

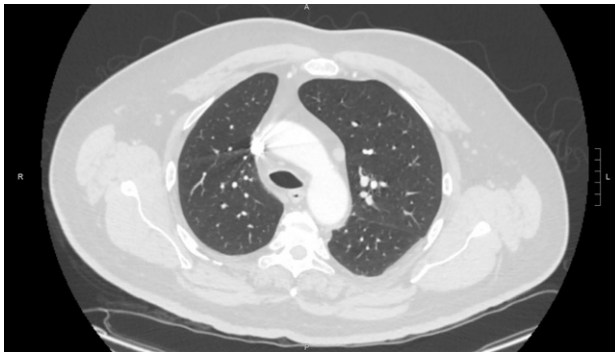
# IMAGES IN PULMONARY, CRITICAL CARE, SLEEP MEDICINE AND THE SCIENCES

## Kissing in the Airway: Collateral Damage from Tracheobronchomalacia

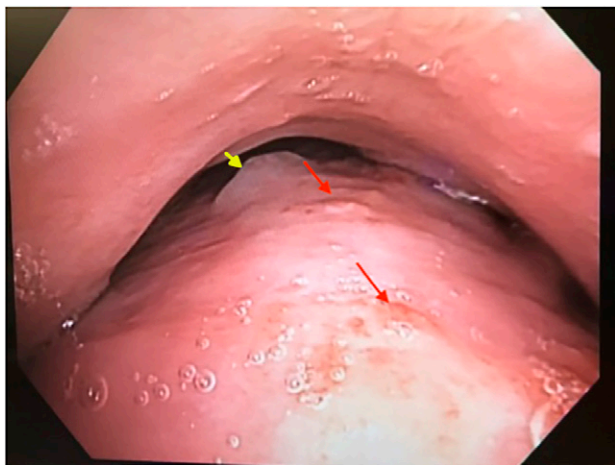
Aravind A. Menon and Majid Shafiq

Division of Pulmonary and Critical Care Medicine, Brigham and Women's Hospital, Harvard Medical School, Boston, Massachusetts

ORCID IDs: 0000-0002-0211-4509 (A.A.M.); 0000-0001-7971-3350 (M.S.).



**Figure 1.** Computed tomography scan of the chest showing decreased midtracheal anteroposterior diameter.



**Figure 2.** Flexible bronchoscopy image showing collapse of midtrachea with retained secretions distally (yellow arrow) and kissing ulcers (red arrows).

A 68-year-old male with morbid obesity and obstructive sleep apnea reported severe coughing episodes, difficulty expectorating mucus, and recurrent respiratory infections. At presentation, he had no infectious symptoms and a normal white blood cell count. Dynamic computed tomography demonstrated modest midtracheal expiratory collapse (Figure 1), but clinical suspicion for tracheobronchomalacia (TBM) remained high. Flexible bronchoscopy, performed under total intravenous general anesthesia with low  $V_T$  (5 ml/kg predicted body weight) and zero positive end-expiratory pressure, showed nearly 100% midtracheal expiratory collapse, retained distal secretions (Figure 2, yellow arrow), and multiple mucosal “kissing ulcers” on the posterior tracheal wall (Figure 2, red arrows). Biopsy of these superficial, ulcer-like mucosal erosions revealed granulation tissue and negative microbiologic cultures. After a trial of weight loss, expectorants, and positive airway pressure therapy, the patient reported freedom from daily cough and no respiratory infection for over 12 months.

Adult TBM is increasingly recognized among patients with chronic cough, dyspnea, and/or recurrent respiratory infections (1). Risk factors include obesity, tobacco, and steroids (2–4). In severe cases, bronchoscopy may show focal mucosal erosions owing to

repetitive trauma from expiratory airway collapse (“kissing ulcers”). Differential diagnosis for these lesions includes malignancy, infections, and autoimmune conditions such as granulomatosis with polyangiitis (5). Conservative management of TBM involves weight reduction, positive airway pressure, and maintenance of airway hygiene. Severe and recalcitrant cases may warrant tracheobronchoplasty, preferably after an airway stent trial. ■

**Author disclosures** are available with the text of this article at [www.atsjournals.org](http://www.atsjournals.org).

---

## References

1. Carden KA, Boiselle PM, Waltz DA, Ernst A. Tracheomalacia and tracheobronchomalacia in children and adults: an in-depth review. *Chest* 2005;127:984–1005.
2. Buitrago DH, Wilson JL, Parikh M, Majid A, Gangadharan SP. Current concepts in severe adult tracheobronchomalacia: evaluation and treatment. *J Thorac Dis* 2017;9:E57–E66.
3. Jokinen K, Palva T, Sutinen S, Nuutinen J. Acquired tracheobronchomalacia. *Ann Clin Res* 1977;9:52–57.
4. Husta BC, Raouf S, Erzurum S, Mehta AC. Tracheobronchopathy from inhaled corticosteroids. *Chest* 2017; 152:1296–1305.
5. Al-Qadi MO, Artenstein AW, Braman SS. The “forgotten zone”: acquired disorders of the trachea in adults. *Respir Med* 2013;107: 1301–1313.