Epiglottic Cyst Incidentally Discovered During Screening Endoscopy: A Case Report and Review of Literature

Seung-Hwa Lee, Duck-Joo Lee*, Kwang-Min Kim, Kyu-Nam Kim, Sang-Wook Seo, Young-Kyu Park¹, Sung-Min Cho¹, Young-Ah Choi¹, Jung-Un Lee², Dong-Ryul Lee²

Department of Family Practice and Community Health, Ajou University School of Medicine, Suwon; ¹Department of Family Medicine, Bundang Jaesang Hospital, Seongnam; ²Department of Family Medicine, Wonkwang University College of Medicine, Gunpo, Korea

From the endoscopists’ point of view, although the main focus of upper gastrointestinal endoscopic examination is the esophagus, stomach, and duodenum (usually bulb and 2nd portion including ampulla of Vater), the portions of the upper airway may also be observed during insertion and withdrawal of the endoscope, such as pharynx and larynx. Thus, a variety of pathologic lesions of the upper airway can be encountered during upper endoscopy. Among these lesions, an epiglottic cyst is relatively uncommon. The cyst has no malignant potential and mostly remains asymptomatic in adults. However, if large enough, epiglottic cysts can compromise the airway and can be potentially life-threatening when an emergency endotracheal intubation is needed. Thus, patients may benefit from early detection and treatment of these relatively asymptomatic lesions. In this report, we present a case of epiglottic cyst in an asymptomatic adult incidentally found by family physician during screening endoscopy, which was successfully removed without complication, using a laryngoscopic carbon dioxide laser.

Keywords: Epiglottic Cyst; Endoscopy; Potential of Airway Obstruction

INTRODUCTION

Esophagogastroduodenoscopy (EGD) is a common and established procedure for the diagnosis, follow-up, and treatment of a variety of upper gastrointestinal (GI) tract disorders including gastric neoplasm.¹²) The incidence of stomach cancer is high in East Asian countries including China and South Korea,³⁴) compared to Western countries in Europe and North America. In South Korea, stomach cancer is the second most common cancer and third most common cause of cancer death.⁵) Additionally, the cost of EGD is relatively low at approximately $60 US per endoscopic examination. Thus, screening upper GI endoscopy is widely performed in this East Asian country.⁶⁷) However, the number of gastroenterologic specialists is not sufficient to meet the growing demand. Consequently, family physicians have contributed to meeting this demand by performing EGD.⁸¹⁰)

The primary focus of EGD is the examination of the esophagus, stomach, and proximal duodenum (usually till 2nd portion).¹¹) However, oral cavity, pharynx, and larynx including the epiglottis may also be observed during the insertion and
withdrawal of the endoscope (Figure 1). Therefore, diverse non-upper GI lesions may be encountered during EGD. In this report, we present a 55-year-old patient with an asymptomatic epiglottic cyst incidentally found during screening endoscopy, along with a review of the relevant literature.

CASE REPORT

An asymptomatic 55-year-old woman with a family history of gastric cancer visited at the Department of Family Practice and Community Health, Ajou University Hospital for routine medical check-up including a screening EGD for upper GI cancer. She had hypertension that was controlled with medication, and had no other medical illness or surgical history. The patient did not smoke tobacco nor drink alcohol.

On general examination, the patient was healthy-looking in appearance, but obese (height, 160.3 cm; weight, 71.1 kg, waist circumference 101.2 cm; body mass index, 27.7 kg/m²). The patient’s vital signs showed a blood pressure of 115/70 mm Hg, a regular heart rate of 70 beats/min, a respiratory rate of 18 rates/min, and a body temperature of 36.7°C. Other aspects of the physical examination including abdomen were unremarkable as well. All laboratory tests such as complete blood cell counts, aspartate aminotransferase, alanine aminotransferase, protein, albumin, electrolyte, blood urea nitrogen, creatinine, lipid panel (total cholesterol, triglyceride, high density lipoprotein cholesterol, and low density lipoprotein cholesterol), fasting glucose, urine analysis, and stool examination were all within normal limits. Radiologic evaluations including chest X-ray, abdomen supine/erect X-ray, and abdominal ultrasonography were also without significant findings.

