

Saccular Cyst as a Complication of Medialization Laryngoplasty

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ABSTRACT

Summary: A patient with previous history of unilateral vocal fold paralysis and subsequent silastic medialization laryngoplasty presented with progressive dysphonia and dysphagia which was found to be related to a laryngeal saccular cyst. The presence of this saccular cyst is thought to a novel complication of an inappropriately high silastic implant causing obstruction of the laryngeal saccule.

Objectives:

1. To discuss etiology and classification of laryngeal saccular cysts.
2. To present a case report of a patient with laryngeal saccular cyst thought to represent a novel complication of previous silastic medialization laryngoplasty.

Methods: Case report and literature review.

Results: A 54 year-old female was evaluated for deterioration of voice and swallowing. Past history was significant for previous silastic medialization laryngoplasty for unilateral vocal fold paralysis. She initially had good voice results which deteriorated in the several years following surgery. Office exam, radiologic imaging, and subsequent operative intervention revealed a saccular cyst immediately adjacent to the implant, whose superior extent reached above the level of the laryngeal ventricle. Operative endolaryngeal resection of this cyst was accomplished without need to remove the implant. Pathologic evaluation revealed a benign oncocyctic cyst. In this case, voice and swallowing improved following surgery. Compression of the laryngeal saccule by an inappropriately high implant is hypothesized as the source of this lesion.

Conclusion: Though laryngeal saccular cysts are uncommon lesions, medialization laryngoplasty is commonly performed. The case presented here is thought to represent a novel complication of medialization laryngoplasty in which an implant compressed the laryngeal saccule and led to this rare lesion.

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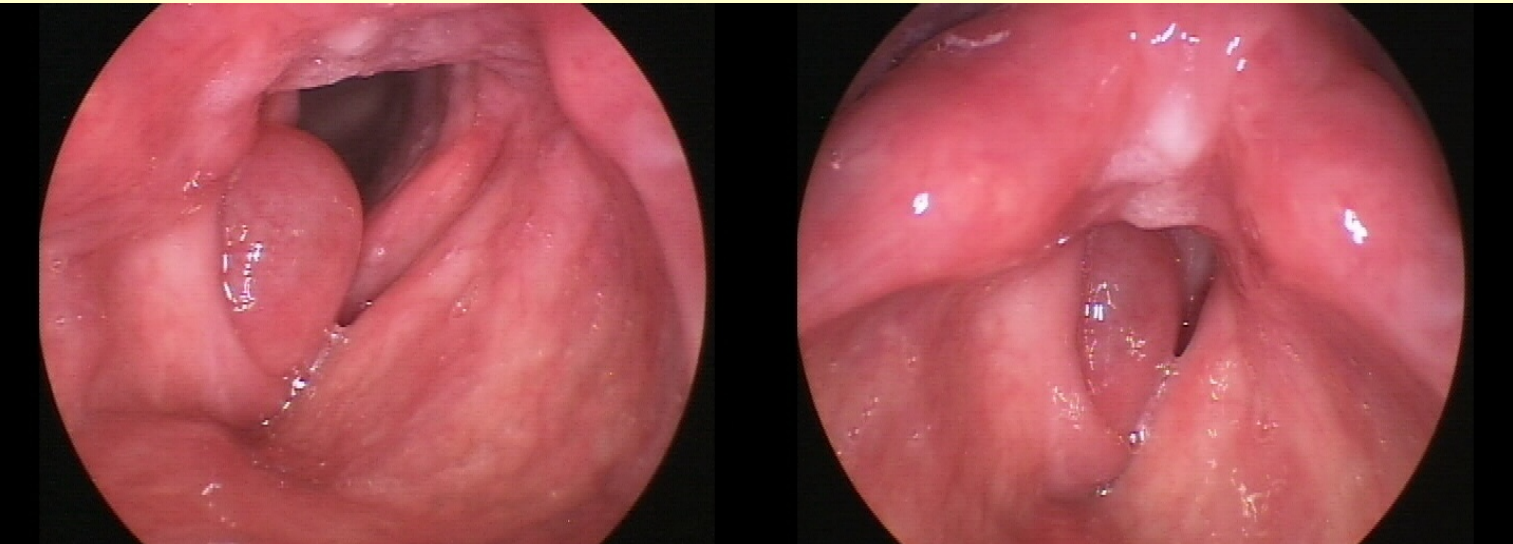
INTRODUCTION

