MedCrave
Step into the World of Research

Journal of Otolaryngology-ENT Research

Case Report

Open Access

CrossMark

Epiglottic cyst in an adult: diagnostic and surgical considerations

Abstract

Epiglottic cysts are rare benign lesions of the larynx that can be asymptomatic or cause variable degrees of airway obstruction and vocal alterations. We discuss a case of a 38-year-old woman who came with escalating throat discomfort and foreign body sensation. Upon laryngoscopic inspection, a smooth, cystic lesion from the laryngeal surface of epiglottis was discovered. Using a CO2 laser-assisted microlaryngoscopic technique while under general anaesthesia, the cyst was totally removed. Upon histopathological analysis, a benign epithelial cyst was confirmed. The surgical phase went smoothly, and the patient showed no symptoms at the time of follow-up. To avoid airway impairment and recurrence, it is imperative that such cysts be identified early and completely removed.

Keywords: epiglottic cyst, laryngeal surface, co2 laser; microlaryngoscopic technique, airway obstruction

Volume 17 Issue 3 - 2025

Pankaj Goyal,[1] Kishan Kumawat,[1] Nirupama Kothari[2]

[1]Apollo E.N.T. Hospital, Jodhpur, India

[2]Sterling Accuris Diagnostics, Jodhpur, India

Correspondence: Pankaj Goyal, Apollo E.N.T. Hospital, Jodhpur, Rajasthan, India, Tel 074259 55641

Received: November 11, 2025 | **Published:** December 18, 2025

Introduction

Epiglottic cysts are unusual benign tumors that develop from the mucous glands or ducts that line the epiglottis. These cysts are typically congenital or acquired, with the latter being connected to chronic irritation, such as smoking or gastroesophageal reflux disease (GERD).[1,2] Five to six percent of benign laryngeal lesions are laryngeal cysts. The lingual surface of the epiglottis is the site of origin for most epiglottic cysts.[3] This case report describes an unusual cyst that formed from the laryngeal surface.

The development of epithelial cysts is caused by mucus accumulation and occlusion of mucous gland ducts.[1] Although often asymptomatic and discovered incidentally during laryngoscopy, when symptoms do occur, they can include airway obstruction, voice abnormalities, or dysphagia, depending on the size and location of the cyst.[2,4] Early diagnosis and appropriate surgical management are crucial to prevent potential airway emergencies. Epiglottic cyst can be treated through observation in asymptomatic patients, aspiration, or surgical removal. There are now several different methods for treating epiglottic cysts due to the ongoing advancements in medical technology, such as low-temperature plasma, CO2 (carbondioxide) laser resection, radiofrequency, microwave treatment, high-frequency electrotomy, and uncovering technique. Traditional surgical methods, such as excision, require the use of micro-instruments under direct view. However, laser-based treatments, including CO2 and blue diode lasers, have grown in favour because to their precision and ability to achieve hemostasis.[5,6]

Objectives

To describe the clinical presentation of an epiglottic cyst in an adult, including symptoms, incidental findings, and red-flag airway features.

To outline the diagnostic approach, emphasizing the role of flexible laryngoscopy, radiological imaging (CT/MRI), and differential diagnosis of supraglottic cystic lesions.

To evaluate airway risks associated with epiglottic cysts in adults, particularly regarding potential airway obstruction, dysphagia, voice changes, and implications for anesthesia.

To discuss surgical management options, including microlaryngoscopic excision, marsupialization, laser ablation, and considerations for complete removal to prevent recurrence.

To highlight perioperative considerations, such as airway preparedness, intubation challenges, and postoperative care including monitoring for edema or aspiration.

To assess outcomes and prognosis after surgical excision, with focus on symptom resolution, recurrence rates, and complications.

To review current literature to integrate best-practice recommendations for diagnosis and surgical treatment of adult epiglottic cysts.

