A Case of Bilateral Vocal Fold Mucosal Bridges, Bilateral Trans-Vocal Fold Type III Sulci Vocales, and an Intracordial Polyp

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Summary: Introduction. We present a patient with a novel finding of bilateral mucosal bridges, bilateral type III trans-vocal fold sulci vocales, and a vocal fold polyp. Although sulci and mucosal bridges occur in the vocal folds, it is rare to find multiples of these lesions in a single patient, and it is even more uncommon when they occur in conjunction with a vocal fold polyp. To our knowledge, this is the first description of a vocal fold polyp in combination with multiple vocal fold bridges and multiple type III sulci vocales in a single patient.

Objective. To describe and visually present the diagnosis and treatment of a patient with an intracordial polyp, bilateral mucosal bridges, and type III trans-vocal fold sulci vocales.

Methods. Presentation of a set of high definition intraoperative photos displaying the extent of the vocal fold lesions and the resection of the intracordial polyp.

Results. This patient presented with only 6 months of significant dysphonia. It was felt that the recent change in voice was caused by the polyp and not the bridges or sulci vocales. Considering the patient’s presentation and the possible morbidity of resection of mucosal bridges and sulci, only the polyp was excised. Postoperatively, the patient’s voice returned to his acceptable mild baseline dysphonia, and the benefit has persisted 6 months postoperatively.

Conclusion. The combination of bilateral mucosal bridges, bilateral type III sulcus vocales, and an intracordial polyp in one patient is rare if not novel. Treatment of the polyp alone returned the patient’s voice to his lifelong baseline of mild dysphonia.

Key Words: Sulcus vocales–Sulci vocales–Mucosal bridge–Vocal fold polyp.

INTRODUCTION

We present a novel case of bilateral type III trans-vocal fold sulcus vocales, bilateral mucosal bridges, and a vocal fold polyp. Mucosal bridges, sulci, and polyps are benign laryngeal lesions, all of which can cause significant dysphonia. Although sulci vocales and mucosal bridges are well documented in the literature, it is rare to find multiples of these lesions in a single patient and even more uncommon to find them concurrently with a polyp. We present the first description of its kind and review the recent relevant literature.

CASE

An otherwise healthy 25-year-old male presented with a 6-month history of severe dysphonia and vocal fatigue. Since early childhood, he had experienced chronic mild dysphonia. No additional medical problems were identified. He was employed as an investment banker with a moderate voice demand. At the time of presentation, he had failed a trial of maximal medical therapy for laryngopharyngeal reflux. Stroboscopic laryngeal examination at the time of initial presentation identified an intracordial mass within the left vocal fold. Mucosal wave was absent on the left but normal on the right. A presumptive diagnosis of a vocal fold cyst was made.

The patient was taken to the operating room for direct suspension microlaryngoscopy. Initial inspection of the vocal folds confirmed the left intracordial mass (Figure 1), and bilateral type III trans-vocal fold sulci vocales (Figures 2 and 3) and mucosal bridges were identified along the superior surfaces of each vocal fold (Figures 4 and 5). Given the extent of vocal fold abnormalities and a lifelong history of dysphonia, the mucosal bridges and sulci were presumed to be congenital and were therefore not surgically altered. A left cordotomy was performed, revealing a polyp. Complete microflap excision of
the polyp was performed (Figure 6). Postoperatively, the patient regained a mild baseline dysphonia, which further improved after voice therapy.

**DISCUSSION**

The term sulcus vocalis describes a depression in the surface of vocal fold into the superficial lamina propria or deeper. Sulcus vocalis was first coined in 1983 by Hirano and colleagues in a review of patients with “vocal fold furrows” to describe furrows as the major pathology causing hoarseness. Bouchayer et al. later distinguished sulcus vocalis from sulcus vergeture, where sulcus vocalis is a focal invagination of the epithelium along the vocal ligament, whereas sulcus vergeture is a linear depression along the medial margin of the vocal fold. Ford et al. categorized sulci vocales into three different types. Type I, termed physiologic sulcus, is a longitudinal depression of the epithelium into the superficial lamina propria but not down to the ligament. Type II, termed sulcus vergeture, is also a full-length depression along the medial vocal fold edge but extending down to the vocal ligament or deeper and involving a loss of the superficial lamina propria. Type III is a deep, often pit-like indentation of the epithelium along the medial surface of the vocal fold, which does not extend for its whole length but is rather a focal disruption involving loss of the superficial lamina propria.

Mucosal bridges are longitudinal masses of connective tissue covered by stratified epithelium, which completely encase them. There is a significant association between mucosal bridges and sulci vocales in the literature. Additionally, there is a significant association of both mucosal bridges and sulci vocales with epidermoid cysts. In Bouchayer’s series, of 153 patients, seven patients had mucosal bridges, and an additional 23 patients had mucosal bridges with a glottic sulcus and epidermoid cyst simultaneously. Since that time, several case reports of mucosal bridges have been reported, demonstrating single, double, or triple bridges, or an associated contralateral cyst.

Epidermoid cysts may occur secondary to vocal abuse and overuse or they may arise from an epithelial remnant trapped within the lamina propria. Considering the latter etiology, it reasonably follows that they may be associated with bridges and sulci vocales, where the epithelium of the vocal fold may be invaginated. In Ford’s series, all nine of the patients with type III sulcus vocalis lesions were associated with epidermoid cysts, which extended into the vocal ligament and three of these patients also had at least one mucosal bridge.
There is not a consensus on the optimal management of mucosal bridges and sulci vocales. For mucosal bridges, the treatment is generally excision of the bridge; treatment of the underlying scar tissue is treated as one would treat a sulcus and postoperative voice therapy. For a sulcus, there are several additional possible operative treatments, including vocal fold medialization, cold instrument undermining or excision, elevation with flap slicing, and implantation of fat, fascia, or allo-derm. This patient had multiple lesions. It was believed that the polyp was the cause of the acute decline in vocal function, and that the patient was not unhappy with his baseline voice that was present before the polyp arose. Therefore, complete microflap excision of the polyp was performed, and the other anomalies were not altered (Figure 6).

CONCLUSION
Although sulci vocales and mucosal bridges are well documented in the literature, it is rare to find multiples of these lesions in a single patient and even more rare to find them concurrently with a polyp. The combination of bilateral mucosal bridges, bilateral type III sulci vocales, and an intracordal polyp in one patient is rare if not novel. Treatment of the polyp alone returned the patient’s voice to his lifelong baseline of mild dysphonia.

REFERENCES