

Images

A tight squeeze

Rachel J. Williams, MD*; David C. Mackenzie, MD*; Benjamin Liess, MD†

A 6-year-old male suffered a ground-level fall and head injury. He developed seizures shortly after arriving in the emergency department and needed intubation for airway protection. Multiple intubation attempts were required before successful passage of the endotracheal tube. He was extubated the following day and developed persistent post-extubation stridor. Laryngoscopy several days later demonstrated subglottic stenosis (SGS) (Figure 1). He underwent successful endotracheal balloon dilation (Figure 2) and was discharged with resolution of stridor.

SGS is an obstructive airway lesion at the level of the cricoid cartilage and can present as a life-threatening

airway emergency. Acquired SGS is differentiated from congenital by a history of trauma or instrumentation, and more severe symptoms. Iatrogenic injury from endotracheal intubation accounts for 90% of acquired SGS cases in pediatric patients, with an incidence ranging from 1% to 12% after intubation.¹⁻³ Symptoms of SGS may present after a latent period and can include biphasic stridor, increased work of breathing, abnormal phonation, dysphasia, recurrent croup, or prolonged upper respiratory infections.¹

Management options include endoscopic or open surgical approaches, with success dependent on acuity and

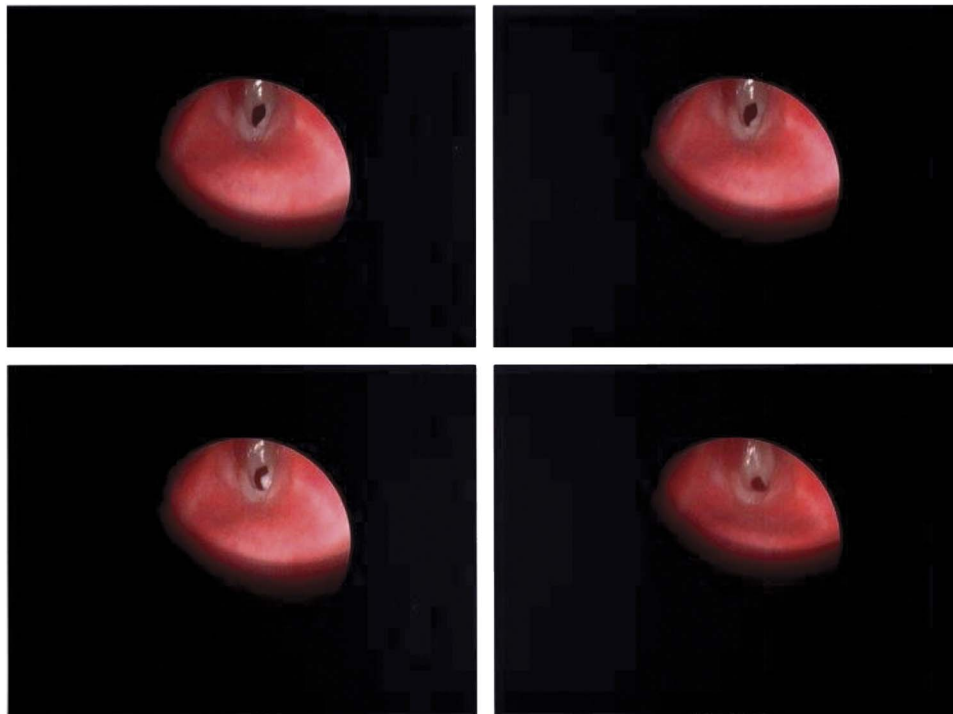


Figure 1. Endoscopic view of subglottis demonstrating subglottic stenosis.

From the *Department of Emergency Medicine and †Department of Otolaryngology, Maine Medical Center, Portland, ME.