Case report

A 38-year-old woman arrived at the outpatient clinic complaining of throat irritation and a feeling that something was “stuck” in her throat over the previous three months. She denied having a history of aspiration, dysphagia, odynophagia, breathing difficulties, or a change in voice. No history of trauma, fever, or previous intubation was present.

Examination

Laryngoscopy revealed a smooth, well-defined cystic lesion approximately 1.5 × 1 cm in size, arising from the right sided laryngeal surface of the epiglottis (Figure 1). The vocal cords were mobile and normal in appearance.

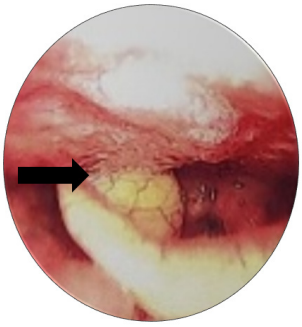

Figure 1 Laryngoscopy revealed a smooth, well-defined cystic lesion emerging from the right laryngeal surface of the epiglottis, measuring approximately 1.5 × 1 cm.

Investigations

Routine blood investigations were unremarkable.

A Computed tomography (C.T.) scan revealed a well-defined non enhancing, noncalcified, mildly hyperdense lesion (approximately 60-70 Hounsfield Unit) measuring 1.3x 0.7x 1.1cm emerging from the laryngeal surface of the right side of the epiglottis. The lesion abutting the superior most aspect of right aryepiglottic fold (Figure 2A-C).

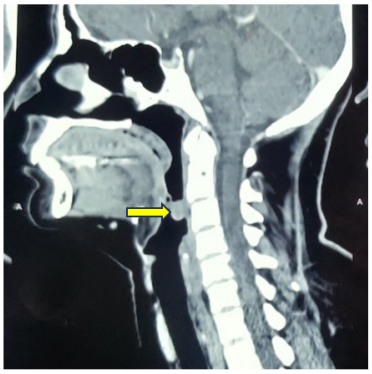

Figure 2A

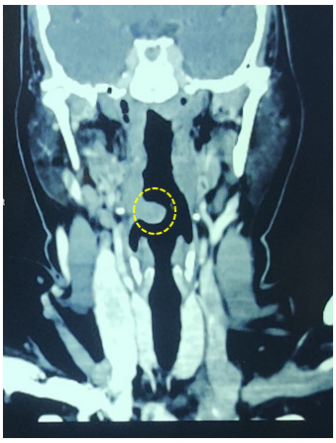

Figure 2B

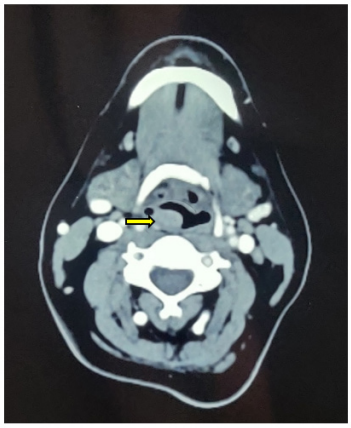

Figure 2C

Figure 2A-C Computed tomography (C.T.) scan revealed a well-defined non enhancing, non calcified, mildly hyperdense lesion (approximately 60-70 Hounsfield Unit) measuring 1.3x 0.7x 1.1cm emerging from the laryngeal surface of the right side of the epiglottis.The lesion abutting the superior most aspect of right aryepiglottic fold.

Management

For the treatment of epiglottic cysts, CO_2 laser-assisted microlaryngoscopic excision is an accurate and minimally invasive method. To provide the best view of the laryngeal tissues, the patient is put in a suspension laryngoscopy position under general anaesthesia after giving consent. The cyst is meticulously removed with a CO2 laser and an operating microscope, causing the least amount of collateral thermal injury to the surrounding tissues (Figure 3-5). The laser facilitates total excision of the cyst wall to prevent recurrence by providing great hemostasis, decreased intraoperative bleeding, and a clean surgical field. This method reduces postoperative edema and scarring, speeds up healing, and ensures the preservation of normal epiglottic anatomy and function. Because of its accuracy, safety, and superior functional and aesthetic results, CO_2 laser-assisted excision has emerged as a preferred technique. The cyst was extracted entirely without rupturing (Figure 6). The specimen was transported to be examined histopathologically.

