CRCP Case Reports in Clinical Practice

Case Report

Journal Homepage: http://crcp.tums.ac.ir

Laryngeal Oncocytic Cyst: An Uncommon Incident

Reza Erfanian[1], Saeed Shakiba[2], Seyed Mohammad Ali Nourbakhsh[1], Saeed Sohrabpour[1*]

1. Otorhinolaryngology Research Center, Tehran University of Medical Sciences, Tehran, Iran.
2. School of Medicine, Tehran University of Medical Sciences, Tehran, Iran.

Use your device to scan and read the article online

Citation Erfanian R, Shakiba S, Nourbakhsh SMA, Sohrabpour S. Laryngeal Oncocytic Cyst: An Uncommon Incident. Case Reports in Clinical Practice. 2019; 4(4):98-101.

Running Title Laryngeal Oncocytic Cyst: An Uncommon Incident

Article info:
Received: 11 October 2019
Revised: 18 November 2019
Accepted: 30 November 2019

Keywords:
Larynx; Laryngeal cysts; Oncocytic

ABSTRACT

Oncocytic cysts of the larynx are benign and rare lesions constituting a pathologically distinct sub-group of cysts. In this report, we present a case with dyspnea with two large masses on false vocal cord identified by video laryngoscopy. Fiberoptic nasotracheal intubation revealed oncocytic laryngeal cysts.

Introduction

Oncocytic cysts of the larynx are defined as rare and benign tumors of the larynx predominantly containing oncocytes [1]. Oncocytes are large polygonal cells, characterized by hyperchromatic, usually bizarre nuclei, as well as eosinophilic granular cytoplasm. The significant redness of cytoplasm is due to a large number of mitochondria [2].

Epithelial endocrine cells with high metabolic activity can undergo metaplasia and oncocytic changes. These changes can also occur as a consequence of inflammation, degenerative processes, or cellular aging. Although the oncocytic metaplastic transformation of the larynx is rare, it is occasionally seen within ventricles or in the false cords. This report presents an unusual case of laryngeal oncocytic cyst [3].

*** Corresponding Author:**
Saeed Sohrabpour, PhD.
Address: *Otorhinolaryngology Research Center, Tehran University of Medical Sciences, Tehran, Iran.*
E-mail: *sohrabpour1364@gmail.com*

Case Presentation

A 60-year-old man with a history of heavy smoking (100 pack-years) referred to the Emergency Department with dyspnea and severe respiratory distress. His vital signs, including blood pressure (120/80 mm Hg), body temperature (37°C) and pulse rate (90 beats per minute) were normal; however, his respiratory rate (24 breaths per minute) was relatively high. On his lung examination, stridor was found.

The patient reported a two-year history of worsening dyspnea over time. Also, since last year, he developed dysphonia that gradually deteriorated. His inspiratory stridor was also significant. A few days ago, video laryngoscopy of vocal cords revealed two masses on the false vocal cords. On Computed Tomography scanning, the cysts were located within false cords and seemed to be filled with air (Figure 1).

No mucosal lesions were noticed. The patient had undergone neurosurgery ten years ago due to hemorrhagic cerebrovascular accident. His past medical history was otherwise unremarkable.

Immediately after initial clinical assessments, he was transferred to the operating room. Fibreoptic nasotracheal intubation was carried out while the patient was awake, demonstrating three laryngeal cysts. Two cysts were observed on the right ventricular region and one on the left side (Figure 2.A).

Next, three thick-walled and air-filled cysts were aspirated and excised under closed surgery. Afterward, marsupialization was performed, and cysts septa were removed from paraglottic region as much as possible. The patient's dyspnea and dysphonia were resolved. One week later, laryngoscopy revealed that the airway was completely open and anatomically normal. Regarding his smoking condition in the past six months, he under-

