

Novel endoscopic treatment of pharyngocele: Endoscopic suture pharyngoplasty

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ABSTRACT: *Background.* Pharyngocele or a lateral pharyngeal diverticulum (LPD) are rare lesions, which are bulgings of the pharyngeal mucosal surface through one of the weak areas of the pharynx.

Methods. The external approach has been the primary surgical treatment of pharyngoceles. The purpose of this article was for us to report an endoscopic successful treatment of pharyngocele by suture pharyngoplasty.

Results. Endoscopic suture pharyngoplasty does not require an external incision and hospitalization. After 3 months of abstinence from trumpet playing, the patient is back to his musical career.

Conclusion. Because of the minimally invasive procedure, endoscopic suture pharyngoplasty can be performed in case of symptomatic pharyngoceles with a good result. © 2014 Wiley Periodicals, Inc. *Head Neck* 36: E78–E80, 2014

KEY WORDS: pharyngeal diverticulum, natural orifice endoscopic surgery, endoscopy, endoscopy, digestive system, neck

INTRODUCTION

Pharyngocele or a lateral pharyngeal diverticulum (LPD) is bulging of the pharyngeal mucosal surface through one of the weak areas of the pharynx.^{1,2} Weak areas of the pharynx from which pharyngoceles arise are tonsillar fossa, vallecula, or pyriform fossa on either side.³ The outpouching can be aggravated by an increased air pressure in the pharynx.^{1,2} Pharyngoceles usually manifest in the fifth or sixth decades of life and are seen more often in men than women.^{1,2} LPDs are classified as congenital or acquired.^{2,3} Since the first documented case of LPD was reported by Wheeler in 1886, pharyngoceles are rarely reported in the literature.² LPDs may occur more commonly than reported because they can be asymptomatic. Excision of pharyngocele by an external approach is still the mainstay of treatment for symptomatic cases.^{1,3,4} In this article, we report an endoscopic treatment of pharyngocele by suture pharyngoplasty.

CASE REPORT

A 16-year-old boy presented with a left-sided cervical mass aggravated by trumpet playing for 5 months. He did not have any other symptom, such as foreign body sensation, dysphagia, odynophagia, regurgitation of undigested food, aspiration, hoarseness, and recurrent infections. Findings on physical examination were within normal limits. Although the patient performed the Valsalva maneuver, a well-circumscribed, compressible mass meas-

uring 3 to 4 cm in diameter appeared between the hyoid and thyroid ala on the left side of his neck (Figure 1). Rigid endoscopy demonstrated a slit-like groove on both lateral pharyngeal walls between the hyoid and thyroid ala. The one on the left side became deeper and extended laterally into the neck tissues with the Valsalva maneuver (Figure 2). A barium-swallow X-ray was obtained while the patient performed the Valsalva maneuver, and it detected pharyngoceles on both sides of the neck. The left one was bigger than the right one (Figure 3). Because of the patient's complaints, a left-sided operation was planned. With the patient under general anesthesia an endoscopic approach was performed. An ellipse-shaped lateral pharyngeal mucosa starting from above the hyoid and extending down to the pyriform sinus apex was excised using CO₂ laser. Then the pharyngeal constrictor muscle was tightened with 5/0 prolene sutures. The pharyngeal mucosa was then closed with 5/0 vicryl sutures (Figure 4). His postoperative period was uneventful. The patient was put on a liquid diet on the first postoperative day, and he was able to ingest a solid diet after 7 days. He was asked not to perform the Valsalva maneuver and play his musical instrument for 3 months. At the ninth month follow-up visit, the neck mass had disappeared totally and rigid endoscopy revealed no pharyngocele on the left side (Figure 5). He is comfortably playing his musical instrument now.

DISCUSSION

Pharyngoceles are rare lesions. They are outpouchings of the lateral pharyngeal wall through the thyrohyoid membrane from weak areas.^{4,5} The pharynx has 2 weak areas on each side. The superior area lies between the superior and middle pharyngeal constrictor muscles,

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FIGURE 1. Appearance of neck during the Valsalva maneuver. [Color figure can be viewed in the online issue, which is available at wileyonlinelibrary.com.]



FIGURE 3. Anteroposterior X-ray view of the neck during the Valsalva maneuver, showing the big left and the small right pharyngoceles.

which are located intraluminally in the area of the inferior pole of the tonsil and vallecula. The inferior area lies between the middle and inferior pharyngeal constrictor muscles, which are located in the area of the pyriform fossa.^{2,3}

According to the location and etiology, LPDs are classified as congenital or acquired. Congenital pharyngoceles are believed to be branchial cleft cysts and tracts. These connect internally with the pharynx and end blindly in the neck. Acquired ones are pulsion type and their mucosa is protruding out from the pyriform recess.^{2,3} Two factors are playing a role to the development of a pharyngocele: a loss of elasticity of muscles with aging and an increased intrapharyngeal pressure. Because of this, LPDs usually manifest in the fifth or sixth decades of life and appear on people who have excessive cough and straining or playing wind instruments.^{1,3} Our patient was a 16-year-old trumpet-playing adolescent.

Symptoms produced by pharyngocele are variable, depending upon the size of the pharyngeal orifice, the size of the diverticulum, whether the pouch drains easily or not, and whether or not it is infected.^{2,3} The main symptom is usually dysphagia. Other symptoms include neck pain, foreign body sensation, dysphagia, odynophagia, regurgitation of undigested food, aspiration, dysphonia, hoarseness, earache, recurrent infections, and compressible mass on the side of the neck because of the Valsalva maneuver.^{1-3,5} In some cases, however, LPDs are asymptomatic. In our case, the patient complained of a left-sided neck mass while playing the trumpet.