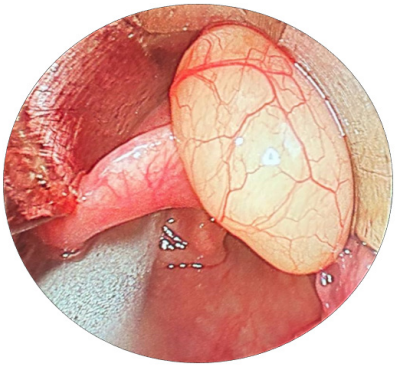

Figure 3 Microlaryngoscopic view of epiglottic cyst with endotracheal tube insitu.

Figure 4 Surgical bed after removal of epiglottic cyst.

Figure 5 Assembly for CO2 laser and microscope for microlaryngoscopic excision of an epiglottic cyst.

Citation: Goyal P, Kumawat K, Kothari N. Epiglottic cyst in an adult: diagnostic and surgical considerations. *J Otolaryngol ENT Res.* 2025;17(3):85–89.
DOI: 10.15406/joentr.2025.17.00574

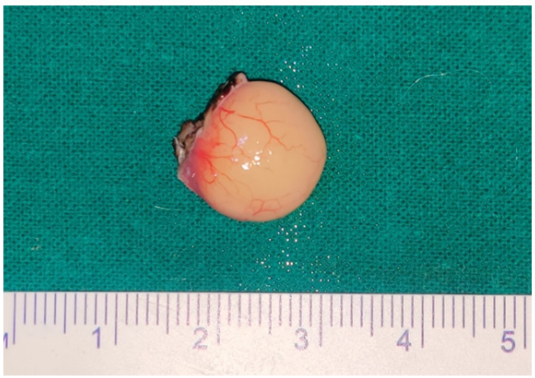

Figure 6 Main surgical specimen.

Histopathology

Microscopic examination revealed a cyst lined by flattened to cuboidal epithelium and 3-4 layer epithelium with ciliated areas containing a cellular eosinophilic stroma, consistent with a benign epiglottic cyst (Figure 7).

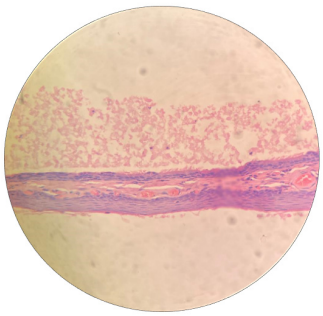

Figure 7A

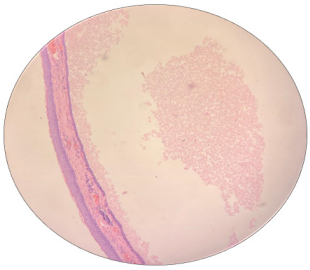

Figure 7B

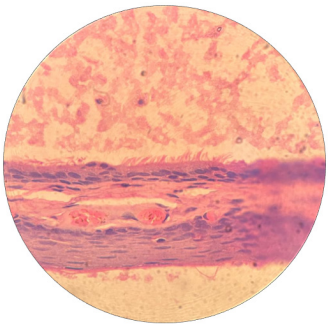

Figure 7C

Figure 7A–C Histo-pathology slide showing a cyst lined by flattened to cuboidal epithelium and 3-4 layer epithelium at places ciliated contain a cellular eosinophilic stroma.

Postoperativecourse

After surgery, the recovery process proceeded without incident. The patient was discharged two days after surgery. She was symptom-free at three months, and a laryngoscopic examination showed complete healing with no recurrence.