Correspondence to: Dr. Rachel J. Williams, Maine Medical Center, Department of Emergency Medicine, 321 Bramhall Street, Portland, ME 04102; Email: rjwillia@wakehealth.edu

© Canadian Association of Emergency Physicians

CJEM 2018:S29-S30

DOI 10.1017/cem.2017.38



CJEM • JCMU

2018;20(S2) S29

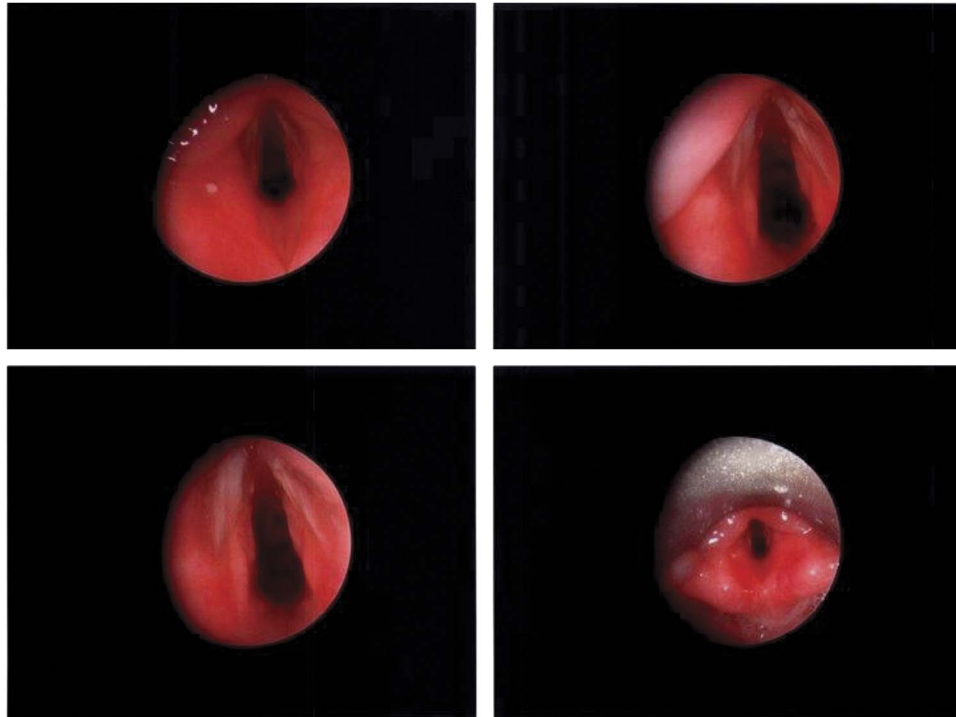


Figure 2. Post-procedural endoscopic view of subglottic space.

degree of stenosis.^{4,5} In the event of a failed airway due to SGS, the optimal mode of transtracheal oxygenation in patients under 8 years old remains controversial, with needle tracheotomy or surgical tracheotomy below the cricoid ring as the preferred methods due to the under-developed cricothyroid space.⁶

Competing interests: None declared.

Keywords: subglottic stenosis, pediatric, intubation

REFERENCES

1. Flint PW. Glottic and subglottic stenosis. In *Cummings otolaryngology: head and neck surgery*. Philadelphia, PA: Elsevier; 2010, 2912-24.
2. Schweiger C, Marostica PJ, Smith MM, et al. Incidence of post-intubation subglottic stenosis in children: prospective study. *J Laryngol Otol* 2013;127(4):399-403.
3. Manica D, Schweiger C, Maróstica PJ, et al. Association between length of intubation and subglottic stenosis in children. *Laryngoscope* 2013;123(4):1049-54.
4. Avelino M, Maunsell R, Jubé Wastowski I. Predicting outcomes of balloon laryngoplasty in children with subglottic stenosis. *Int J Pediatr Otorhinolaryngol* 2015;79(4):532-6.
5. Maresh A, Preciado DA, O'Connell AP, et al. A comparative analysis of open surgery vs endoscopic balloon dilation for pediatric subglottic stenosis. *JAMA Otolaryngol Head Neck Surg* 2014;140(10):901-5.
6. Law JA, Broemling N, Cooper RM, et al. The difficult airway with recommendations for management – part 1 – difficult tracheal intubation encountered in an unconscious/induced patient. *Can J Anaesth* 2013;60(11):1089-118.