CASE REPORT

Bilateral internal laryngoceles mimicking asthma

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Laryngocele is an air-filled, abnormal dilation of the laryngeal saccule that extends upward within the false vocal fold, in communication with the laryngeal lumen. A case of 43-year-old male with bilateral internal laryngoceles, who has been treated as asthma for 4 years, is presented. The patient had dyspnea, cough, and excessive phlegm for a month and a late onset stridor. Flexible nasopharyngolaryngoscopy showed bilateral cystic enlargements of the false vocal folds and true vocal folds could not be visualized. Laryngeal CT without contrast enhancement showed bilateral internal laryngoceles. Submucosal total excision of bilateral cystic masses including parts of false vocal folds was performed. The symptoms resolved immediately after surgery. Although the incidence of internal laryngocele is rare, it should be remembered in the differential diagnosis of upper airway problems and diagnostic flexible nasopharnygolaryngoscopy is routinely indicated for airway evaluation in at-risk patients.

Key words: Internal laryngoceles, laryngoscopy, upper airway endoscopy

INTRODUCTION

Laryngocele is an air-filled, abnormal dilation of the laryngeal saccule that extends upward within the false vocal fold, in communication with the laryngeal lumen.[1] Different theories regarding the development of laryngoceles include a congenital large saccule, weakness of laryngeal tissues, and increased intralaryngeal pressure, as observed in glass blowers, wind instrument players, street hawkers, and singers.[2]

Clinical relevance is rare, but laryngoceles may present themselves as hoarseness, neck mass, airway obstruction, and even, a neoplasm.[3] Laryngoceles commonly present unilaterally.[1] Up to date there are total five bilateral internal laryngocele cases reported in literature.[4,5] The case presented here is the sixth bilateral internal laryngocele case who has been treated as asthma for 4 years.

CASE REPORT

A 43-year-old male admitted to the pulmonology clinic of Acibadem Healthw Care Group, Acibadem Masalk Hospital, Istanbul, Turkey, in 2011, with dyspnea, cough, and excessive phlegm for a month and a late onset stridor. The patient had a history of asthma and he had been treated as asthma for 4 years. The response of the patient to antiasthmatic drugs was not sufficient and asthmatic attacks were frequent. A bronchoscopy was performed and upper airway obstruction was detected. Atalectatic bronchial segments were found. Sixth bronchi of the right inferior lung lobe was totally obstructed. The patient was referred to the Ear Nose and Throat (ENT) Clinic for upper airway evaluation. Flexible nasopharyngolaryngoscopy showed bilateral cystic enlargements of the false vocal folds and true vocal folds could not be visualized properly [Figures 1-3]. Supraglottic area was narrow. Laryngeal CT without contrast enhancement showed bilateral internal laryngoceles. Hypodense areas causing expansion at the level of aryepiglottic folds were detected [Figures 4 and 5]. Endolaryngeal laser surgery was done under general anesthesia. Submucosal total excision of bilateral cystic masses including parts of false vocal folds was performed. The symptoms resolved immediately after surgery. Airway was open and true vocal folds were visible during the postoperative endoscopic laryngeal examinations of the patient [Figures 6-8, Video 1]. The patient did not experience any respiratory event during the follow-up period after surgery. His last visit, free of symptoms, was at the sixth postoperative month.

DISCUSSION

Laryngoceles are dilatations of the laryngeal saccule within the ventricle of Morgagni. They were first

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Received: 06-03-2011; **Revised:** 24-06-2012; **Accepted:** 03-07-2012

described in 1829 by Larrey. They consist of a membranous sac located between the false vocal fold and the inner aspect of the thyroid cartilage.[2,3] Laryngoceles have been reported to be five to seven times more frequent in males, with a peak incidence in the sixth decade of life. Eighty-five percent of laryngoceles have been found to

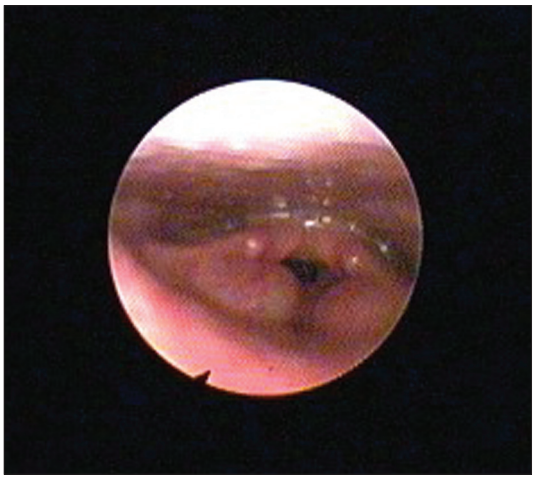

Figure 1: Flexible nasopharyngolaryngoscopic view of bilateral internal laryngoceles

