below vocal cords with normal looking cords and no features suggestive of any invasion. (Fig. 1)



Fig. 1: Videostroboscopy picture showing greenish black debris filling laryngeal lumen, with normal vocal cords without any invasion

We suspected laryngeal aspergillosis on the basis of colour of debris and treatment history for her comorbidities. A suspension video laryngoscopy was planned under General Anaesthesia, greenish blackish crust was sent for cytology and culture and sensitivity. Cytology revealed inflammatory smear with degenerating cells with plenty of coco bacilli. Microscopy showed growth of *E. coli* and culture revealed fungal hyphae growing *Aspergillus flavus*. (Fig. 2 and 3)



Fig. 2: Photograph showing growth causing green discolouration of Sabaraud's Dextrose Agar

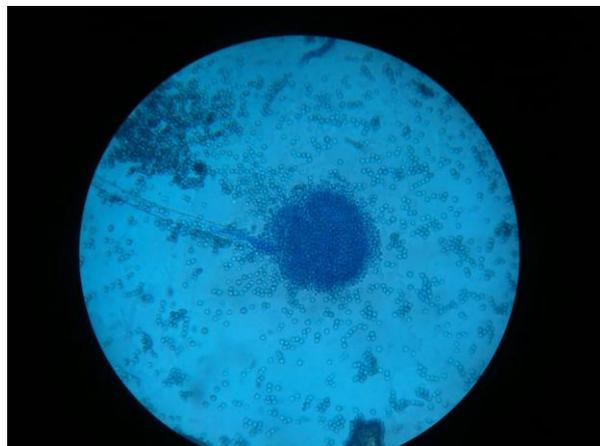


Fig. 3: LPCB mount showing typical appearance of conidial head of *Aspergillus flavus* stained with lactophenol cotton blue with green appearance of spores

Serum Ig E level was found 160.7IU/ ml ($N < 158$ IU/ml). Patient was started on Itraconazole 300mg Once Daily for 3 months. Nebulisation with N-acetylcysteine, Budesonide and salbutamol were given. Anti-Hypertensive Amlodipine and Anti platelet drug Tablet Clopidogrel 75mg were started and Aspirin was stopped. Repeat stroboscopy after one month showed minimal yellowish greenish coating over mucosa of subglottis. (Fig. 4) Vocal cords were normal.

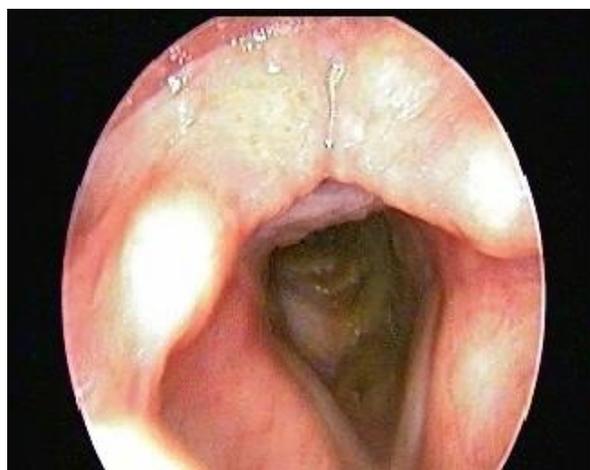


Fig. 4: Normal larynx showing minimal greenish coating of larynx one month after treatment

At two months, her voice had returned to normal, with no residual lesion.

Discussion

Primary aspergillosis of the larynx is extremely rare, though invasive aspergillosis at other sites like paranasal sinuses, is quite common in immunocompromised patients.¹ On the contrary, the majority of cases of primary laryngeal aspergillosis are seen to occur in healthy subjects, and manifests without

invasion.^(1,4) In the English literature language, around thirty-eight cases of primary laryngeal aspergillosis have been reported; of those, around twenty cases have been seen to involve immunocompetent patients. The remaining cases are reported in immunocompromised patients or in patients who had received local radiotherapy for vocal cord carcinoma.^(2,5) In a child, with acute lymphoblastic leukemia, it has been reported, where it was thought to be acute laryngotracheobronchitis.⁽¹⁾

Aspergillus laryngitis is most commonly seen as part of infection involving the respiratory system in immunocompromised people, but *Aspergillus* can also infect the larynx as a primary site, in healthy people.^(5,6) Invasive aspergillosis occurs due to various factors like - suppression of immune response due to debilitating disease or therapy with cytotoxic drugs or radiation therapy; systemic corticosteroid therapy; local trauma or susceptibility of larynx to fungal invasion due to steroid usage.

A number predisposing factors for *Aspergillus* laryngitis have been implicated in immunocompetent hosts. Radiotherapy, laser treatment and steroid inhaler use are the iatrogenic factors, that are more commonly found to be associated with the onset of localized aspergillosis, rather than decreased systemic immunity as a predisposing factor.⁽⁷⁻⁹⁾ Other factors include vocal abuse.⁽¹⁰⁾ Laryngeal aspergillosis can also occur in a true vocal fold cyst.⁽¹¹⁾

It is often seen that the diagnosis of fungal laryngitis is overlooked in the immunocompetent patients because it is generally considered as a disease of the immunocompromised patients, and because it often clinically mimics, more common and more serious conditions, for example, leukoplakia.^(6,12) In our case also, the diagnosis was missed by other clinicians, considering it to be subglottic malignancy on bronchoscopy and laryngitis sicca/ atrophic laryngitis on Stroboscopy. Normal appearance of vocal cords may mislead us in non-invasive forms of Laryngeal *Aspergillus* as in our case. *Aspergillus flavus* is not so common cause of Laryngeal aspergillosis. Laryngeal variant of Bronchopulmonary *Aspergillus* was ruled out by normal serum specific Ig E levels. In our patient, the likely cause for laryngeal aspergillosis appeared to be use of Inhalational steroids, as has been previously reported.^(7,12) As the patient was on aspirin, we also ruled out allergy as a cause.

In conclusion, though laryngeal aspergillosis in immunocompetent patients is rare; however, we suggest that the increasing occurrence of primary laryngeal aspergillosis in immunocompetent patients is being observed. Hence, it should be kept in the differential diagnosis of laryngeal lesions in immunocompetent elderly on medication.

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