

## CASE REPORT

# Diagnosis and Treatment of Primary Laryngeal Histoplasmosis

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## ABSTRACT

Histoplasmosis is a disease of immunocompromised and has a low incidence. Primary laryngeal histoplasmosis is a rare condition. Less than 100 cases of laryngeal histoplasmosis have been described in the medical literature. Isolated laryngeal involvement leads to the misdiagnosis and mistreatment of tuberculosis or laryngeal cancer. The development of hoarseness in a patient with histoplasmosis or a laryngeal mass leading to hoarseness should be seen with suspicion. The diagnosis becomes more difficult when it presents as a primary disease. Biopsy is a prerequisite for diagnosis.

**Keywords:** Case report, Diagnosis, Granulomatous inflammation, Histoplasmosis, Laryngeal, Stridor, Treatment.

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## INTRODUCTION

Laryngeal histoplasmosis usually occurs in immunocompromised patients through the dissemination of the fungus from the lungs to other organs. Histoplasmosis of isolated laryngeal (primary) involvement is rare.<sup>1</sup> The condition is usually seen in children or elderly with a history of diabetes, steroids, renal transplant, immunosuppressive drugs, HIV, and immune system-related diseases. The clinical picture resembles tuberculosis and carcinoma larynx. Diagnosis and treatment may get delayed.<sup>2</sup>

## CASE DESCRIPTION

A 67-year-old male patient presented in ENT Emergency at Pandit Bhagwat Dayal Sharma PGIMS, Rohtak, with hoarseness of voice for the last 11 months, lost almost 12 kilograms of weight during the last 11 months, difficulty in swallowing for 5 months, breathing difficulty for the last 3 months with excessive sputum production which was frequently blood stained and had stridor for last 3 days. He was a farmer by occupation. There was no neck swelling and no pain in the neck during neck movements, swallowing, or otherwise. Emergency tracheotomy was done, routine investigations were sent, and the patient was admitted. He was a known diabetic for the last 10 years on antidiabetic treatment. The patient had undergone 3 biopsies before. One of the reports showed atypia with granuloma formation where malignancy could not be confirmed. Another report was granuloma formation with suspicion of tuberculosis which could not be confirmed on ZN staining. Another report showed non-malignant non-tubercular granuloma. Contrast-enhanced computed tomography (CECT) neck and fiberoptic laryngoscopy were done. Endoscopy showed a polypoidal fibrous mass in the supraglottis completely blocking the supraglottic lumen. It did not bleed on touching with suction. The endoscope could not be negotiated further (Fig. 1). Contrast-enhanced computed tomography neck showed a radio-opaque shadow with regular outlines and central necrosis completely obstructing the supraglottis and glottis (Fig. 2). The patient was planned for direct laryngoscopy and biopsy in general anesthesia.

Laryngeal biopsy confirmed the diagnosis of histoplasmosis (Fig. 3).

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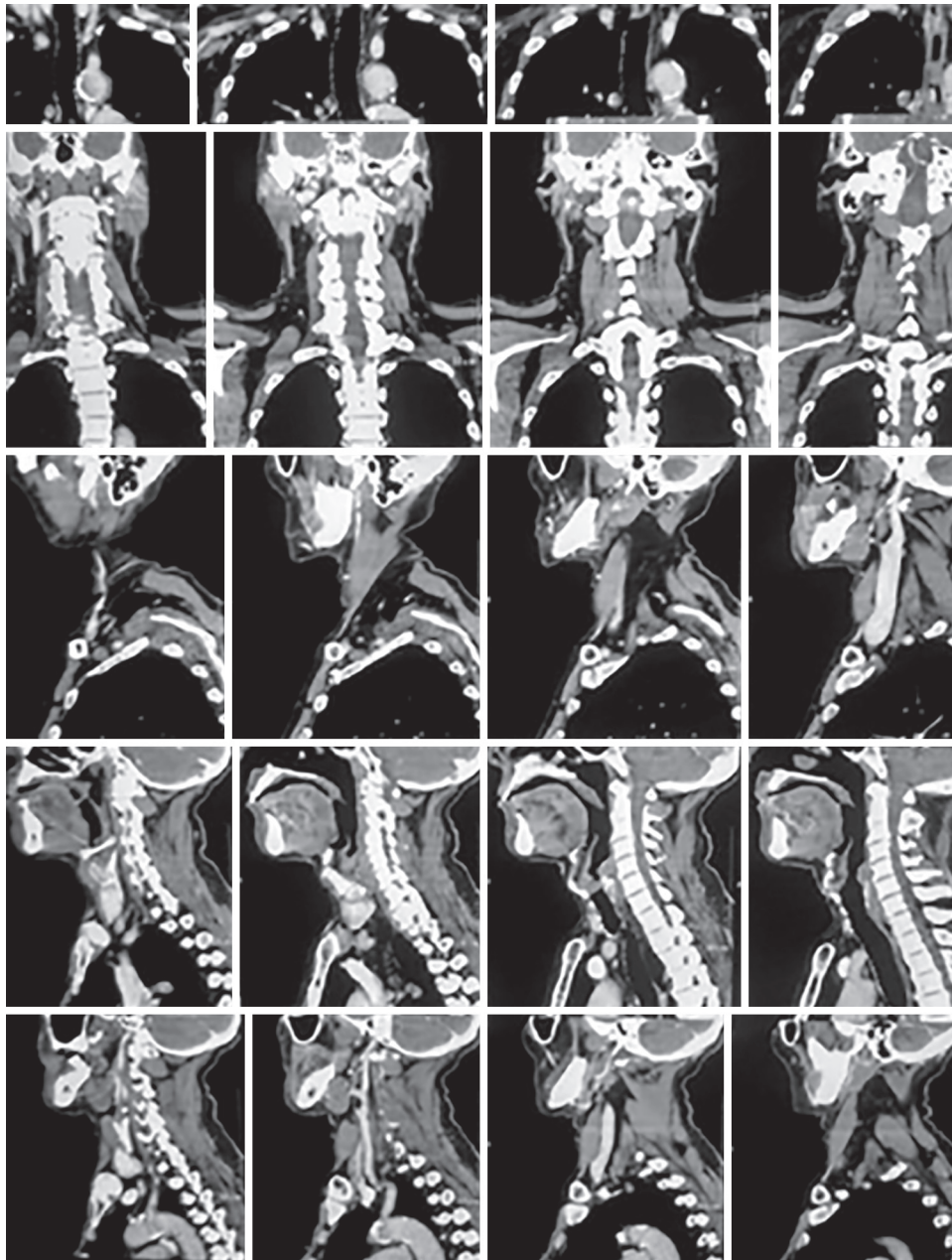
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**Fig. 1:** Granulomatous inflammation of both aryepiglottic folds causing narrowing of larynx on fiberoptic laryngoscopy. Laryngoscope could not be negotiated further, and vocal cords could not be visualized because of granuloma