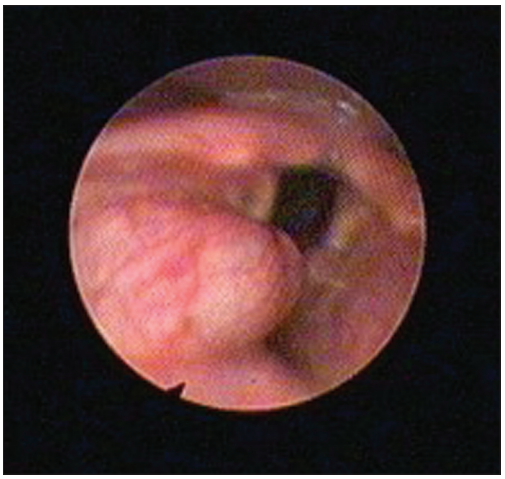

Figure 2: Flexible nasopharyngolaryngoscopic view of bilateral internal laryngoceles

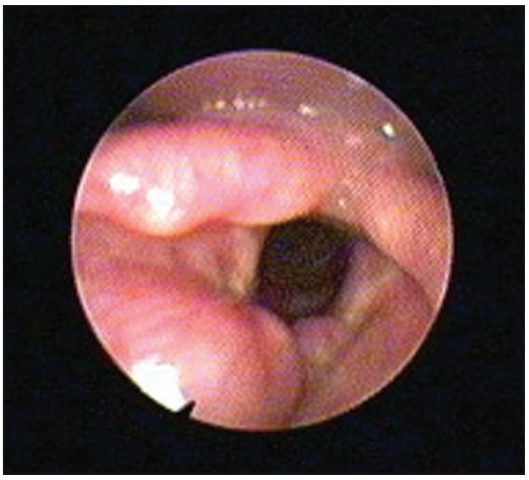

Figure 3: Flexible nasopharyngolaryngoscopic view of bilateral internal laryngoceles

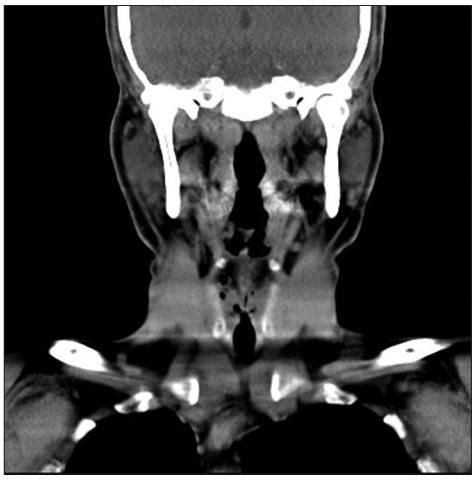

Figure 4: Axial CT section of larynx showing bilateral internal laryngoceles

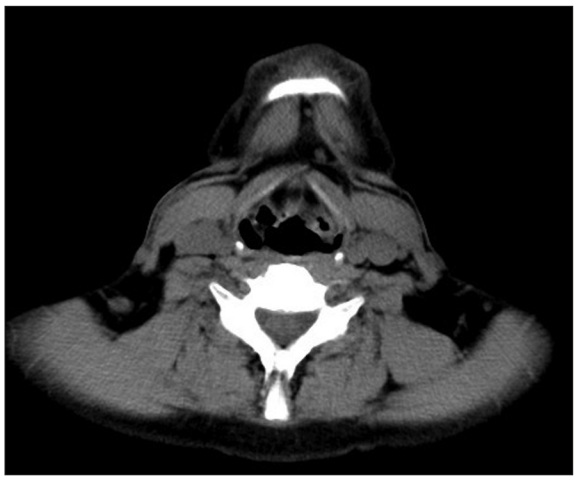

Figure 5: Sagittal CT section of larynx showing bilateral internal laryngoceles

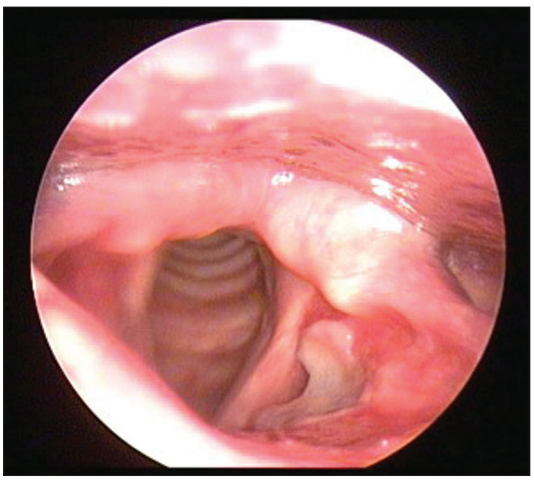

Figure 6: Postoperative rigid endoscopic view of larynx. Note the healing of the left false vocal fold

