Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.elsevier.com/locate/pepo

Case report/ Kazuistyka

Fungal laryngitis in asthmatic boy treated with inhalatory corticosteroids: A case report

Santosh Kumar Swain [1,*], *Bulu Nahak* [1], *Mahesh Chandra Sahu* [2]

[1] *Department of Otorhinolaryngology, IMS and SUM Hospital, Siksha "O" Anusandhan University, Bhubaneswar, India*

[2] *Directorate of Medical Research, IMS and SUM Hospital, Siksha "O" Anusandhan University, Bhubaneswar, India*

ARTICLE INFO

Article history:
Received: 22.02.2017
Accepted: 27.03.2017
Available online: 04.04.2017

Keywords:
- *Aspergillus fumigatus*
- Larynx
- Vocal cords

ABSTRACT

Fungal laryngitis is extremely rare among immunocompetent and pediatric age group. It often mimics laryngeal diseases like gastroesophageal reflux disease, granulomatous disease, keratosis and malignancy of the glottis. Misdiagnosis or delayed diagnosis leads to further impairment of anatomy and functional properties of the larynx. This report describes the case of a 12-year-old boy with chronic bronchial asthma receiving prolonged inhaled corticosteroids presented with progressive hoarseness of voice. Patient had undergone microlaryngeal surgery with stripping of the vocal cords. Histopathology demonstrated hyperplastic ulcerative squamous epithelium with fungal hyphae and confirmed as Aspergillus. This is an extremely rare side effect of prolonged inhalation of corticosteroids in a pediatric patient.

Introduction

Fungal laryngitis is a common clinical entity among immunocompromised patients. It is an uncommon among immunocompetent individuals and extremely rare in pediatric age group. Common head and neck parts affected by fungus are nose, paranasal sinuses and external auditory canal [1]. Isolated involvement of vocal cords by fungal infections in a pediatric patient is rare clinical entity. The endoscopic picture and radiological findings in fungal laryngitis often mimic that of the laryngeal carcinoma. Certain conditions like inhaled steroids, laryngopharyngeal reflux disease and prolonged antibiotic use can predispose to fungal laryngitis and hoarseness of voice [2]. If fungal laryngitis is not correctly diagnosed, patient may go for inappropriate treatment, prolonged disability and may land with unwarranted surgical intervention [3]. The laryngeal aspergillosis in a immunocompetent child can cause infections superficially on the mucosa of the larynx or invade the mucosa resulting adverse outcome. *Aspergillus fumigatus* is the organism responsible for aspergillosis in majority of cases. This fungus is the most ubiquitous airborne saprophytic fungi affecting the human being. Humans inhale conidia of this fungus on everyday even it occurs in immunocompromised persons. The etiology includes iatrogenic factors like long

* *Corresponding author at*: Department of Otorhinolaryngology, IMS and SUM Hospital, Bhubaneswar, Odisha, India. Tel.: +91 09556524887.
E-mail address: santoshvoltaire@yahoo.co.in (S.K. Swain).