**Fig. 2:** Contrast-enhanced computed tomography neck showing obstruction at the level of vocal cords because of mass lesion involving supraglottis and glottis

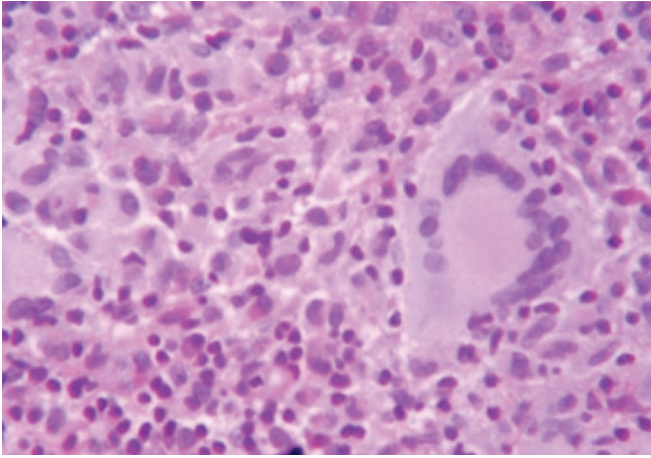
Contrast-enhanced computed tomography chest revealed a normal scan. The patient was started on IV Amphotericin B 0.7 mg/Kg/day for the first 5 days which offered significant relief in symptoms and was discharged on Tablet Itraconazole 200 mg twice daily.

## DISCUSSION

Histoplasmosis is caused by the fungus *histoplasma capsulatum*.<sup>3</sup> The source of infection is usually the soil with high nitrogen content which is the result of contamination by bats and birds. Thus found in areas of bird roosting, caves, and chicken houses. Fungus expresses heat shock protein 60 (HSP 60) on its cell surface that binds to alpha 2 integrins on the surface of macrophages. Fungus

induces macrophages to secrete tumor necrosis factor (TNF), which stimulates and recruits other macrophages to kill the histoplasma. It has two distinct growth forms yeast and mycelia forms. Yeast forms occur in humans and soil. On microscopy branched hyphae are seen. Hyphae have tubercular projections which contain conidia. These conidia are found in soil and are inhaled by humans to give rise to pulmonary or extra-pulmonary infection. Rapid transient hematogenous and systemic spread can occur or in a few cases it may be restricted to the primary organ.<sup>4</sup>

*Histoplasma capsulatum* infection involving the larynx is a rare manifestation, especially in immunocompetent individuals and a high index of suspicion is needed to establish the diagnosis. The clinical presentation is common to many diseases of the larynx and



**Fig. 3:** Vocal cord biopsy, HE staining showed stratified squamous epithelium with abundant mixed inflammatory infiltrate, histiocytes, plasma cells, polymorphonuclear cells, and multinucleated giant cells without necrosis or vasculitis, mixed infiltrate and multinucleated giant cells suggestive of histoplasmosis

laryngopharynx, including tuberculosis, papillomatous lesions, carcinoma, and another granulomatous lesion. It is therefore important to consider fungus in the differential diagnosis.<sup>5</sup> It is difficult to diagnose on the basis of clinical picture, examination, and radiology. Tissue diagnosis is usually required.<sup>6</sup>

## CONCLUSION

A patient who presents with hoarseness of voice and breathing difficulty with no definitive diagnosis on biopsy may be misdiagnosed for other conditions like tuberculosis and malignancy. Histoplasmosis should be suspected as one of the differential diagnoses. Early diagnosis and treatment avoid unnecessary aggressive interventions.

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