When an LPD is suspected, the diagnosis can be confirmed by various examinations. While the patient is performing the Valsalva maneuver, we can visualize and palpate a compressible mass on the neck. The recommended diagnostic tools are fiberoptic laryngoscopy,

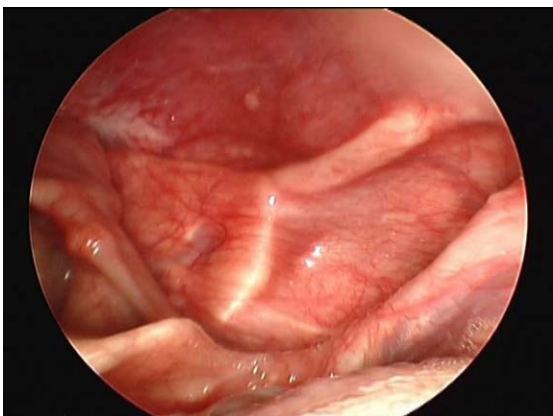


FIGURE 2. Rigid endoscopic view of the left lateral wall pharynx during the Valsalva maneuver; left thyroid ala, its superior cornu, greater horn of hyoid bone, and pharyngocele between them are visible. [Color figure can be viewed in the online issue, which is available at wileyonlinelibrary.com.]

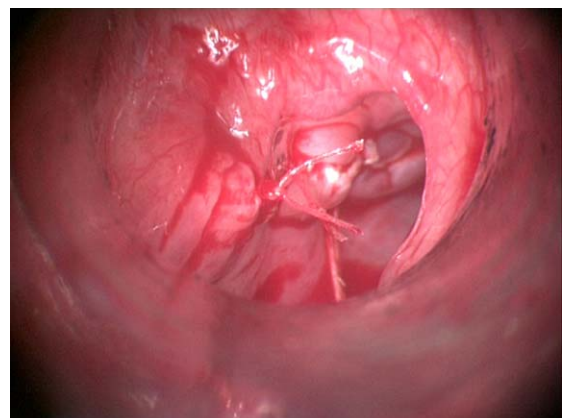


FIGURE 4. Ellipse shaped, vertical mucosa was removed along the left lateral pharyngeal wall starting from above the hyoid bone going down to the apex of the pyriform sinus. The underlying pharyngeal constrictor muscle was tightened with 5/0 prolene sutures to strengthen its weak area. The mucosal incision was closed with 5/0 vicryl sutures. [Color figure can be viewed in the online issue, which is available at wileyonlinelibrary.com.]

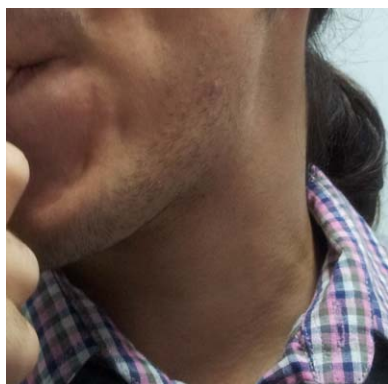


FIGURE 5. Appearance of the neck during the Valsalva maneuver at the ninth postoperative month. [Color figure can be viewed in the online issue, which is available at wileyonlinelibrary.com.]

barium swallow X-ray, and/or neck CT during the Valsalva maneuver. In the course of a fiberoptic laryngoscopy, inspection of the tonsillar fossa, the vallecule, and the pyriform recess can demonstrate round or slit-like opening. A pharyngocele can be best demonstrated in the frontal plane by X-ray radiography.^{2,3,5} In addition, LPDs can also be diagnosed by sonography, CT, and MRI scans.^{1,6}

The differential diagnosis should include Zenker's diverticulum, laryngocele, esophageal diverticulum, an artificial pouch, cricopharyngeal spasm, foreign body, neurologic disorders, myopathies, and globus hystericus. Also, a normal small outpouching of the lateral pharyngeal wall must be differentiated from the LPD.^{1,2,7,8} This small outpouching can be seen in many patients during the Valsalva maneuver.

According to the intensity of symptoms, surgical or nonsurgical treatment may be recommended. Conservative management consists of external swallowing maneuvers, anti-reflux medications, healthy dietary habits, and oral hygiene particularly after meals, with mouth washing and gargling. With progression of the complaints, surgery may be required.¹⁻³

The external approach has been the primary surgical treatment of pharyngoceles.¹⁻³ Fowler³ described the surgical approach for correcting pharyngocele, which begins with the patient under local anesthesia and is completed with the patient under general anesthesia. During dissection, the patient is repeatedly asked to bulge the side of his neck. In this way, identification and dissection of the diverticulum was facilitated. After the pharyngocele and pharyngeal wall are clearly delineated, the operation is completed by removing the diverticulum and repairing the defect with the patient under general anesthesia.³ In this article, we presented a patient with a case of pharyngocele, which was repaired endoscopically by removing excess mucosa and tightening the pharyngeal constrictor muscle by endoscopic sutures. The main advantage of the endoscopic approach to the external one is the absence of external incision and being a minimally invasive procedure. Our patient was free of symptoms and his external neck examination and endoscopy was normal while performing the Valsalva maneuver 6 months after surgery.

In conclusion, endoscopic suture pharyngoplasty is a minimally invasive procedure that can be performed in case of a symptomatic pharyngocele with success.

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