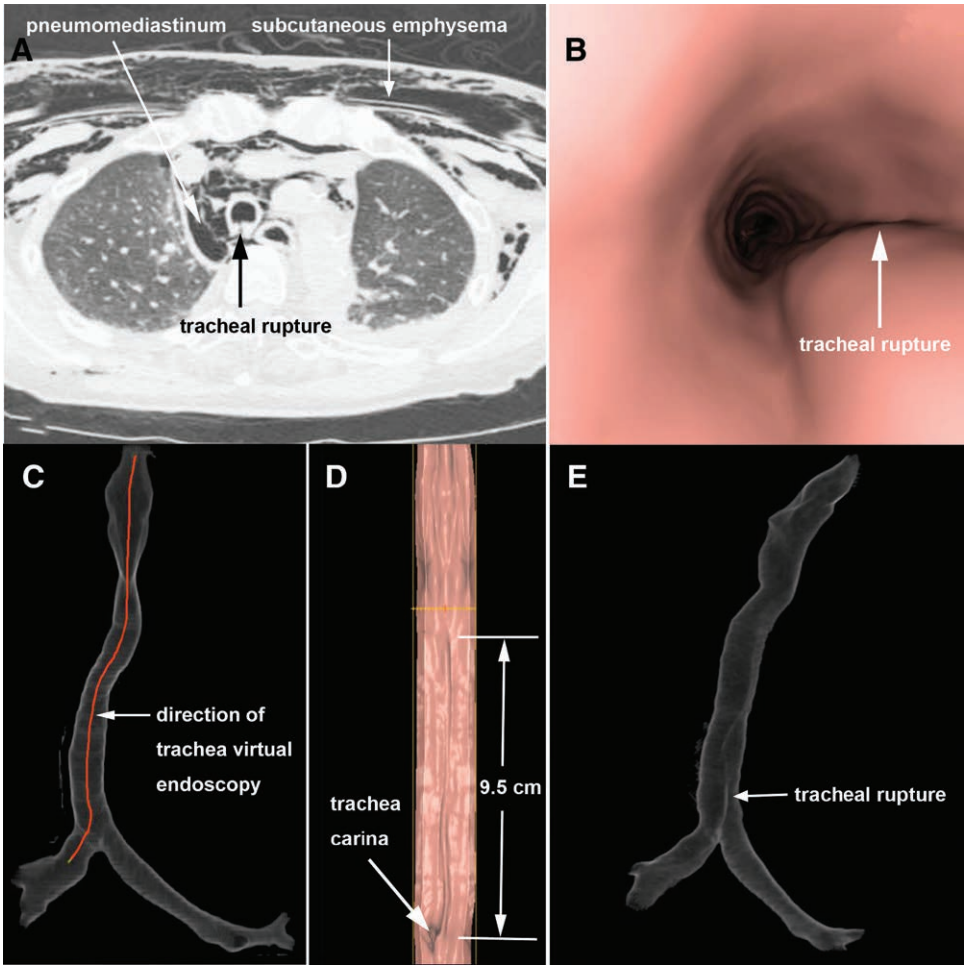
Postintubation Tracheal Rupture Detected by Virtual Endoscopy and Curved Planar Reformation

Rui Zhu, M.B., Feifei Lang, M.B., Ming Li, M.D., Ph.D., Weidong Gu, M.D., Ph.D.



Postintubation tracheal rupture represents a life-threatening condition requiring prompt diagnosis and treatment. Common computed tomography findings of postintubation tracheal rupture include subcutaneous emphysema and pneumomediastinum (*image A*). New techniques, including virtual endoscopy, curved planar reformation, and minimum intensity projection, greatly contribute to judging the location and length of tracheal tear.

Virtual endoscopy uses multidetector computed tomography data to display intraluminal geography of the airway in a noninvasive way[1] (*image B* and *C*). Curved planar reformation is a type of multiple planar reconstruction accomplished by aligning the long axis of the imaging plane with a specific anatomic structure, such as tracheal (*image D*). Minimum intensity projection is a multiplanar slab image generated by displaying only the lowest attenuation value encountered along a ray cast through an object toward viewer's eye (*image E*). The combination of traditional computed tomography with virtual endoscopy, curved planar reformation, and minimum intensity projection could complement each other to display two-dimensional, three-dimensional, and endoluminal structures of the trachea, and provides crucial information for clinical treatment.

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The treatment decision for postintubation tracheal rupture depends on the tear size, the location, and the patient's respiratory status. In stable patients with spontaneous breathing, conservative management, including antibiotic prophylaxis, antitussive agents, and chest tube insertion if required, is considered sufficient.[2] If mechanical ventilation is required, positioning the tracheal tube distal to tracheal rupture is effective in patients with lacerations in the upper trachea. In cases of mechanically ventilated patients with lacerations close to the carina, early tracheostomy allows spontaneous breathing with the aid of lower positive inspiratory pressure.[3] Surgical operation is mandatory in cases of a large tear with significant air leak and patient instability.

Competing Interests

The authors declare no competing interests.

Correspondence

Address correspondence to Dr. Gu: hdmz0800@163.com

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