http://dx.doi.org/10.1016/j.pepo.2017.03.017

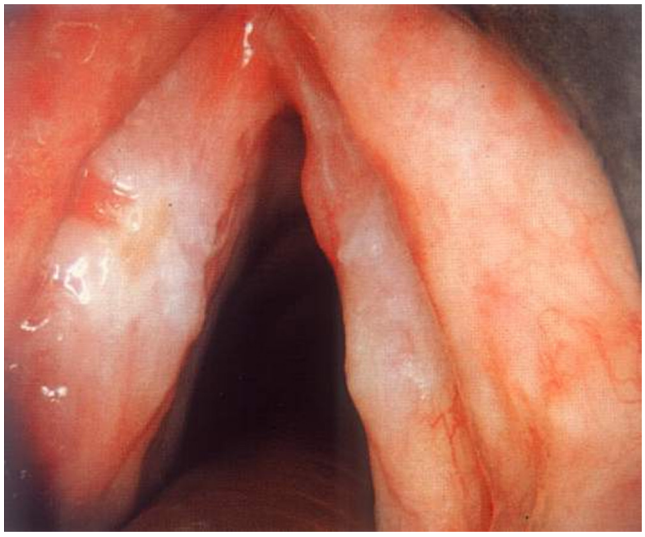

Fig. 1 – Videolaryngoscopic picture showing the larynx of the patient

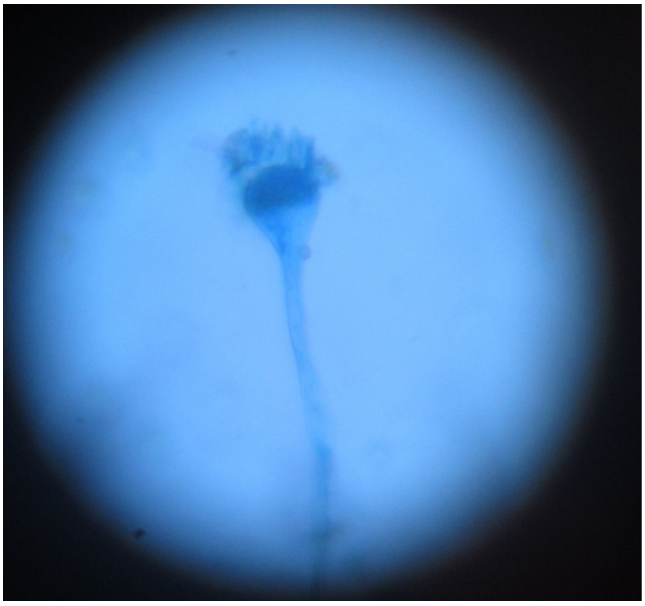

Fig. 3 – Microscopic picture of *A. fumigatus* from 72-hour-old SDA cultured pale (magnification 100×)

term use of corticosteroids, voice abuse, vocal cord cysts, fellatio and occupational factors [4]. We report an extremely rare clinical entity with laryngeal aspergillosis in a pediatric asthma patient.

Case report

A 12-year-old boy attended out patient department of Otorhinolaryngology with complaints hoarseness of voice since 3 months. His otorhinolaryngology examination was unremarkable except videolaryngoscopy revealed keratotic whitish patches over the both vocal cords; more pronounced in the right cord (Fig. 1) and bilateral vocal cords were mobile. The child had no history of immunosuppression but a known case of bronchial asthma under treatment with inhaled corticosteroids since 2 years. The child was investigated to check for tuberculosis, immunodeficiency and diabetes which were negative. Microlaryngeal surgery and biopsy was done under general anesthesia. Intra operative findings revealed edematous and irregular bilateral vocal cords with whitish patch. The whitish patch was stripped and sent for histopathological examination which revealed keratosis with inflammatory changes and Aspergillus ball (Fig. 2). The culture in Sabouraud Dextrose Agar (SDA) for four days showed bluish green velvety growth and powdery surface which confirmed the *A. fumigatus* (Fig. 3). The patient was administered antifungal drugs like itraconazole 50 mg twice daily for three weeks. The child was symptomatically improved after completion of full course of itraconazole.

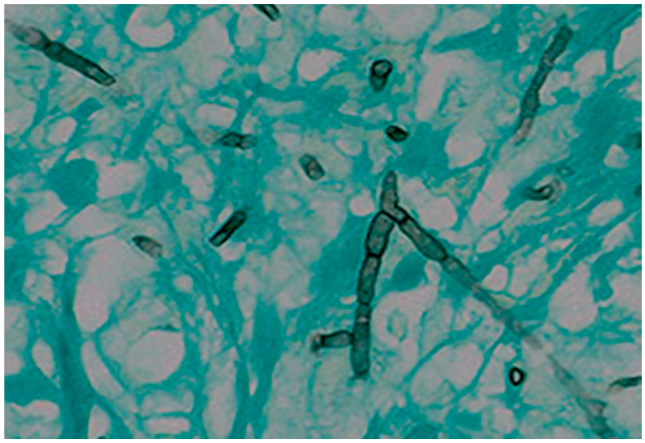

Fig. 2 – Photomicrograph demonstrating septate fungal hyphae (HE, magnification 400×)

Discussion

Fungal laryngitis is a rare clinical entity and often seen among immunocompromised patients [5]. Laryngeal aspergillosis is an extremely rare clinical entity especially in immunocompetent pediatric patient. The fungal laryngitis often mimic with granulomatous disease, gastroesophageal reflux disease and malignancy [6]. Commonest fungi causing laryngitis are candida, aspergillosis, cryptococcal, histoplasomosis, blastomycosis [7]. Fungal infections of the larynx occur as secondary to oropharyngeal or pulmonary infections. There are different predisposing factors responsible for developing fungal laryngitis. These factors are diabetes, immunosuppressive medications, immunodeficiency and nutritional deficiency. Certain conditions affecting the mucosal barriers of the larynx are prior radiotherapy, gastroesophageal reflux disorders, inhaled corticosteroids, smoking and trauma [7]. In case of inhaled corticosteroid therapy, the substantial proportion of molecules deposited in the airway when inhaled *via*