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A Rare Case of Vocal Mucosal Fold: Case Report

Dr. Asmita Sharma

Department of Otorhinolaryngology, Jorhat Medical College and Hospital

HIGHLIGHTS

- Rare vocal mucosal fold anomaly
- Unusual laryngeal presentation documented
- Detailed clinical and surgical findings
- Diagnostic challenges in rare vocal pathology
- Successful management of a rare case

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ABSTRACT

Background: Vocal cord mucosal folds are rare benign lesions that can significantly impact voice quality, especially in vocal professionals such as singers. These lesions may cause respiratory distress and alterations in vocal quality, which can progressively worsen if not treated appropriately. Early diagnosis and surgical intervention are critical for restoring voice function and preventing long-term complications. **Case Presentation:** We present the case of a 43-year-old male singer who reported a gradual onset of respiratory distress and change in voice over six months. Endoscopic examination revealed a vocal cord flap originating from the left vocal cord, while all other clinical and laboratory parameters remained within normal limits. Pre-anaesthetic evaluation confirmed fitness for microlaryngoscopic excision, which was performed successfully without intraoperative complications. The patient recovered well post-operatively and was discharged the next day. A structured voice therapy program was initiated, leading to notable improvement in the Voice Handicap Index (VHI-10) scores, reflecting enhanced vocal quality and reduced symptoms. At subsequent follow-ups, the patient maintained stable voice quality, with no evidence of recurrence. **Conclusion:** Microlaryngoscopic excision of vocal cord mucosal folds, combined with post-operative voice therapy, is an effective strategy for symptom relief and voice restoration in vocal professionals. Early intervention and structured rehabilitation are key to achieving optimal vocal recovery.

*Corresponding Author: Dr. Asmita sharma

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INTRODUCTION

Vocal cord mucosal folds are benign yet potentially debilitating lesions that disrupt the vibratory function of the vocal folds, significantly affecting voice quality and respiratory comfort (Lungova & Thibeault, 2021). These mucosal abnormalities interfere with normal vocal fold vibration, leading to symptoms such as hoarseness, breathiness, and vocal fatigue (Lundy et al., 1999). In severe cases, vocal professionals may experience compromised vocal range and pitch control, necessitating clinical intervention (Villaret et al., 2007). Micro-aryngoscopy is the gold standard for the diagnosis and excision of such lesions, as it allows for high-precision visualization and removal of mucosal irregularities, ensuring minimal trauma to the surrounding vocal structures (Bastian, 1996). This method, combined with structured post-operative voice therapy, has shown promising outcomes in terms of voice restoration and reduction of vocal fatigue.

Singers are particularly vulnerable to vocal fold lesions due to the high vocal demands and repetitive strain on their vocal apparatus (Hirosaki et al., 2021). Prolonged vocal use, poor vocal techniques, and exposure to environmental irritants increase the risk of mucosal damage, which can manifest as nodules, polyps, or mucosal flaps (Feder, 1983). Even asymptomatic singers often exhibit subclinical lesions detectable through videostroboscopy, suggesting that continuous vocal demand predisposes this group to early mucosal changes (Lundy et al., 1999). Furthermore, the need for precise pitch and tone control amplifies the impact of even minor vocal fold irregularities, making early intervention crucial for career longevity (Lechien et al., 2019).

This case report aims to highlight the clinical presentation, surgical intervention, and post-operative recovery of a professional singer diagnosed with a vocal cord mucosal fold. Emphasis is placed on the role of microlaryngoscopic excision and voice therapy in restoring vocal function, demonstrating the importance of targeted intervention for vocal professionals. The discussion will explore clinical findings, therapeutic decisions, and the patient's recovery trajectory in alignment with current best practices for voice preservation in high-demand vocal users.