This case report and literature review presents a case of patient with a laryngeal saccular cyst thought to arise secondary to a medialization laryngoplasty silastic implant. This patient was managed with endoscopic laser resection successfully without the need for a tracheostomy. A review of the patient's exam preoperatively and postoperatively, the preoperative radiographs, and intraoperative photos will all be reviewed.

PATIENT PRESENTATION

A 54 year old female presented to our clinic with complaints of four-year progressive hoarseness. She had twice required anterior cervical discectomy and fusions at outside hospitals, the first in 2000 and the second in 2004. Evaluation after the second surgery in 2004 for immediate postoperative hoarseness revealed right vocal cord paralysis, with subsequent paralytic dysphonia and aspiration. A right true vocal cord medialization laryngoplasty with silastic implant was performed in February 2005 at an outside hospital. Early on she had much improved voice and swallowing. However, with progressive vocal deterioration in the few years following this surgery, the patient presented to Loyola for repeat evaluation earlier this year. At time of presentation, she noted hoarseness and increased vocal effort, with moderate strain. Swallowing had also become increasingly effortful, though there was no coughing or choking while eating.

On exam, she had a low-pitched, rough voice without breathiness. There were no obstructive airway signs. Her neck had no discrete masses. Videostrobolaryngoscopy (Images 1-4) revealed an immobile right vocal and a smooth, round 1.5cm x 1cm x 1cm lesion arising from the right ventricle. During phonation this lesion obscured both vocal cords during phonation, along with false vocal fold compression.



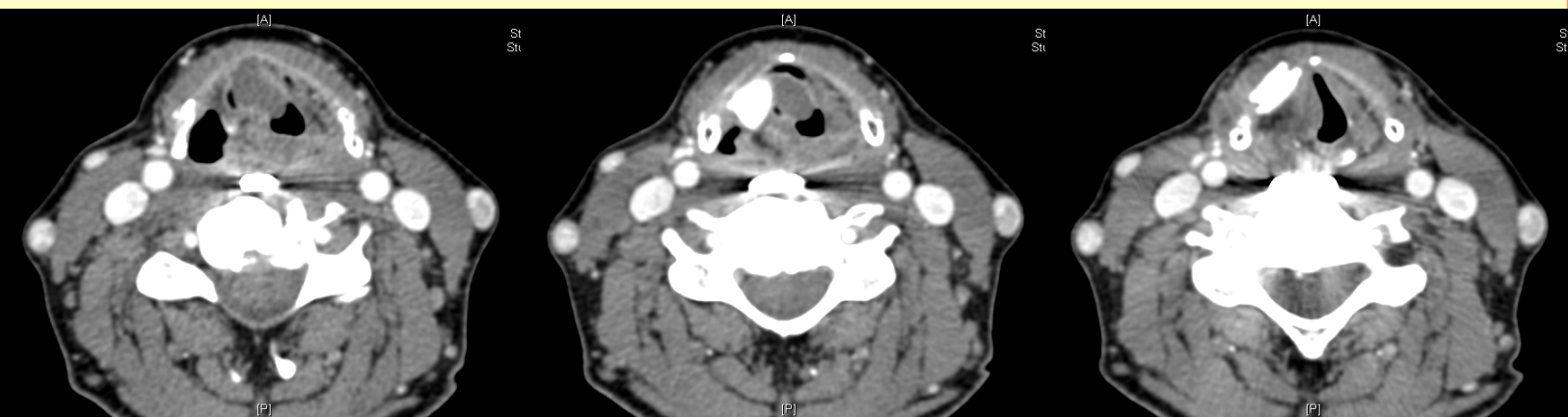
Images 1,2. Preoperative Laryngoscopy abduction and adduction