Two years previous to this EGD, the patient had undergone screening EGD with sedation, which was without significant findings or complications. At this time, she wanted EGD with sedation in order to avoid discomfort and anxiety about the procedure. Thus, we decided to perform EGD under conscious sedation, and written informed consent was obtained from the patient. After fasting for 12 hours (nothing by mouth after dinner the day before the EGD), the EGD was commenced the next morning. First, 10% lidocaine (Xylocaine spray; AstraZeneca Korea Pharmaceutical Co., Seoul, Korea) was sprayed as local...
Pharyngolaryngeal anesthesia. Then, the patient was placed in left lateral decubitus position. The EGD was performed under conscious sedation with combinations of intravenous midazolam (Dormicum; Roche Korea Pharmaceutical Co., Seoul, Korea) and propofol (Pofol; Jeil Pharmaceutical Co., Seoul, Korea). In addition, an antispasmodic agent, cimetropium bromide (Algiron; Green-Cross Pharmaceutical Co., Yongin, Korea), was given intravenously immediately before the procedure to minimize upper GI movements, which can interfere with detailed and complete inspection. The endoscopist performed the procedure on the patient with an Olympus GIF-H260 video endoscope (Olympus Optical Co., Ltd., Tokyo, Japan). During the procedure, blood pressure, pulse, and oxygen saturation were monitored.

When the endoscope was intubated into the oral cavity (Figure 2A–C), an approximately 15 × 30 mm sized globular yellowish cystic mass with smooth surface and visible vessels was seen arising from the right side of epiglottis (Figure 2D, E). This lesion had not been present during the index examination 2 years prior. Fortunately, the lesion was not obstructing the airway. Both the left and right vocal cords were intact, well-mobile, and free of adhesions (Figure 2F, G). Also, the lesion did not interrupt the
advance of the endoscope, which was inserted through piriformis fossa (Figure 2H) into the esophagus (Figure 2I). The remainder of the examination was without abnormal findings except for mild chronic superficial gastritis in the antrum.

Although the patient was asymptomatic, the patient was referred to the otolaryngology department because of the accelerated growth of the lesion to a relatively large size within a 2 year period and the possibility of airway obstruction and difficulty in intubation in future emergency situations. The cystic-like mass was resected by carbon dioxide (CO₂) laser under operating micro-laryngoscope (Figure 3) and sent for histopathology, after which the lesion was confirmed to be a benign epiglottic cyst. On hematoxylin and eosin stain, the cyst was lined by columnar to cuboidal epithelium without lymphoid infiltration (Figure 4A, B). The patient tolerated the procedure well, and the postoperative course was uneventful. She was discharged the day after her admission in stable condition. No recurrence was noted at the follow-up outpatient clinic visit.

**DISCUSSION**

Laryngeal cyst is a rare entity and constitutes only 4.3% to 6% of all benign laryngeal tumors.¹³ In 1852, Verneuil first described the presence of a laryngeal cyst in a post-mortem of an infant.¹⁴ Also, in 1864, Durham¹⁵ first reported a case of epiglottic cyst in an 11-year-old boy, which was successfully treated by surgical incision. Since then, a variety of cases have been reported, but the laryngeal cysts, including epiglottic variants, still present a relatively rare occurrence.
The larynx extends vertically from the tip of the epiglottis to the inferior border of the cricoid cartilage, i.e., the entrance of the trachea. The function of the larynx is involved in breathing, sound production (phonation), and protection of the trachea against food aspiration. The epiglottis is one of nine cartilaginous structures that make up the larynx; the laryngeal skeleton consist of nine cartilage structures, three single (epiglottic, thyroid, cricoid) and three paired (arytenoid, corniculate, cuneiform) (Figure 1). Epiglottic cysts arise in the region of epiglottis, a thin valve-like structure made of cartilage that is located behind the base of tongue. The lingual surface of the epiglottis is the most common location for these lesions. Henderson et al. demonstrated that 52% of the laryngeal cysts originated from the lingual aspect of the epiglottis in their study. In our case, the lesions were discovered on the lingual surface of the epiglottis as well.