Discussion

The epiglottis is an elastic cartilaginous structure that resembles a leaf and is situated at the laryngeal opening. By covering the laryngeal entrance, it acts as a protective valve to stop food and liquids from aspirating during swallowing.[7] The epiglottis is structurally made up of mucous membrane-covered elastic cartilage. Non-keratinized stratified squamous epithelium lines the anterior (lingual) surface, which confronts the tongue and oropharynx, whereas ciliated columnar epithelium covers the posterior (laryngeal) surface.[8] The thyroepiglottic ligament connects the lower tapering part, known as the petiolus, to the thyroid cartilage, whereas the upper free edge is broad and rounded.[9] It is joined to the surrounding structures by a number of folds and ligaments: the aryepiglottic folds unite it laterally to the arytenoid cartilages, the hyoepiglottic ligament connects it to the hyoid bone, and the glossoepiglottic folds tie it to the tongue.[7] The lingual and superior laryngeal arteries provide the majority of the blood flow, whereas the superior laryngeal vein receives venous drainage.[10] The deep cervical lymph nodes receive lymphatic drainage. The internal branch of the superior laryngeal nerve, which is a branch of the vagus nerve (cranial nerve X), provides sensory innervation.[11] In order to ensure coordinated protection of the respiratory tract during swallowing, the epiglottis functions as a dynamic barrier that guides ingested material toward the esophagus and away from the airway.[12] One kind of laryngeal cyst that falls under the epiglottic mucosa is the epiglottic cyst. The incapacity of the glands to eliminate retention is brought on by inflammation, mechanical stimulation, or trauma that blocks the mucous channels of the epiglottis mucosa. The disease's incidence in benign laryngeal masses ranges from 4.3% to 6.1%.[13] The most typical site for laryngeal cysts is the epiglottis.[14] Cysts typically develop on the lingual surface, epiglottis edge, and vallecula. When cysts are small, no symptoms are apparent. However, as they grow large, they could cause congestion in the pharynx and a sensation of a foreign body. Local pain and discomfort are unavoidable when an infection is complicated, and in severe cases, dyspnea may result.[13] Among these, the lingual (anterior) surface is the more common site of occurrence, accounting for the majority of reported cases, as this region contains a higher density of mucous glands and ducts that are prone to obstruction and cyst formation.[13,16] In contrast, cysts arising from the laryngeal (posterior) surface are relatively uncommon, comprising only a minor proportion (approximately 20–30%) of all epiglottic cysts.[13,15] Despite their lower incidence, laryngeal surface cysts are clinically significant because of their proximity to the airway and potential to cause airway obstruction, dysphonia, or respiratory distress, particularly during anesthesia or intubation.[13,15]Three categories of laryngeal cysts are recognized by Asherson: thyroid-cartilage foraminal cysts, saccular cysts, and ductal cysts. Mucous or retention cysts, also known as ductal cysts, are extremely frequent and arise when the salivary glands' collecting channels in the larynx become obstructed. They appear anywhere in the mucous membrane of the larynx that is covered in ciliated or squamous columnar epithelium.[16]

Saccular cysts, also known as congenital embryonic cysts, are mucosa-covered submucosal lesions that originate in the laryngeal appendage's saccule. They frequently appear in newborns and occasionally in adults as well. The laryngeal ventricle, true and

Citation: Goyal P, Kumawat K, Kothari N. Epiglottic cyst in an adult: diagnostic and surgical considerations. *J Otolaryngol ENT Res.* 2025;17(3):85–89.
DOI: 10.15406/joentr.2025.17.00574

false cords, and aryepiglottic fold are the sites of saccular cysts, which are bigger than ductal cysts. In rare cases, thyroid cartilage can develop foraminal cysts. The reason for this is that the thyroid cartilage's remaining embryonic vessels protrude with mucosa.[17,18] The lingual surface of the epiglottis is the most typical site for epiglottic cysts, which are frequently ductal cysts. Haemangioma, papilloma, lymphangioma, lingual thyroid, and thyroglossal duct cyst are among the differential diagnoses.[19] A thorough history and clinical examination are necessary for this condition's diagnosis. The main course of treatment is surgical resection, which calls for the total removal of the cysts, adequate hemostasis, the least amount of tissue damage possible, and the fewest possible side effects for the patients following the procedure.

