



Figure 1. Point-of-care ultrasonography in transverse view of the neck, depicting the strap muscles (asterisks), pre-epiglottic space (arrow), and anteroposterior diameter of the epiglottis at the midpoint (5.77 mm) and the edges (right 8.35 mm; left 6.03 mm).



Figure 2. Lateral neck radiograph revealing thumb sign, which demonstrated an edematous and enlarged epiglottis (arrowhead).



Figure 3. Laryngoscopy after extubation, showing a residual swollen epiglottis in partial remission.

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A 51-year-old man presenting to the emergency department with sore throat and dyspnea for 3 days was healthy, without infectious contacts. Physical examination revealed an afebrile patient with mild stridor and respiration of 30 breaths/min. Oxygen saturation was 95%, with oxygen at 3 L/min by nasal cannula. Concerned about upper airway obstruction, the emergency physician performed bedside point-of-care ultrasonography of the neck (Figure 1). Awake fiberoptic nasotracheal intubation without sedative agents was performed immediately to ensure airway patency. A lateral neck radiograph was subsequently obtained (Figure 2).

For the diagnosis and teaching points, see page e74.

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*(continued from p. e73)***DIAGNOSIS:**

Acute epiglottitis with upper airway obstruction. Point-of-care ultrasonography depicted a thickened hypoechoic structure implying a swollen epiglottis. Lateral neck radiograph revealed thumb sign, which demonstrated an edematous and enlarged epiglottis, confirming the diagnosis. After antibiotics with amoxicillin and clavulanate for 1 week, the patient was extubated successfully. Subsequent laryngoscopy showed a residual swollen epiglottis in partial remission (Figure 3).

Acute epiglottitis is a life-threatening disease potentially leading to airway obstruction.¹ Direct visualization by laryngoscopy is the standard of diagnosis² but may be difficult for a patient with dyspnea and possibly results in direct airway trauma.³ Lateral neck radiographs are also useful, but with less sensitivity compared with direct visualization.² Recently, bedside ultrasonography has been promoted as a safe and noninvasive tool examine the patients who are at risk to leave the consulting room for imaging studies.⁴ The average thickness (anteroposterior diameter) of the epiglottis in healthy adults is 2.3 to 2.7 mm, whereas in the epiglottitis group the average is 4.0 mm at the midpoint and 4.5 mm at the edges.^{1,5}

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REFERENCES

1. Ko DR, Chung YE, Park I, et al. Use of bedside sonography for diagnosing acute epiglottitis in the emergency department: a preliminary study. *J Ultrasound Med.* 2012;31:19-22.
2. Westerhuis B, Bietz MG, Lindemann J. Acute epiglottitis in adults: an under-recognized and life-threatening condition. *S D Med.* 2013;66:309-311; 313.
3. Hasegawa K, Shigemitsu K, Hagiwara Y, et al. Association between repeated intubation attempts and adverse events in emergency departments: an analysis of a multicenter prospective observational study. *Ann Emerg Med.* 2012;60:749-754.e742.
4. Hung TY, Li S, Chen PS, et al. Bedside ultrasonography as a safe and effective tool to diagnose acute epiglottitis. *Am J Emerg Med.* 2011;29:359.e351-3.
5. Werner SL, Jones RA, Emerman CL. Sonographic assessment of the epiglottis. *Acad Emerg Med.* 2004;11:1358-1360.