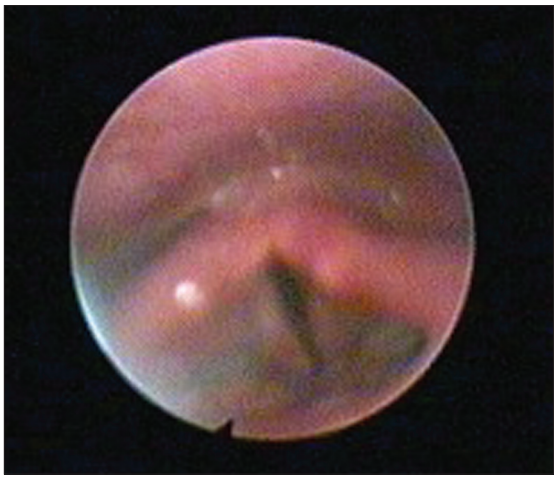

Figure 7: Postoperative flexible nasopharyngolaryngoscopic view of larynx

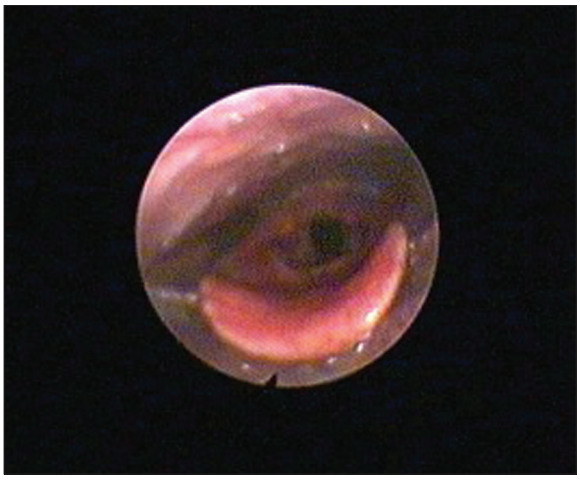

Figure 8: Postoperative flexible nasopharyngolaryngoscopic view of larynx

be unilateral with no right or left-side predominancy.[1]

The case presented here is also male but he had bilateral internal laryngoceles, which is an extremely rare situation. Devesa *et al*.[4] presented a case series of nine laryngoceles, four of which were bilateral internal laryngoceles. Up to date including the bilateral laryngocele case reported by Pruszewicz *et al*.[5] in 2006, there are total five bilateral internal laryngocele cases reported in literature. The case presented here is the sixth bilateral internal laryngocele case.

An internal laryngocele is confined to the interior of the larynx and extends posterosuperiorly into the false vocal fold and the aryepiglottic fold. Internal laryngoceles appear on laryngoscopy as a smooth swelling of the supraglottis.[3]

The cause of laryngocele is unknown. It is associated with chronic cough, blowing in musical instruments, glass blowing, and laryngeal carcinoma. Its origins involve both congenital and acquired factors. In adults, a congenital defect or an anatomical variation of the sacculus may be the cause, as are acquired factors such are the cases of pharyngeal or laryngeal carcinomas, and people whom occupation or leisure involve raising intralaryngeal pressure, such as blowing musical instruments.[6] Some reports have suggested a link between previous neck surgery and laryngocele. Progression of a clinically significant laryngocele several years following tracheotomy was attributed to local trauma during the original tracheotomy placement, which could have caused an underlying weakness, defect, or mechanical obstruction of the laryngeal saccule.[7] Laryngoceles were reported in approximately 3% of supraglottic laryngectomy patients and it is related to the incomplete resection of the ventricle.[8]

Internal laryngoceles may interfere in speech production and cause snoring or hoarseness, and even upper airway obstruction as the case hereby presented. Other symptoms are a foreign body sensation, sore throat, and cough.[6] The case presented here is of concern because it is bilateral and has been misdiagnosed as asthma.

