LARYNGEAL THRUSH: MERF EXPERIENCE

Mohan Kameswaran,* R.S.Anand Kumar,* Kiran Natarajan,* K.Karthikeyan,**
Jawahar Nagasundaram,* Sathiya Murali,*

Abstract: Fungal infection of the larynx is a relatively uncommon condition. The lesions may be confined to the vocal folds or may involve various other sites in the larynx. There is, invariably, a risk factor that predisposes to fungal infection viz. immune deficiency, inhaled or systemic steroids, antibiotic usage, etc. These lesions may mimic malignancy or a premalignant condition. There have been very few cases of laryngeal thrush reported in the literature. Awareness of this entity is essential because the management depends on an accurate diagnosis. These lesions invariably respond to a course of oral antifungal therapy and correction of risk factors. We report 3 cases of laryngeal thrush.

Keywords: Laryngeal thrush, Antifungal therapy

INTRODUCTION

Oral and oropharyngeal candidiasis is a common finding in patients with deficient local/systemic immunity. However, isolated laryngeal thrush is a relatively rare condition resembling a premalignant condition or squamous cell carcinoma.¹ Treatment has varied and has sometimes been associated with unneeded surgical intervention. This is a report of the clinical manifestation, diagnosis and management of three patients with laryngeal thrush in our institution.

CASE REPORTS

We report on three cases of laryngeal candidiasis.

Patient 1 was a 54-year-old male who complained of hoarseness of voice of 3 weeks duration. A history of antibiotic usage was elicited. Videolaryngoscopic examination revealed an irregular lesion involving the anterior one-thirds of both vocal cords. The rest of the larynx was normal.

Patient 2 was a 48 year-old lady who presented with change in voice of 45 days duration. She had been on antibiotic therapy for 'laryngitis'. A keratotic lesion was seen involving both ventricular bands and the right vocal cord. The left vocal cord was edematous.

Patient 3 was a 57 year-old male who presented with hoarseness of voice of 15 days duration. He had been on antibiotics for pharyngitis. On videolaryngoscopic examination, the lesion was seen to involve the anterior one-thirds of both vocal cords.

There was no history of pain, odynophagia/ dysphagia/ dyspnoea in all these patients. These patients were not using steroids and showed no evidence of immune deficiency. Clinically, the lesions in all patients looked premalignant and they underwent microlaryngeal biopsy of the lesions. In **patient 1**, the report was extensive necrosis with numerous fungal hyphal colonies with no evidence of malignancy. The left vocal cord biopsy showed ulceration and active inflammation. In **patient 2**, the right ventricular band biopsy showed totally necrotic tissue with many fungi. Left ventricular band biopsy was reported as ulcerated squamous epithelium, necrotic tissue with numerous fungi and chronic inflammatory infiltrate. Vocal cord biopsy showed necrotic tissue and fibrin with fungi. There was no evidence of malignancy. In **patient 3**, biopsy revealed extensive fungal infection with no features of malignancy.

In all patients, the causative organism was reported as *Aspergillus*. All these 3 patients were started on oral itraconazole and have responded very well to treatment with complete regression of the lesions.

Fig.1 - Intraoperative picture of patient 1 with laryngeal thrush

Fig.2 - Intraoperative picture of patient 2 with laryngeal thrush

* Consultant ENT Surgeon, ** Postgraduate, Madras ENT Research Foundation, No 15, P.S.Sivasamy Salai, Mylapore, Chennai-600004, Tamil Nadu, INDIA.

DISCUSSION

Candida species are yeast-like fungi that can form true hyphae and pseudo hyphae. They are normal commensals of mucus membranes of the gastrointestinal and respiratory tracts. In the presence of immune dysfunction, they become opportunistic pathogens. *Candida* species are the most common cause of fungal infections affecting immunocompromised patients. Other fungi which may cause laryngitis include *Histoplasma*, *Blastomyces*, *Aspergillus* etc. *Aspergillus* typically causes a diffuse laryngitis characterized by significant redness and occasionally areas of ulceration. Candidal infection of the larynx is rare and may occur after pulmonary, pharyngeal and esophageal candidiasis or as part of disseminated disease.²

Laryngeal fungal infection is not reported widely and is very infrequently recognized clinically. It has the potential to mimic a premalignant or malignant condition, hence the management may be incorrect and ineffective and there may be a delay in diagnosis and unnecessary surgical intervention.³ The most common symptom reported is hoarseness of voice. Pain and dysphagia are infrequent. Symptoms of fungal laryngitis are typically of gradual onset, coming on slowly, rather than suddenly. Rarely, when the epiglottis has been involved, the patients may present with airway obstruction and in such cases; the clinical manifestations have evolved rapidly.

Fungal infection of the larynx appears to present in one of three typical patterns:

- Focal thick, white lesions of one or both vocal folds with hoarseness as the only symptom
- Diffuse involvement of mucosa of larynx, sometimes hypopharynx resulting in hoarseness, sometimes pain and dysphagia and rarely dyspnoea
- Acute epiglottitis with airway embarrassment

Risk factors predisposing to laryngeal thrush include systemic and inhaled steroids, broad spectrum antibiotics which cause decrease in number of competing bacterial flora, diabetes mellitus, radiotherapy, gastroesophageal reflux disease, radiotherapy and other tissue trauma, neutropenia, hematologic malignancies, acquired immune deficiency syndrome, chronic renal or liver

disease and other causes of immune deficiency. Inhaled steroid use is a significant risk factor. Aerodynamic and mechanical factors may result in deposition of inhaled steroids on the vocal fold mucosa resulting in localized vocal fold thrush.⁴

On endoscopy of the larynx, the lesions have been described as white patchy lesions, which may form a pseudomembrane in the glottis. Sometimes, the supraglottic larynx, pyriform fossa and the posterior pharyngeal wall may be involved. The vocal folds may be the only structures involved. The mucosa is usually erythematous and edematous. On stroboscopy, marked stiffness and interference of mucosal waves may occur. Fungal staining reveals the organism which is usually *Candida*.⁵

Morphological features have been described which are similar to oral thrush viz. pronounced epithelial hyperplasia, which may show a verrucous pattern, prominent orthokeratosis, predominantly neutrophilic infiltration located on the upper layers of the mucosal epithelium.¹ Fungal elements have been found on the surface as well as within epithelium, along with mixed bacterial flora.