The primary forceps incision used in traditional surgical treatment is prone to intraoperative hemorrhage and postoperative recurrence. In addition to the unique structure of the epiglottis, the patient's throat sustains a severe injury from which recovery is challenging. Therefore, forceps incision is no longer frequently employed in clinical settings. The treatment of epiglottic cysts has expanded due to the ongoing advancements in medical technology. These include low-temperature plasma and CO2 laser resection, radiofrequency, microwave treatment, high-frequency electrotomy, and uncovering techniques.

Among these, CO2 laser resection is a crucial therapeutic option that has been employed progressively to treat both benign and malignant laryngeal disorders. In recent years, CO2 laser resection of cyst under suspension laryngoscope has been increasingly popular in the surgical treatment of laryngeal lesions due to the quick advancement of microtechnology.

It has advantages over greater hemostasis, more precise laser resection, and clearer eyesight, all of which help to completely remove the cyst wall, reduce injury to healthy tissue, and speed up recovery following surgery, all of which contribute to an excellent therapeutic outcome.[20,21]

Larger epiglottic cysts can activate the pharyngeal and laryngeal mucosa's sensory nerves, resulting in chronic foreign body sensation and blockage sensation, even though they are often benign tumors.[22]

The structure of the epiglottis is distinct and unusual in two respects. For initial reasons, the superior laryngeal artery provides the epiglottic blood supply. Prior to sending out two to five branches to walk in the vallecula epiglottica, the root of the epiglottis, the lateral edge of epiglottic cartilage and quadrilateral membrane, and distribute in the mucous membrane of the glossal and larynx surface of the cartilage, its branches form arterial loops close to the vallecula epiglottica or aryepiglottic plica. Epiglottis surgery bleeding can be easily caused by this specific blood supply; if intraoperative bleeding becomes severe, patients' lives will be in grave danger.[23–25]

Epiglottic cysts can currently be surgically treated with a variety of techniques, including CO2 laser resection, radiofrequency ablation, microwave cauterization, electrosurgical resection, and low-temperature plasma ablation.[24,26–28]

The high temperature used in conventional electrosurgical excision can occasionally burn or damage the cyst wall, causing the fluid to spill out, the wall to collapse, and the cyst boundary to become unclear.

Furthermore, the blade readily sticks to the surrounding tissue, producing bleeding when it is removed and severe carbonization of the area when it clots again. This makes it challenging to completely remove the capsule wall and also burns the normal tissue around it. Furthermore, the laryngoscope's small space is used to operate electric knives and laryngeal forceps.

Due to the confined environment, the instruments often 'fight' with each other, which is simple to restrict the surgical field of vision. Additionally, it makes achieving precise and fine operation challenging. Consequently, the process is more painful and there is comparatively more bleeding.

Following surgery, patients frequently report experiencing severe pharyngeal pain, and some even experience damage to their epiglottic cartilage.[22,29]

The molecular gas laser emits the CO2 laser, a type of infrared mid-infrared laser with a wavelength of 10600 nm. It is an intangible light with electromagnetic, pressure, and thermal effects.[30,31] The CO2 laser has been utilized extensively in minimally invasive surgery for both benign and malignant laryngeal and pharyngeal disorders since the 1990s. Its basic idea is that a CO2 laser creates a beam that is between 0.4 and 2.0 mm in diameter. This beam can gasify and cut the lesion, and the pressure created during the procedure can also condense the blood that is visible at the incision.[32,33]

A CO2 laser can burn and halt bleeding under a microscope even if the bleeding point's diameter is smaller than 0.5 mm. The surgery time can be greatly reduced by using thermal coagulation to shut the blood vessels surrounding the wound, achieving simultaneous cutting and hemostasis.