Epiglottic cyst seems to be more prevalent in the 6th decade of life, which was the case in this patient, although they can affect and have been reported in all ages. Because the diameter of the respiratory tract is smaller in infants and children, an epiglottic cyst may easily obstruct the airway in this age group, and sufficiently large cysts may present as stridor, cyanosis with feeding, respiratory difficulty, and have the potential to be life-threatening. However, most adult epiglottic cysts are benign and asymptomatic. Therefore, these anomalies are sometimes discovered unintentionally during routine otolaryngological examination, induction of general anesthesia, and upper GI endoscopy, because this area is the passage to going into the esophagus during endoscopic examination. In our case, the lesion was incidentally found during screening endoscopy for upper GI disorders, including screening of gastric neoplasms. Therefore, the demand for EGD continues to grow worldwide, especially in Asian countries where the incidence of gastric cancer is comparatively high. During EGD, the endoscopists’ main focus of examination is the esophagus, stomach, and duodenum bulb and 2nd portion. However, incidental upper airway lesions can be identified in the pharynx and larynx, including those of the
epiglottis and vocal cords, during the insertion and withdrawal of the endoscope into and from the esophagus.

These lesions of the pharynx and larynx may be of malignant neoplasms or pathologic lesions with malignant potential. Additionally, even though such a lesion is benign, it may represent a future risk of complications, as deemed for the patient in our case. Therefore, this area should also be examined thoroughly during insertion as well as withdrawal of endoscope. Also, if a lesion is incidentally discovered in the area, proper and careful judgment by the endoscopist (follow-up versus further work-up versus immediate intervention including referral to other department) with regard to the patient is required.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

REFERENCES

1. Harper MB, Mayeux EJ Jr, Pope JB, Goel R. Procedural training in family practice residencies: current status and impact on resident recruitment. J Am Board Fam Pract 1995; 8:189-94.
2. Godreau CJ, Salander S, Godreau SE. Adenocarcinoma of the stomach: a plea for early diagnosis. J Am Board Fam Pract 1991;4:171-4.
3. Kim HS, Baik SJ, Kim KH, Oh CR, Lee JH, Jo WJ, et al. Prevalence of and risk factors for gastrointestinal diseases in Korean Americans and native Koreans undergoing screening endoscopy. Gut Liver 2013;7:539-45.
4. Xi HQ, Cui JX, Chen L. Current status of laparoscopic surgery for gastric cancer. Chin Med J (Engl) 2013;126:3003-5.
5. Suh M, Choi KS, Lee YY, Jun JK. Trends in cancer screening rates among Korean men and women: results from the Korean National Cancer Screening Survey, 2004-2012. Cancer Res Treat 2013;45:86-94.
6. Bai Y, Li ZS. Evolution of gastrointestinal endoscopy in the mainland of China. Chin Med J (Engl) 2009;122:2220-3.
7. Lim CH, Choi MG, Baeg MK, Moon SJ, Kim JS, Cho YK, et al. Novel disposable transnasal endoscopy for assessment of esophageal motor function. J Clin Gastroenterol 2014;48: 402-6.
8. Kolber M, Szafran O, Suwal J, Diaz M. Outcomes of 1949 endoscopic procedures: performed by a Canadian rural family physician. Can Fam Physician 2009;55:170-5.
9. Rodney WM, Hocutt JE Jr, Coleman WH, Weber JR, Swedberg JA, Cronin C, et al. Esophagogastroduodenoscopy by family physicians: a national multisite study of 717 procedures. J Am Board Fam Pract 1990;3:73-9.
10. Kim YJ, Park EW, Cheong YS, Choi EY, Baek KH, Sung HY, et al. Residents’ expectation of family medicine-specific training program and its current state. Korean J Fam Med 2011;32:390-8.
11. Lee HJ, Kim JI. The biopsy of upper gastrointestinal endoscopy. Korean J Helicobacter Up Gastrointest Res 2012; 12:166-70.
12. Nason KS, Murphy T, Schindler J, Schipper PH, Hoppo T, Diggs BS, et al. A cross-sectional analysis of the prevalence of Barrett esophagus in otolaryngology patients with laryngeal symptoms. J Clin Gastroenterol 2013;47:762-8.
13. Lam HC, Abdullah VJ, Soo G. Epiglottic cyst. Otolaryngol Head Neck Surg 2000;122:311.
14. Chung PS, Chung YW, Park SJ, Kim MC. A clinicopathologic study of epiglottic and vallecular cysts. Korean J Otolaryngol-Head Neck Surg 2004;47:157-60.
15. Durham AE. Case of a mucous cyst on the laryngeal aspect of the epiglottis, successfully treated by incision. Med Chir Trans 1864;47:7-9.
16. Henderson LT, Denny JC 3rd, Teichgraeber J. Airway-obstructing epiglottic cyst. Ann Otol Rhinol Laryngol 1985; 94(S Pt 1):473-6.
17. Sonny A, Nagaraj G, Ramachandran R. Asymptomatic epiglottic cyst: a rare cause of unanticipated difficult intubation. Middle East J Anaesthesiol 2011;21:119-20.
18. Norris W. Epiglottic cysts complicating general anaesthesia. Anaesthesia 1957;12:311-6.
19. Lee JH, Choi JG, Yoon DI, Lee Y, In J, Chung SH. Difficult endotracheal intubation due to an undiagnosed epiglottic cyst: a case report. Korean J Anesthesiol 2009;56:567-70.
20. Casselman J, Oyen R, Baert A, Jorissen M. Computed tomography of infected epiglottic cyst. J Comput Assist
Tomogr 1986;10:694-5.