Images 3,4. Preoperative with supraglottic compression; Laryngocele zoom

RADIOGRAPHS

A CT scan of the neck was ordered to assess the relationship between the cyst and the underlying silastic implant. Axial images revealed a well-marginated cystic lesion measuring 2 cm that filled the right-sided laryngeal airway just above the level of the true vocal folds. A silastic implant is noted in the right paraglottic space, and the cystic lesion abuts this on its deep surface. The bulk of the silastic implant itself seems to sit just superior to the level of the left vocal fold.

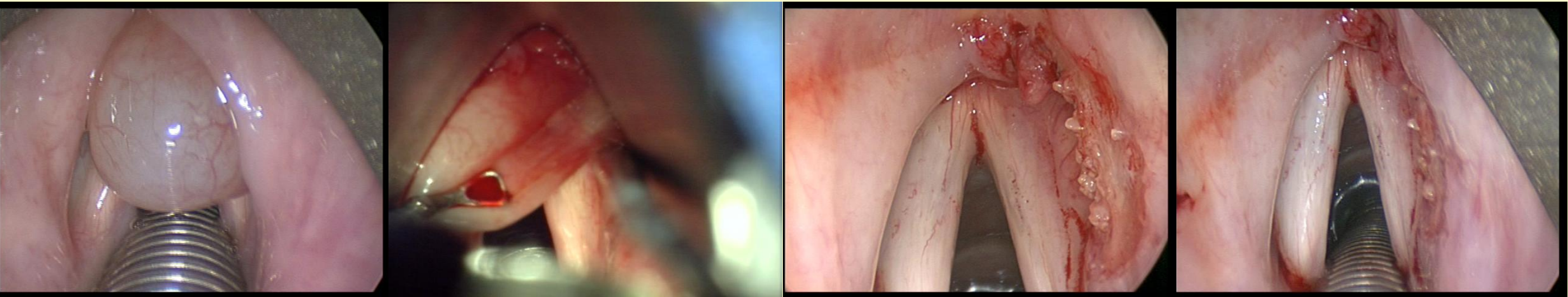


Radiographs 1-3: Pre-operative Axial Neck CT with Contrast.

SURGICAL TREATMENT

Suspension microlaryngoscopy was performed under general anesthesia with the goal of removing the saccular cyst while preserving the silastic implant. It was thought necessary to limit exposure of the implant as possible in order to reduce risk of infection of this foreign body. During surgery exposure was obtained with a universal modular glottiscope (Endocraft LLC, Boston, MA), and both a telescope and an operating microscope with a 400-mm lens were used to view the larynx. The cyst was noted to be filling the ventricle but no other lesions were seen. In order to improve operative exposure, the overlying medial aspect of the right false vocal cord was removed with a fiber-based CO2 laser (Omniguide, Cambridge, MA). The saccular cyst was then removed using cold instrument dissection. The cyst was removed at its base, and the silastic implant could be easily palpated along its deep border. A thin layer of the lateral portion of the cyst wall itself was left intact so as to not expose the implant. The patient was extubated without complications. The pathology was consistent with a benign oncocyctic cyst that was negative for malignancy.

