

Incidental Histopathological Identification of *Actinomyces* Colonization within a Benign Left True Vocal Fold Polyp

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ABSTRACT

Persistent hoarseness is a common presenting complaint in otolaryngology and warrants thorough evaluation to exclude underlying laryngeal pathology. Benign vocal fold polyps are frequently associated with chronic phonotrauma, smoking, and laryngeal irritation. In contrast, laryngeal involvement by *Actinomyces* species is exceedingly uncommon, and incidental histopathological identification of *Actinomyces* colonies within a benign vocal fold polyp has rarely been reported. A 58-year-old retired journalist presented with a two-year history of progressively worsening hoarseness and a one-week history of food regurgitation. Flexible nasopharyngolaryngoscopy demonstrated a polypoidal lesion arising from the left true vocal fold, which was further characterized by contrast-enhanced computed tomography of the neck. The patient underwent endoscopic microlaryngeal excision under general anaesthesia. Intraoperatively, a sessile lesion originating from the anterior commissure involved the anterior one-third of the left true vocal fold with limited subglottic extension. Histopathological examination revealed a benign vocal fold polyp with chronic inflammatory changes and incidental colonies of *Actinomyces*, without evidence of dysplasia or malignancy. The postoperative course was uneventful, and the patient's voice improved markedly during follow-up, with no evidence of residual disease. This case highlights the importance of comprehensive evaluation of persistent hoarseness and routine histopathological examination of all excised laryngeal lesions. The presence of *Actinomyces* colonies within a benign vocal fold polyp most likely represents secondary colonization of chronically inflamed tissue rather than invasive laryngeal actinomycosis. Recognition of this rare histopathological finding is essential to avoid misdiagnosis and unnecessary antimicrobial therapy while emphasizing the importance of clinicopathological correlation.

KEY WORDS

Actinomyces, Hoarseness, Microlaryngeal surgery, Vocal fold polyp

INTRODUCTION

Hoarseness of voice is a common presenting symptom in otolaryngology and requires timely evaluation when persistent, as it may reflect a wide spectrum of benign and malignant laryngeal disorders.¹ Benign vocal fold polyps are among the most frequent causes of chronic dysphonia and are commonly associated with phonotrauma, cigarette smoking, chronic inflammation, and laryngeal irritation. These lesions typically arise from the superficial lamina propria (Reinke's space) of the true vocal fold and present with progressive changes in voice quality.^{2,3}

Actinomyces species are filamentous, Gram-positive, anaerobic bacteria that constitute part of the normal commensal flora of the oral cavity and upper aerodigestive

tract. Although cervicofacial actinomycosis is the most common clinical manifestation, primary laryngeal involvement is exceedingly uncommon. Reported cases of laryngeal actinomycosis have typically presented as inflammatory masses or lesions mimicking laryngeal malignancy, often in association with prior laryngeal trauma, radiotherapy, immunosuppression, or poor oral hygiene. Histopathological identification of *Actinomyces* colonies within an otherwise benign vocal fold polyp is exceptionally rare, with only isolated case reports described in the literature.^{4,5}

We report a case of a benign left true vocal fold polyp in a 58-year-old male presenting with long-standing hoarseness

of voice, in whom histopathological examination unexpectedly demonstrated colonies of *Actinomyces*. To the best of our knowledge, no previously published case describing *Actinomyces* colonization within a benign vocal fold polyp from Nepal could be identified in the indexed English-language literature, although this observation should be interpreted with caution in the absence of a formal systematic review. The present case highlights the importance of comprehensive evaluation of persistent hoarseness and routine histopathological examination of excised laryngeal lesions, which may reveal uncommon microbiological findings with potential diagnostic and therapeutic implications.

CASE REPORT

A 58-year-old retired journalist from Kavrepalanchok, Nepal, presented to the Department of Otorhinolaryngology with a two-year history of progressively worsening hoarseness of voice and a one-week history of regurgitation of food. The hoarseness was insidious in onset, persistent, and gradually progressive, without diurnal variation or identifiable aggravating or relieving factors. Owing to his previous occupation, the patient had a long history of professional voice use involving frequent voice-over work and prolonged speaking.