CASE PRESENTATION

A 43-year-old male professional singer presented to the ENT department with complaints of progressive respiratory distress and changes in voice quality over a period of six months. His medical history was unremarkable, with no known comorbidities or previous vocal surgeries. He described his vocal issues as a gradual reduction in vocal clarity, accompanied by hoarseness and vocal fatigue, which significantly impacted his professional performances. He denied any history of smoking, alcohol consumption, or vocal trauma. The patient also reported increasing difficulty in

reaching higher vocal ranges, which he attributed to a persistent feeling of vocal strain.

An initial otolaryngological examination was followed by a videostroboscopic endoscopy, which revealed a well-defined vocal cord flap originating from the left vocal cord. The lesion appeared sessile and was observed to interfere with the normal mucosal wave during phonation, contributing to the observed dysphonia. The right vocal cord demonstrated normal vibratory function with no lesions or irregularities. Mucosal wave propagation was notably dampened on the left side, suggesting structural impedance from the flap. Laboratory investigations, including a complete blood count, metabolic panel, and coagulation profile, were all within normal limits, confirming no underlying systemic abnormalities.

The patient underwent a comprehensive diagnostic work up to rule out differential diagnoses such as vocal cord nodules, polyps, Reinke's edema, and cystic lesions. High-definition laryngoscopy confirmed the presence of a vocal cord mucosal fold, which was identified as the primary cause of his vocal alterations and respiratory discomfort. Imaging studies, including high-resolution stroboscopy, provided enhanced visualization of the lesion's impact on glottic closure and vibratory amplitude. No evidence of malignancy or vascular abnormality was detected. The diagnosis was thus confirmed as a benign mucosal fold of the left vocal cord, necessitating surgical intervention due to symptomatic impairment.

A pre-anaesthetic evaluation was conducted to assess the patient's fitness for microlaryngoscopic excision. Routine investigations, including chest X-ray and electrocardiogram (ECG), were performed, showing no contraindications for general anaesthesia. Risk assessment was discussed, focusing on potential complications such as vocal fold scarring, airway compromise, and post-operative hoarseness. Informed consent was obtained from the patient after explaining the procedural steps, associated risks, benefits, and the necessity for post-operative voice therapy. He was advised on voice rest and vocal hygiene measures as preparatory steps before the scheduled surgery.

The patient underwent microlaryngoscopic excision of the vocal cord mucosal fold under general anaesthesia. The procedure involved suspending the larynx for optimal visualization of the vocal cords. A high-resolution operating microscope was used to magnify the operative field, ensuring precision during tissue dissection.

The mucosal fold was carefully identified and dissected using cold instrumentation to minimize thermal damage. The edges were smoothed to restore regular mucosal wave propagation. Intraoperatively, the procedure remained uneventful with no signs of hemorrhage or tissue trauma. Meticulous care was taken to preserve the underlying vocal ligament to

prevent scarring and maintain vibratory capacity. Haemostasis was achieved, and the site was inspected for residual lesions before concluding the procedure.

The patient was extubated smoothly post-procedure, showing stable vitals and spontaneous breathing. He was monitored in the recovery room for two hours and exhibited no signs of respiratory distress or laryngeal spasm. A structured voice therapy regimen was initiated to promote optimal healing and restore vocal function. He was discharged the next day with specific instructions for voice rest, hydration, and avoidance of vocal strain. Follow-up assessments were scheduled at weekly intervals for the first month, during which significant improvements were noted in voice clarity and pitch control. His Voice Handicap Index (VHI-10) scores showed marked reduction, indicating successful vocal recovery. Regular stroboscopic evaluations confirmed the absence of residual lesions and complete restoration of the mucosal wave. The patient resumed singing activities under guided vocal therapy with no evidence of recurrence or vocal fatigue.

DISCUSSION

Vocal cord abnormalities, including mucosal folds, are particularly impactful for professional singers due to the high demand for vocal precision and endurance. Even minor irregularities in vocal fold structure can significantly affect vocal quality, causing hoarseness, loss of range, and vocal fatigue (Selvarajan et al., 2023). In our presented case, the singer experienced a gradual decline in vocal clarity and respiratory comfort over six months, necessitating intervention. Microlaryngoscopy was chosen for its precision in removing benign lesions while preserving the integrity of surrounding vocal tissue, which is crucial for vocal professionals (Tiwari & Das, 2015). Studies demonstrate that microlaryngoscopic excision of benign lesions, combined with post-operative voice therapy, leads to significant improvements in vocal quality and reduces the risk of recurrence (Kale et al., 2020).