OPERATIVE PHOTOGRAPHS

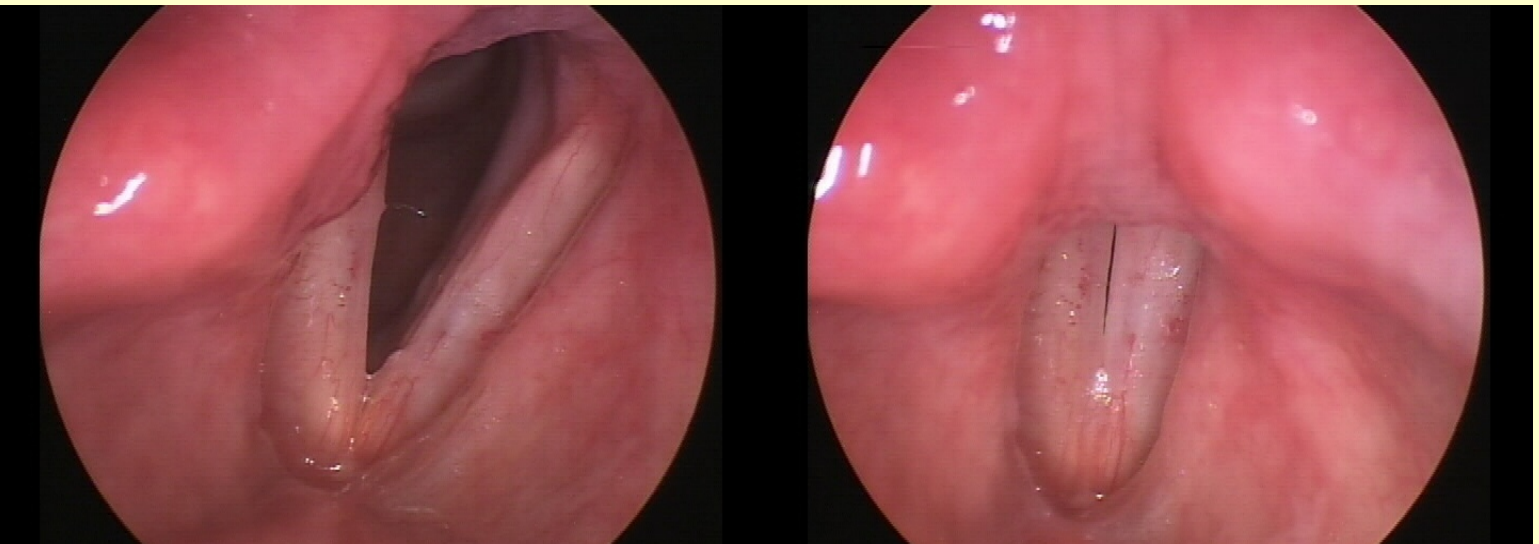


Images 5,6. Intraoperative prior to (left) and during resection (right)

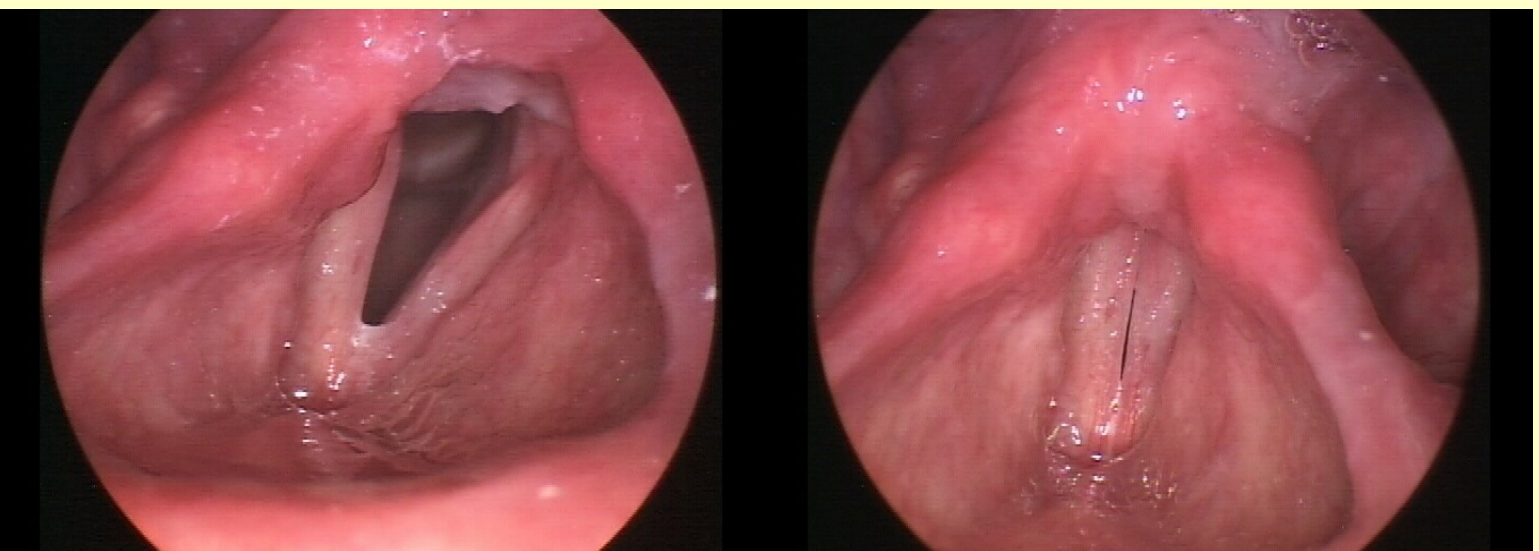
Images 7,8. Intraoperative after resection of saccular cyst