He denied odynophagia, dysphagia, stridor, hemoptysis, chronic cough, fever, weight loss, neck swelling, or respiratory distress. Although he reported occasional symptoms suggestive of laryngopharyngeal reflux, including intermittent heartburn and acid regurgitation, these symptoms were mild, infrequent, and had never required medical treatment.

The patient maintained good oral hygiene and denied any recent dental extraction, periodontal disease, dental abscess, maxillofacial trauma, or invasive dental procedures. There was no history of diabetes mellitus, chronic kidney disease, human immunodeficiency virus infection, immunosuppressive therapy, prolonged corticosteroid use, previous laryngeal surgery, prolonged endotracheal intubation, radiotherapy, tuberculosis, or head and neck malignancy.

He had a history of cigarette smoking for approximately five years (approximately 5 pack-years) but had quit smoking two years before presentation. He denied alcohol consumption and tobacco chewing. During preoperative evaluation, he was newly diagnosed with hypertension and was commenced on antihypertensive therapy.

General physical examination was unremarkable except for elevated blood pressure. No cervical lymphadenopathy or thyroid enlargement was detected on neck examination.

Flexible nasopharyngolaryngoscopy revealed a solitary

polypoidal lesion arising from the left true vocal fold with reduced mobility of the affected vocal fold as shown in figure 1. The contralateral vocal fold appeared normal,



Figure 1. Showing mass arising from left true vocal cord (endoscopic image).

and the lesion produced partial obstruction of the glottic airway.

Contrast-enhanced computed tomography (CECT) of the neck demonstrated a well-defined pedunculated soft-tissue lesion measuring approximately $1.8 \times 1.2 \times 1.0$ cm, arising from the free edge of the anterior two-thirds of the left true vocal fold and projecting into the glottic airway (Fig. 2). The lesion showed no significant post-contrast enhancement, internal calcification, or necrosis. There was no evidence of thyroid or cricoid cartilage erosion, paraglottic space involvement, extralaryngeal extension, or cervical lymphadenopathy. Based on the clinical, endoscopic, and

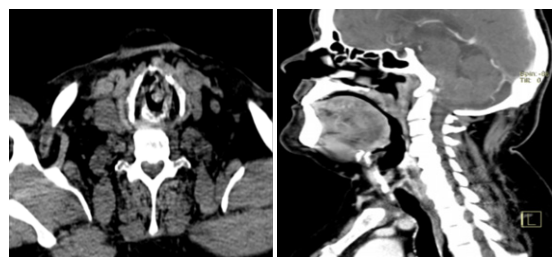


Figure 2. CECT picture of left true vocal cord nodule (Axial and Sagittal view).

radiological findings, a provisional diagnosis of a benign left true vocal fold polyp was established.

Considering the chronicity of symptoms and the size of the lesion, the patient underwent endoscopic microlaryngeal surgery under general anaesthesia. Intraoperatively, a sessile mass originating from the anterior commissure was identified, involving the anterior one-third of the left true vocal fold with limited extension into the subglottic region. Complete excision was performed using microlaryngeal techniques with meticulous preservation of the surrounding normal vocal fold mucosa.

Histopathological examination demonstrated a benign vocal fold polyp composed of chronically inflamed fibrovascular tissue. Multiple colonies morphologically consistent with *Actinomyces* species were identified within the lesion, without associated tissue invasion, sulfur granuloma formation, dysplasia, or malignancy (Fig. 3). In view of

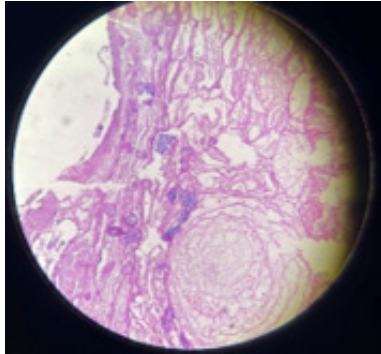


Figure 3. Microscopic picture as seen in the biopsy (Colonies of *Actinomyces*).

the absence of clinical, radiological, and histopathological evidence of invasive actinomycosis, these findings were interpreted as incidental colonization rather than active laryngeal infection.

