*Brian P. Kavanagh, M.B., F.R.C.P.C., Editor*

# Saber-sheath Tracheal Deformity

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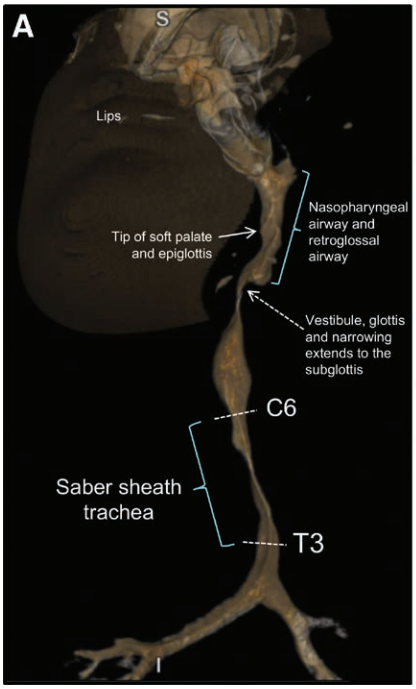


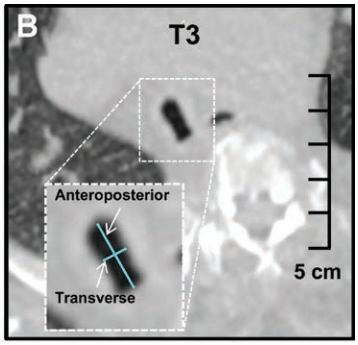


A 14-YR-OLD male with Morquio syndrome and complex airway anatomy presented for flexible bronchoscopy. Preoperative computed tomography with three-dimensional airway reconstruction revealed marked narrowing of the supraglottic and subglottic airway to 1.5 cm (*solid and dashed arrows*, *image A*). The trachea narrowed at C6 and remained in "saber-sheath" configuration for more than 5 cm to T3, with its center measuring 11 mm anteroposteriorly and 2 mm transversely.

Saber-sheath trachea is characterized by widened anteroposterior diameter and a markedly narrowed transverse plane across the intrathoracic trachea[1] (*image B*); it is uncommon and usually associated with chronic obstructive pulmonary disease, mediastinal mass compression, or ankylosing spondylitis.[1,2] Difficulty in ventilation may be unanticipated because the trachea is narrowed but laryngoscopy is normal. The narrow trachea associated with saber-sheath deformities may require a smaller than predicted endotracheal tube (ETT); flexible bronchoscopy to guide the ETT tip to just above the narrowest part of trachea is recommended, as further advancement could cause tracheal mucosal injury. A smaller ETT may be used to bypass stenosis and may suffice for spontaneous ventilation.[3]

If imaging suggests tracheal stenosis, maintenance of spontaneous ventilation and avoidance of muscle relaxants are recommended during induction of anesthesia. Attention should be given to the etiology, severity, and location of the deformity, as well as to measures that minimize air trapping.[3]

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## Competing Interests

The authors declare no competing interests.

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