21. Macneil A, Campbell AM, Clark LJ. Adult acute epiglottitis in association with infection of an epiglottic cyst. Anaesth Intensive Care 1989;17:211-2.

22. Heeneman H, Ward KM. Epiglottic abscess: its occurrence and management. J Otolaryngol 1977;6:31-6.

23. Lee WS, Tsai CS, Lin CH, Lee CC, Hsu HT. Airway obstruction caused by a congenital epiglottic cyst. Int J Pediatr Otorhinolaryngol 2000;53:229-33.

24. Kislal FM, Acar B, Inan Y, Degerli S, Gunbey E. Giant congenital epiglottic cyst presenting with airway obstruction at birth. J Craniofac Surg 2012;23:602-3.

25. Kawaida M, Kohno N, Kawasaki Y, Fukuda H. Surgical treatment of large epiglottic cysts with a side-opened direct laryngoscope and snare. Auris Nasus Larynx 1992;19:45-50.

26. Arens C, Glanz H, Kleinsasser O. Clinical and morphological aspects of laryngeal cysts. Eur Arch Otorhinolaryngol 1997;254:430-6.

27. De Vries EJ, Seranno J. Airway collapse due to unsuspected epiglottic cyst. Laryngoscope 2010;120:S54.

28. Fang TJ, Cheng KS, Li HY. A huge epiglottic cyst causing airway obstruction in an adult. Chang Gung Med J 2002;25: 275-8.

29. Zawadzka-Glos L, Frackiewicz M, Brzewski M, Biejat A, Chmielik M. Difficulties in diagnosis of laryngeal cysts in children. Int J Pediatr Otorhinolaryngol 2009;73:1729-31.

30. DeSanto LW, Devine KD, Weiland LH. Cysts of the larynx: classification. Laryngoscope 1970;80:145-76.

31. Newman BH, Taxy JB, Laker HI. Laryngeal cysts in adults: a clinicopathologic study of 20 cases. Am J Clin Pathol 1984;81:715-20.