The postoperative recovery was uneventful. The patient received analgesics, a short course of antibiotics, antihypertensive medication, and voice-rest instructions together with counselling regarding vocal hygiene and continued smoking abstinence. He was discharged on postoperative day two in stable condition.

At the one-month follow-up, the patient reported marked improvement in voice quality with near-complete

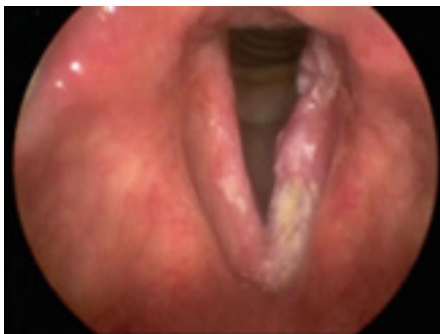


Figure 4. Showing satisfactory healing of the left true vocal fold. resolution of hoarseness. Flexible fibre-optic laryngoscopy demonstrated satisfactory healing of the left true vocal fold with preserved mobility and no evidence of residual or recurrent disease as shown in figure 4.

DISCUSSION

Benign vocal fold polyps are among the most common causes of persistent dysphonia and are strongly associated with chronic phonotrauma, cigarette smoking, laryngopharyngeal reflux, and other forms of chronic

laryngeal irritation. Persistent hoarseness should prompt early visualization of the larynx to exclude premalignant and malignant pathology, as recommended by contemporary clinical practice guidelines.¹⁻⁴

In contrast, laryngeal actinomycosis is an exceptionally uncommon clinical entity. *Actinomyces* species are filamentous Gram-positive, anaerobic bacteria that normally colonize the oral cavity and upper aerodigestive tract. Infection generally occurs only after disruption of the mucosal barrier and has been associated with poor oral hygiene, dental procedures, prolonged intubation, previous laryngeal surgery, radiotherapy, diabetes mellitus, immunosuppression, and chronic debilitating illnesses.^{5,6}

The present patient had no evidence of immunosuppression, previous laryngeal intervention, recent dental procedures, or destructive laryngeal disease. His principal predisposing factors included prolonged occupational voice use, previous cigarette smoking, and occasional symptoms suggestive of laryngopharyngeal reflux, all of which may have contributed to chronic mucosal injury and subsequent formation of the vocal fold polyp. Repeated epithelial microtrauma may facilitate secondary colonization by commensal *Actinomyces* organisms without resulting in invasive infection.^{3,5}

Histopathological examination unexpectedly demonstrated colonies of *Actinomyces* within an otherwise benign vocal fold polyp. Importantly, there was no associated tissue invasion, abscess formation, extensive suppurative inflammation, or evidence of malignancy. These findings strongly favor secondary colonization rather than primary laryngeal actinomycosis. Recognition of this distinction is clinically important because identification of *Actinomyces* organisms alone does not establish invasive disease and should always be interpreted in conjunction with the clinical, radiological, and histopathological findings.^{5,6}

The differential diagnosis of persistent hoarseness associated with a vocal fold mass includes vocal polyps, cysts, papilloma, granuloma, tuberculosis, fungal infection, granulomatous diseases, and laryngeal carcinoma. Several published reports have shown that laryngeal actinomycosis may closely mimic neoplastic lesions both clinically and endoscopically, making histopathological examination indispensable for establishing the diagnosis.⁷⁻¹¹

Unlike previously reported cases of primary laryngeal actinomycosis, our patient demonstrated incidental *Actinomyces* colonization within a benign vocal fold polyp and achieved complete symptomatic recovery following surgical excision without clinical or histopathological evidence of invasive infection. This case therefore emphasizes the importance of careful clinicopathological correlation before considering prolonged antimicrobial therapy.^{5,7-11}

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