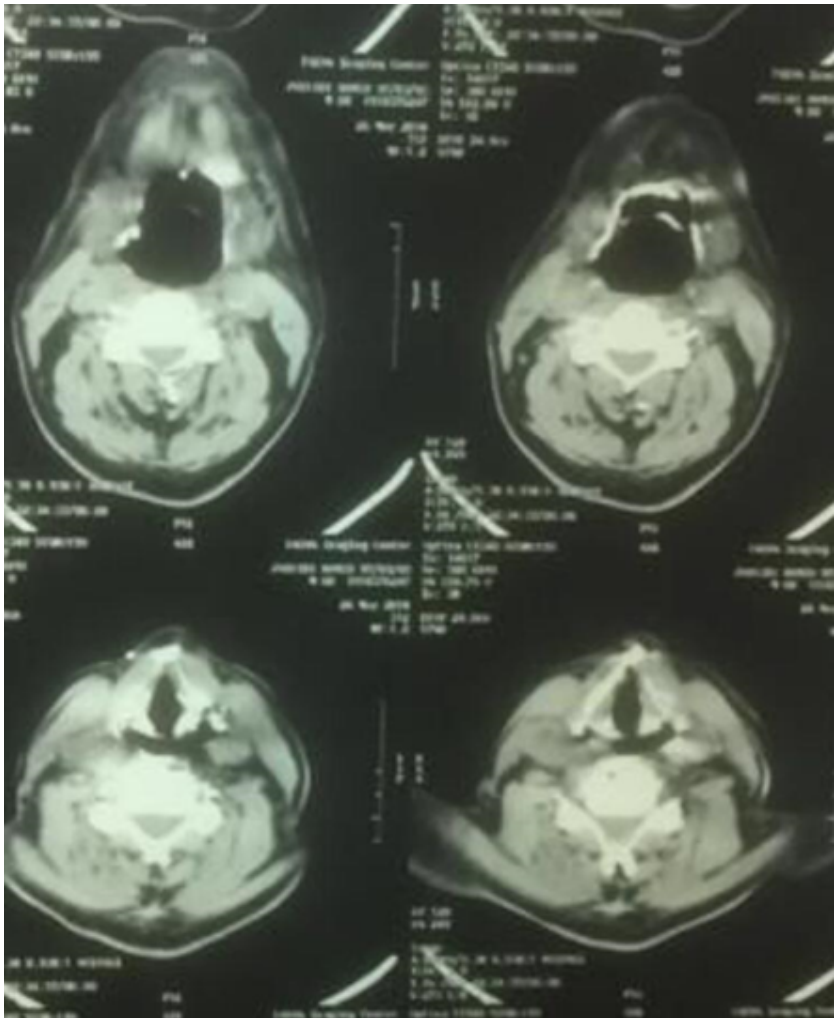

Figure 1. Air-filled masses around the false cords were observed on Computed Tomography (CT) scan

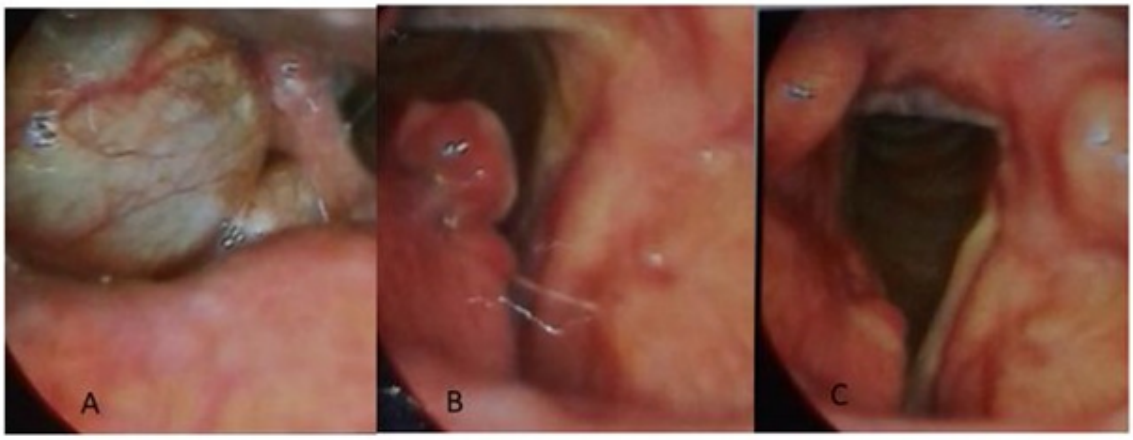

Figure 2. Video laryngoscopy of the vocal cords

A. Pre-operative laryngoscopic view of the patient with large mass, which obstructed the airway; B. Six months after endoscopic resection of the cyst, the right false vocal cord developed granulation tissue; C. Laryngoscopic view of the patient 13 months after the first surgery showed no masses

went laryngoscopy indicating granulation tissue (Figure 2.B), as well as re-biopsy of larynx, which showed contact granulomas. No relapse or recurrence has been observed until now (Figure 2.C).

To rule out laryngeal cancer, we collected several deep biopsies were collected during surgery and examined them histopathologically. Pathological evaluations confirmed that lesions in the supraglottic and right true vocal cord were oncocytic cysts.

Discussion

Laryngeal oncocytic cyst is a rare medical condition. It is mainly observed in older people in their 60s. Affected patients usually present with hoarseness and dyspnea, which have persisted for weeks or years before being diagnosed; however, it is not almost associated with pain [4].

Histologically, oncocytic laryngeal cysts result from irreversible transformation of glandular epithelial cells lining salivary gland ducts or acini. They can also originate from transformation of respiratory epithelium [5].

The exact etiology of oncocytic changes has not yet been known. However, it has been shown that mitochondrial dysfunctions and cell aging play an essential role in its development. Our case was particularly interesting due to the presentation of three cysts, which had caused substantial and life-threatening dyspnea. Microsurgery resolved the problem effectively [6].