Furthermore, the vascular stria and the diseased tissue's border can be readily seen under the microscope's magnification. A delicate operation that is satisfactory can be performed by precisely choosing the laser power, spot diameter, action duration, and other factors. It is possible to use a light spot beforehand to seal large blood arteries.[31]

The possibility of bleeding in the operation area, blurred vision, and an easy residual cystic wall in a standard procedure are all avoided by the clear and clean operation field. It has produced positive outcomes and is more thorough and unlikely to repeat than the anticipated normal operating procedure.[34]

Conclusion

Clinicians should be cautious of epiglottic cysts in adults who report with unexplained throat discomfort, foreign body sensation, or moderate dysphagia. Laryngoscopy remains the primary method of diagnosis, with histological analysis confirming the lesion's benign nature. Total cyst excision or marsupialization is the definitive treatment to prevent recurrence and subsequent airway impairment. Regular postoperative laryngoscopic follow-up is recommended to ensure complete healing and prevent recurrence. In conclusion, this case demonstrates the need of early detection and accurate surgical care of epiglottic cysts in order to achieve complete recovery and avoid potentially fatal consequences.

Compliance with ethical standards

The procedure performed in this case report was in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent

Written informed consent was obtained from patients who participated in this study.

Citation: Goyal P, Kumawat K, Kothari N. Epiglottic cyst in an adult: diagnostic and surgical considerations. *J Otolaryngol ENT Res*. 2025;17(3):85–89.
DOI: 10.15406/joentr.2025.17.00574

Acknowledgments

None.

Conflicts of interest

The authors declares that there are no conflicts of interest.

Financial Disclosure

The authors declared that this study has received no financial support.