The diagnosis of a laryngocele is based on clinical findings, endoscopic examination of larynx, and imaging studies. The endoscopic examination and direct laryngoscopy reveal a false vocal fold and arytenoid swelling overlied with normal laryngeal mucosa. It should be noted that all the patients with symptoms of airway problems should at least go through an upper airway endoscopic evaluation to rule out upper airway obstruction. A flexible laryngoscopy is imperative in evaluation of the patient's airway, and this way the diagnosis may be achieved in the office setting.

Laryngeal MRI or CT can be used as an imaging technique. In MRI, an air-filled laryngocele typically appears as a low-signal cystic dilatation of the laryngeal ventricle.[1,3]

Differential diagnosis includes saccular cyst, branchial cyst, neck abscess, and lymphadenopathy. Saccular cysts do not communicate with the laryngeal lumen, and it is usually filled with fluid.[6]

Various modalities of treatment have been used for resection of laryngoceles.[1,9,10] Although external approach for laryngocele resection is a traditional treatment method, use of CO_2 laser in microlaryngoscopic surgery has become a preferred method in suitable cases.[1] Latest consensus for laryngocele treatment favors external approach for large or external laryngoceles, while endoscopic endolaryngeal resection for internal laryngoceles.[1] Internal laryngoceles may be removed endoscopically. Dursun *et al*.[1] have used CO_2 laser for excision of internal laryngoceles. They have reported less operation times, minimal damage of endolarynx and vocal folds. They have reported that quality of voice and swallowing functions could be preserved in all patients, and none of their patients required tracheotomy and/or prolonged hospitalization. In the case presented here, the same

endolaryngeal laser excision technique is used. The patient had a safe postoperative period without airway complications. He was discharged at the first postoperative day without any complications.

Furthermore, with the removal of the laryngoceles, he had an immediate improvement. The only postoperative complaint was pain while swallowing and it lasted only for a few days after surgery.

Although the incidence of internal laryngocele is rare, it should be remembered in the differential diagnosis of upper airway problems. With this case presented here, we want to emphasize the importance of diagnostic flexible nasopharnygolaryngoscopy in diagnosing upper airway pathologies. Laryngoscopy is routinely indicated for airway evaluation in at-risk patients.

ACKNOWLEDGMENT

Special thanks to Çağlar Çuhadaroğlu, MD, professor of Pulmonology, for his support and help.

REFERENCES

1. Dursun G, Ozgursoy OB, Beton S, Batikhan H. Current diagnosis and treatment of laryngocele in adults. Otolaryngol Head Neck Surg 2007;136:211-5.
2. Marom T, Roth Y, Cinamon U. Laryngocele: A rare long-term complication following neck surgery. J Voice 2011;25:272-4.
3. Keles E, Alpay HC, Orhan I. Combined Laryngocele: A cause of stridor and cervikal swelling. Auris Nasus Larynx 2010;37:117-20.
4. Devesa PM, Gufoor K, Lyod S, Howard D. Endoscopic CO2 laser management of Laryngocele. Laryngoscope 2002;112:1426-30.
5. Pruszewicz A, Obrebowski A, Maciejewska B. Bilateral internal laryngocele with open nasality-report of a case. Otolaryngol Pol 2006;60:938-53.
6. Felix JA, Felix F, de Mello LF. Laryngocele: A cause of upper airway obstruction. Brass J Otorhinolaryngol 2008;74:143-6.
7. Upile T, Jerjes W, Sipaul F, El Maaytah M, Singh S, Howard D, *et al*. Laryngocele: A rare complication of surgical tracheostomy. BMC Surg 2006;27:14.
8. Naudo P, Laccourreye O, Weinstein G, Jouffre V, Laccourreye H, Brasnu D. Complications and functional outcome after supracricoid partial laryngectomy with cricohyoidoepiglottopexy. Otolaryngol Head Neck Surg 1998;118:124-9.
9. Thome R, Thome DC, De La Cortina RA. Lateral thyrotomy approach on the paraglottic space for laryngocele resection. Laryngoscope 2000;110:447-50.
10. Myssiorek D, Madnani D, Delacure MD. The external approach for submucosal lesions of the larynx. Otolaryngol Head Neck Surg 2001;125:370-3.

How to cite this article: Aksoy EA, Elsürer Ç, Serin GM, Ünal ÖF. Bilateral internal laryngoceles mimicking asthma. J Res Med Sci 2013;18:453-6.
Source of Support: Nil, **Conflict of Interest:** None declared.