The fungal organism may be very few in number and morphologically distorted. Special stains for fungi have been suggested. Cultures can be taken by swabbing plaques or areas of biopsy of the affected tissue. Drug sensitivity is determined by testing the fungus grown from culture taken from lesions.

All patients described in the literature have responded to oral antifungal therapy and removal of predisposing factors. When such lesions are seen clinically, empirical treatment with oral antifungal therapy is advisable. After one or two weeks of treatment, if the lesions do not regress further evaluation (biopsy) is advisable. Previously, topical nystatin and gentian violet have been used. Selkin has reported the use of Ketoconazole.⁶ Recently, other antifungal agents such as fluconazole and itraconazole have been used, with the duration of therapy varying from one week to one month. Patients with laryngeal fungal infection due to inhaled steroids are advised to lower dosing frequency, use spacers, or rinse the mouth after the spray. Recurrence is rare when predisposing factors are corrected.

Fig.3 - Histopathological picture of laryngeal thrush

Fig.4 - Post-operative videolaryngoscopic examination of the larynx showing complete regression of the lesion

CONCLUSION

Laryngeal thrush is a very rare entity. A high index of suspicion is required to diagnose this condition. In most patients, the fungus is reported to be *Candida*, although *Aspergillus* is also known to cause laryngitis. The fungus provokes a reactive epithelial hyperplasia or keratosis on the squamous epithelium of the vocal folds that mimics precancerous leukoplakia and carcinoma. There is invariably, a predisposing factor identifiable in these patients. Dramatic improvement invariably occurs following oral antifungal therapy and correction of risk factors.

REFERENCES:

1. Lucian Sulica. Laryngeal thrush. *Annals Otol Rhinol Laryngol* 2005; 114(5) 369-75
2. Pabuççuolu U.; Tuncer C. Histopathology of Candidal Hyperplastic Lesions of the Larynx Pathology Research and Practice. 2002;198(10): 675-678
3. Makitie AA, Back L. Fungal infection of the epiglottis simulating a clinical malignancy. *Arch Otolaryngol Head Neck Surg* 2003; 129: 124-6.
4. DelGaudio JM. Steroid inhaler laryngitis: dysphonia caused by inhaled fluticasone therapy. *Arch Otolaryngol Head Neck Surg* 2002;128: 677-81
5. Tashjian LS, Peacock JE Jr. Laryngeal candidiasis. Report of seven cases and review of the literature. *Arch Otolaryngol* 1984; 110: 806-9.
6. Selkin SG. Laryngeal candidiasis and ketoconazole. *Otolaryngol head Neck Surg* 1985; 93: 661-3

Address for correspondence:

Dr Mohan Kameswaran, MS. F.R.C.S., FICS, MAMS, DLO
Consultant ENT, Head & Neck Surgeon
Madras ENT Research Foundation
No.15, P.S.Sivasamy Salai
Mylapore, Chennai-600004
Tamil Nadu, INDIA
E-mail: merfmrk@vsnl.net
Fax: +91-044—24970145
Phone: 91-44-24981973, 24981976, 24981997

NEWS AROUND

19th

Annual Conference of All India Rhinology Society

July 22nd & 23rd 2006, Hyderabad,
Andhra Pradesh.

Rhinocon 2006, the 19th Annual Conference of the All India Rhinology Society was held from 22-23 July, at Hyderabad, Andhra Pradesh. The Conference was held at Taj Residency and was well attended by distinguished from all over the country and abroad. The Theme of the conference was "Rhinoplasty". The eminent international faculty which added their professional brilliance to the occasion were Prof. John McIver Hodges, M.D., FACS- (USA), Professor Otolaryngology-Head & Neck Surgery, University of Tennessee, Chief, Otolaryngology Head and Neck Surgery, Memphis-VAH, Fellow, Triologic Society and Prof Ruby Pawankar, Japan. The distinguished ranks of National Faculty and participated enthusiastically to make RHINOCON-2006 a landmark event.

Hands on Cadaveric and Live Endoscopic Sinus Surgery Workshop

A "Hands on Cadaveric and Live Endoscopic Sinus Surgery Workshop" was conducted at Dayananad Medical College and Hospital, Ludhiana on 21st and 22nd July, 2006. This workshop was organized by the ENT Department. A series of lectures and panel discussions on important topics were also held. Live demonstrations of the following cases were conducted: Mini FESS Endoscopic Polypectomy, Isolated sphenoid sinus disease, Dacrocystorhinostomy and CSF leak repair.

The guest faculty included: **Dr. Thulasi Das**, Apollo Chennai; **Dr. Hetal Patel**, KEM Hospital, Mumbai; **Dr. Ashok K. Gupta**, PGI, Chandigarh, **Dr. P.P.Singh**, UCMS, Delhi, **Dr. Hemant Chopra**, Prof. & Head ENTHNS, Org. Chairman, **Dr. Manish Munjal**, Org. Secretary, **Dr. Kapil Dua**, Jt. Org Secretary & Treasurer