The decision to perform microlaryngoscopic excision was based on the patient's profession, symptom severity, and endoscopic findings. Literature supports that microlaryngoscopy is

highly effective in removing benign lesions while minimizing vocal trauma, particularly in cases where vocal performance is critical (Gangadhara et al., 2020). This method allows for direct visualization and precise excision of the lesion, which is essential to maintain the mucosal wave necessary for clear phonation. Furthermore, microlaryngoscopy has been shown to yield long-term positive outcomes in voice quality with minimal recurrence when paired with structured voice therapy (Villaret et al., 2007).

Our case aligns with similar studies demonstrating the

efficacy of microlaryngoscopy in restoring vocal function in singers and professional voice users. In a study by Rives et al. (2023), vocal performers who underwent microlaryngoscopy showed significant improvements in vocal quality and were able to resume professional performance with minimal vocal impairment (Rives et al., 2023). Another study highlighted that post-operative voice therapy significantly enhanced recovery, leading to better vocal outcomes and reduced VHI (Voice Handicap Index) scores (Selvarajan et al., 2023).

Our patient's case is particularly noteworthy given his profession as a singer, where even slight improvements in vocal quality have a substantial impact on performance capability. In comparison to routine voice users, singers benefit significantly from the precision and tissue-sparing nature of microlaryngoscopy (Villaret et al., 2007).

The primary therapeutic strategy involved microlaryngoscopic excision of the mucosal fold, followed by a structured regimen of voice therapy. Microlaryngoscopy is well-documented for its precision and minimal invasiveness, making it ideal for benign lesions in vocal professionals (Kale et al., 2020). Voice therapy post-surgery is critical for vocal fold reconditioning and preventing maladaptive phonation habits that could contribute to recurrence (Selvarajan et al., 2023).

A comparative study by Semmanaselvan et al. (2021) evaluated microlaryngeal surgery against newer techniques like coblation and found that while coblation was faster, conventional microlaryngoscopy yielded superior voice outcomes as measured by VHI and GRBAS scores (Semmanaselvan et al., 2021). This evidence supports our choice of traditional microlaryngoscopy for its precision and lower risk of vocal fold trauma.

While the patient's recovery was successful, the case report format has inherent limitations, such as the inability to generalize outcomes or predict recurrence in larger populations. Vocal professionals are at continuous risk of re-injury due to their demanding vocal activities, making follow-up therapy essential. Studies have demonstrated that recurrence rates can be mitigated through ongoing voice therapy and strict adherence to vocal hygiene (Gökcan & Dursun, 2009). Future clinical practice should focus on standardized post-operative rehabilitation protocols for vocal professionals, integrating structured voice therapy with routine stroboscopic evaluations to monitor for early signs of lesion recurrence. This approach could help optimize voice recovery and extend the functional life of the vocal folds in high-demand users.

CONCLUSION

Microlaryngoscopic excision of the vocal cord mucosal fold, combined with structured voice therapy, proved to be an effective strategy for restoring vocal function in a professional singer. The precise removal of the lesion through minimally

invasive surgery allowed for optimal preservation of vocal cord integrity, leading to significant improvements in voice quality and respiratory comfort. Post-operative voice therapy facilitated recovery by enhancing vocal endurance and reducing vocal fatigue.

This case underscores the importance of early detection and timely intervention in vocal professionals, where even minor lesions can have substantial impacts on performance. Routine stroboscopic assessments and voice therapy are critical components of post-surgical rehabilitation, reducing the risk of recurrence and preserving vocal longevity. Early clinical intervention not only aids recovery but also protects the career trajectory of vocal professionals who rely on optimal vocal function.

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