POSTOPERATIVE COURSE

Postoperatively the patient did well. After initially resting her voice for several days to allow resolution of post-surgical inflammation, she then resumed speaking and singing. She noted much improvement to her voice as compared to her pre-operative complaints. Vocal roughness was much improved, vocal effort was decreased, and vocal endurance normalized. The mild dysphagia that she had experienced pre-operatively improved as well. Strobolaryngoscopy revealed no persistence of her right ventricular lesion. Her right vocal fold remained immobile, with a straight edge in a midline position that allowed for complete glottic closure.



Images 9,10. Strobolaryngoscopy Post-operative day 12



Images 11,12. Strobolaryngoscopy Post-operative week 23

DISCUSSION

A review of the literature reveals that laryngeal saccular cysts lesions are uncommon. Newman classified saccular cysts in 1983 based on pathologic specimens and epithelial linings. Oncocyctic saccular cysts represent 25-35% of saccular cysts, and are characterized by their histopathologic appearance of fine granular eosinophilic cytoplasm, with increased number of mitochondria. Oncocyctic cysts are more likely to be located around the ventricle and are more likely to recur. Tonsillar cysts, by contrast, are made up mostly of follicular lymphoid tissue. They tend to occur in younger patients in in the vallecula, epiglottis and piriform sinuses [2].

Saccular cysts may be congenital or acquired. In adults, common causes include trauma, neoplasm, or inflammation. Importantly, the incidence of carcinoma associated with saccular cysts and laryngosceles is reported as between 5-30% [3].

Symptoms of saccular cysts include hoarseness and dysphagia. In extreme cases, saccular cysts may lead to airway compromise. Fatal airway obstruction has been reported as a consequence of large saccular cysts.

In the case reported here, the patient presented with classic symptoms and appearance of a laryngeal saccular cyst. What is uncommon in this patient is the presence of a silastic medialization laryngoplasty implant immediately adjacent to the cyst. Though it cannot be proven, the timing of her cyst as relative to her implant as well as the relatively superior location of the implant itself relative to the true vocal fold and laryngeal ventricle lead to the hypothesis that the implant itself may have caused the cyst by compressing the laryngeal saccular orifice.

There are many reported complications of medialization laryngoplasty, including transient edema, hematoma/seroma, infection, extrusion, and airway obstruction [5]. Our literature review suggests that a laryngeal saccular cyst is a previously undescribed novel complication of medialization laryngoplasty.

Surgical management of this cyst paralleled the endoscopic management which has become the accepted standard-of-care [4]. However, particular attention in this case had to be paid to preventing exposure of the silastic implant during surgery.

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