



Ipsilateral Vocal Cord Aspergilloma Following Fat Injection Laryngoplasty for Unilateral Vocal Cord Paralysis

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Introduction

Primary laryngeal aspergillosis is rare, especially an isolated infection of true vocal cord cyst with *Aspergillus*. To our knowledge, there have been only two reported cases of infection of true vocal cord cyst with *Aspergillus*.¹ Wittkopf et al² proposed the *Aspergillus* infection in their immunocompetent patient was like a submucosal aspergilloma.¹ We report the first ipsilateral vocal cord aspergilloma in a patient with unilateral vocal cord paralysis (UVCP) following fat injection laryngoplasty

Case

A 45-year-old woman with idiopathic left vocal cord paralysis presented with hoarseness of one-year duration. She was happy with her voice after receiving bilateral fat injection laryngoplasty. Nine months after the surgery, patient suffered from 3-week history of progressive hoarseness and voice fatigue. There was no medical history of immune deficiency or steroid use. Laryngoscopy (Figure 1A) revealed a cystic lesion (arrow) in the mid-portion of the paralyzed vocal fold. The remainder of her head and neck examination was unremarkable. Chest radiography demonstrated clear lung fields without infiltration or pleural thickening. Under general anesthesia, laryngomicroscopic surgery was conducted for removal of the submucosal lesion via microflap. Histologic examination (Figure 1B) revealed septate hyphae in an acute angled and branching pattern (arrow) consistent with *Aspergillus*. Postsurgical follow-up was unremarkable and no recurrence has occurred. Her voice improved constantly after the surgery.

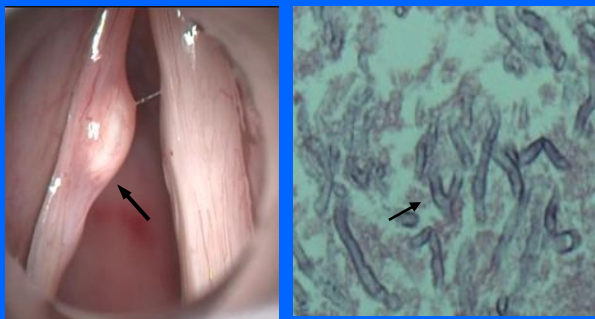


Figure 1 (A) A cystic lesion (arrow) in the mid-portion of the left paralyzed vocal fold. (B) Histopathology revealed septate hyphae in an acute angled and branching pattern, consistent with *Aspergillus* (H&E stain)

Discussion

Aspergillus is a ubiquitous mold that transmitted by airborne conidia. The aspergilloma which is considered noninvasive usually develops in a preformed lung cavity.³ Laryngeal aspergillosis usually presented with ulcerated mass with necrotic tissue or white plaques.^{4,5} Histopathology showed septate hyphae with branching at acute angle, necrosis of the squamous epithelium, granulomatous inflammation, and even hyphae invading the cartilage.^{4,5} Yong-Cai et al¹ proposed the potential predisposing factors of the development of primary laryngeal aspergillosis in immunocompetent patients included (i)iatrogenic factors, such as radiotherapy, steroid inhaler use, laser treatment, and prolonged antibiotic therapy, (ii) vocal abuse (iii) vocal-fold cysts, and (iv) occupational factors, such as farmer or carpenters.

Wittkopf et al² reported the first true vocal cord cyst infected by *Aspergillus*, varying significantly from previous laryngeal aspergillosis. It presented with a distinct submucosal mass. Aspergilloma is favored rather than aspergillosis because histopathology revealed hyphae within the cyst without local invasion.

It's questionable whether the *Aspergillus* infected the cyst that already existed or the infection induced a cyst.² The etiology of the vocal cord cyst was considered vocal overuse, abuse, and misuse that lead to repeated injury, wound formation, and remodeling in the mid-membranous vocal fold.⁶ Ollivier et al⁷ reported delayed complications of fat injection laryngoplasty including intracordal cyst in the injection site in three patients after the first postoperative month. In our patient, the cyst did not occur in the injection site that was on the lateral aspect of the vocal process at the posterior half of the vocal fold.

We suggest the etiology of the aspergilloma in the vocal fold as follows. Our patient had improved glottic closure post laryngoplasty but excessive mechanical stress lead to the cyst formation. It was located in the paralyzed vocal fold that may facilitate stagnation of spores of *Aspergillus*. Persistent excessive stress injured the cyst wall and the tiny spores entered it through the wound. The cyst was like a preformed lung cavity with inadequate drainage that facilitates the growth of *Aspergillus*³ and the "aspergilloma" formed in the vocal cord cyst.

Conclusion

True vocal cord cyst infected by *Aspergillus* is extremely rare. We report the first ipsilateral vocal cord aspergilloma in a patient with UVCP following fat injection laryngoplasty. Vocal cord cyst may develop in the paralyzed vocal fold if vocal overuse, abuse, and misuse post laryngoplasty. Then the "aspergilloma" may occur in the cyst. We suggest speech therapy and regular visit post fat injection laryngoplasty in UVCP to decrease the morbidity.

References

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