In 2017, Heyes et al. proposed a simplified classification for laryngeal cysts in adults. They found out that the likelihood of recurrence is much higher in oncocytic cysts compared to the other types of cysts. In patients with drastic oncocytic transformations proven by either multiple cysts or biopsies, recurrence is frequent. These cases are more likely to develop new cysts [7]. Therefore, routine surveillance is recommended in oncocytic cysts [8].

Surgical manipulation may trigger precystic metaplastic regions, which may result in rapid recurrence [8]. Smoking is another crucial risk factor for oncocytic metaplasia, and heavy smokers are more at risk of larynx dysplastic neoplasia. Also, squamous cell carcinoma is significantly associated with oncocytic laryngeal tissue [9]. Nevertheless, malignant transformation of oncocytic cysts and clinical implication of laryngeal oncocytic metaplasia have not yet been reported in the literature.

Peeters et al. published a review of approximately 150 cases of oncocytic laryngeal cysts. They also reported an atypical case of laryngeal oncocytic cyst, who presented with acute, progressive stridor and sore throat. They have also considered etiology, clinical presentation, imaging, incidence, localization, associated lesions, and treatment options. Oncocytic laryngeal cysts may be underreported as they are scarce. They represent distinct clinicopathological features among all cystic laryngeal lesions and are seen in cases over 60 years.

Their symptoms vary from none to hoarseness and dyspnea. Diagnosis is made by histological examination,

and they are treated by surgery. Although oncocytic laryngeal cysts are benign lesions, follow-up is recommended due to the possibility of recurrence [10].

Prolonged smoking results in the inflammation of the larynx and increases oxidative stress. This condition in turn triggers the oncocytic changes of laryngeal mucosa and cyst formation. The standard treatment is the excision of the cysts, with follow up as the recurrence is possible [11].

Ethical Considerations

Compliance with ethical guidelines

All ethical principles were considered in this article.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Conflict of interest

The authors declared no conflict of interest.

References

[1] Gallagher JC, Puzon BQ. Oncocytic lesions of the larynx. Annals of Otology, Rhinology & Laryngology. 1969; 78(2):307-18. [DOI:10.1177/000348946907800210] [PMID]

[2] Pinkerton P, Beck JS. Eosinophilic granular-cell (oncocytic) cysts of the larynx. The Journal of Pathology and Bacteriology. 1961; 81(2):532-4. [DOI:10.1002/path.1700810228] [PMID]

[3] Ferlito A, Recher G. Oncocytic lesions of the larynx. Archives of Oto-Rhino-Laryngology. 1981; 232(2):107-15. [DOI:10.1007/BF00505029] [PMID]

[4] Pilch BZ. Larynx and hypopharynx. In: Pilch BZ, editor. Head and Neck Surgical Pathology. Philadelphia: Lippincott Williams & Wilkins; 2001.

[5] Arens C, Glanz H, Kleinsasser O. Clinical and morphological aspects of laryngeal cysts. European Archives of Oto-Rhino-Laryngology. 1997; 254(9-10):430-6. [DOI:10.1007/BF02439974] [PMID]

[6] Yamase HT, Putman III HC. Oncocytic papillary cystadenomatosis of the larynx: A clinicopathologic entity. Cancer. 1979; 44(6):2306-11. [DOI:10.1002/1097-0142(197912)44:6<2306::aid-cncr2820440645>3.0.co;2-d] [PMID]

[7] Martin-Hirsch DP, Lannigan FJ, Irani B, Batman P. Oncocytic papillary cystadenomatosis of the larynx. The Journal of Laryngology & Otology. 1992; 106(7):656-8. [DOI:10.1017/S0022215100120456] [PMID]

[8] Sinacori JT, Jack RA, Workman JR. Rapid growth of a laryngeal oncocytic cyst after surgical irritation. Ear, Nose & Throat Journal. 2014; 93(10-11):E44-5. [DOI:10.1177/014556131409310-1105] [PMID]

[9] Stenner M, Müller KM, Koopmann M, Rudack C. Squamous cell carcinoma of the larynx arising in multifocal pharyngolaryngeal oncocytic papillary cystadenoma: A case report and review of the literature. Medicine. 2014; 93(12):e70. [DOI:10.1097/MD.0000000000000070] [PMID] [PMCID]

[10] Peeters A, Schmelzer B, Beernaert A, Fannes H. Oncocytic laryngeal cysts: A case report and literature review. Acta Otorhinolaryngol Belg. 2001; 55(1):71-5. [PMID]

[11] Newman BH, Tax JB, Laker HI. Laryngeal cysts in adults: A clinicopathologic study of 20 cases. American Journal of Clinical Pathology. 1984; 81(6):715-20. [DOI:10.1093/ajcp/81.6.715] [PMID]