References

1. Heyes R, Lott DG. Laryngeal cysts in adults: simplifying classification and management. *Otolaryngol Head Neck Surg*. 2017;157(6):928–939.
2. Varathan V, Mat Baki M, Kalimuthu S. An unusual presentation of epiglottic cyst causing airway obstruction in an adult: a case report. *Cureus*. 2023;15(3):e35863.
3. Lam HCK, Abdullah VJ, Soo G. Epiglottic cyst. *Otolaryngol Head Neck Surg*. 2000;122:311.
4. Lee SH, Lee DJ, Kim KM, et al. Epiglottic cyst incidentally discovered during screening endoscopy: a case report and review of literature. *Korean J Fam Med*. 2014;35(3):160–166.
5. Chen D, Duan M. Clinical effect of CO_2 laser resection of the epiglottic cyst under microlaryngoscope suspension. *Acta Otolaryngol*. 2022;142(5):443–447.
6. Hess MM, Fleischer S, Ernstberger M. New 445-nm blue laser for laryngeal surgery combines photoangiolytic and cutting properties. *Eur Arch Otorhinolaryngol*. 2018;275(6):1557–1567.
7. Standring S, editor. *Gray's Anatomy: The Anatomical Basis of Clinical Practice*. 42nd ed. Elsevier; 2020.
8. Moore KL, Dalley AF, Agur AMR. *Clinically Oriented Anatomy*. 9th ed. Wolters Kluwer; 2023.
9. Drake RL, Vogl AW, Mitchell AWM. *Gray's Anatomy for Students*. 5th ed. Elsevier; 2023.
10. Netter FH. *Atlas of Human Anatomy*. 8th ed. Elsevier; 2022.
11. StatPearls. Epiglottis anatomy. In: *StatPearls* [Internet]. StatPearls Publishing; updated 2024. Accessed October 19, 2025.
12. Hirano M, Kakita Y. Cover-body theory of vocal fold vibration. In: *Speech Sciences: Recent Advances*. College-Hill Press; 1985.
13. Vourexakis Z. Epiglottic cysts in clinical practice. *Cleve Clin J Med*. 2016;83(5):338–339.
14. Kawasaki H, Kuratomi K, Mitsumasu T. Cysts of the larynx: a 10-year review of 94 patients. *J Laryngol Otol*. 1983;10(suppl):S47–S55.
15. Puneeth PJ, Balushi F, Gandhi S. Vallecular cyst: 10 years' experience and review of the literature. *Indian J Otolaryngol Head Neck Surg*. 2022;75(2):492–495.
16. DeSanto LW, Devine KD, Weiland LH. Cysts of the larynx—classification. *Laryngoscope*. 1970;80(1):145–176.
17. Sonny A, Nagaraj G, Ramachandran R. Asymptomatic epiglottic cyst: a rare cause of unanticipated difficult intubation. *Middle East J Anesthesiol*. 2011;21:119–120.
18. Zawadzka-Glos L, Frackiewicz M, Brzewski M, et al. Difficulties in diagnosis of laryngeal cysts in children. *Int J Pediatr Otorhinolaryngol*. 2009;73:1729–1731.
19. De Vries EJ, Seranno J. Airway collapse due to unsuspected epiglottic cyst. *Laryngoscope*. 2010;120:54.
20. Polat B, Karahatay S, Gerek M. Epiglottic cyst as an etiological factor of globus sensation. *Turk J Gastroenterol*. 2015;26(5):363–366.
21. Araki K, Tomifuji M, Uno K, et al. Feasibility of transnasal flexible carbon dioxide laser surgery for laryngopharyngeal lesions. *Auris Nasus Larynx*. 2019;46(5):772–778.
22. Ng ACW, Yuen HW, Huang XY. Atypical thyroglossal duct cyst with intralaryngeal and paraglottic extension. *Am J Otolaryngol*. 2019;40(4):601–604.
23. Sugita T, Arisaka H. AirWay Scope™ for difficult ventilation in a patient with epiglottic cyst. *Anesth Prog*. 2018;65(3):204–205.
24. Meng X, Wen Q, Gu J, et al. Videolaryngoscope-assisted coblation of epiglottic cysts. *Eur Arch Otorhinolaryngol*. 2020;277(4):1129–1132.
25. Ouchi K, Onizawa Y, Kido T, et al. Congenital epiglottic cyst: neck position–dependent respiratory distress in newborns. *Pediatr Int*. 2017;59(8):939–940.
26. Ko SH, Sung ES. Large epiglottic cyst detected on videofluoroscopic swallowing study. *Lancet*. 2018;392(10144):311.
27. Zhang Y, Liang G, Sun N, et al. Comparison of CO_2 laser and conventional laryngomicrosurgery treatments of polyp and leukoplakia of the vocal fold. *Int J Clin Exp Med*. 2015;8(10):18265–18274.
28. Rosas A, McCrary HC, Meier JD, et al. Proposal for the surgical management of children with laryngeal saccular cysts: a case series. *Int J Pediatr Otorhinolaryngol*. 2019;126:109604.
29. Lee Y, Kim G, Wang S, et al. Acoustic characteristics in epiglottic cyst. *J Voice*. 2019;33(4):497–500.
30. Omi T. The role of the CO_2 laser and fractional resurfacing: tissue-interacting mechanisms and clinical applications. *PMCID*. 2014.
31. Anssiari MA, Erfanzadeh M, Mohajerani E. Mechanisms of laser–tissue interaction II: tissue thermal properties. *J Lasers Med Sci*. 2013;4(3):99–106.
32. Kraimer KL, Husain I. Updated medical and surgical treatment for common benign laryngeal lesions. *Otolaryngol Clin North Am*. 2019;52(4):745–757.
33. Heyes R, Lott DG. Laryngeal cysts in adults: simplifying classification and management. *Otolaryngol Head Neck Surg*. 2017;157(6):928–939.
34. Su CY, Hsu JL. Transoral laser marsupialization of epiglottic cysts. *Laryngoscope*. 2007;117(7):1153-1154.