

Comments on pathogenesis of acquired tracheobronchoesophageal fistula following blunt chest trauma

Sir,

We read with great interest the radiology quiz article “Choking after blunt trauma and an interesting radiological finding” by Ray *et al.*^[1] in the January-March 2014 issue of Lung India. We just want to share our view in respect to the probable pathogenesis in this case.

As stated, Ray *et al.* believe that the probable cause of tracheobronchoesophageal fistula (TB-E fistula) in the present symptomatic case may be ischemic necrosis (secondary to crushing of the airway and esophagus following the blunt chest trauma) of the adjacent tracheobronchial and esophageal walls.^[1] However, we have a different view. As the presentation (specifically Ono’s sign, i.e. coughing while swallowing) in the present case is much more acute (within few hours of blunt chest trauma), the TB-E fistula may be due to traumatic tracheobronchial and esophageal rupture.^[2-4] Of note, development of ischemic necrosis usually takes three to ten days following trauma; thereby having a delayed presentation.^[2,3]

The mechanism of traumatic tracheobronchial rupture following forceful sudden chest compression (caused by blunt chest trauma) is poorly understood. Three possible mechanisms (in any combination) have been suggested, namely, increased pressure within the airways, shearing airway injury, and pulling apart of the lungs.^[4]

- Violent chest compression closes the glottis reflexly, leading to a sudden increased pressure within the larger airways (trachea and bronchi), which in turn causes an ‘explosive rupture’
- Shear injury may be caused by sudden deceleration, wherein the moving airways can tear at the point of fixation (viz., the airway can tear near the carina, as it

is fixed to the pericardium)

- Anteroposterior compression of the chest, with chest widening and subsequent relative negative pressure within the pleural cavity, which leads to pulling apart of the lungs; this may create tension at the carina and a carinal tear may ensue.

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REFERENCES

1. Ray A, Suri JC, Chakrabarti S, Bhattacharya D. Choking after blunt trauma and an interesting radiological finding. Lung India 2014;31:82-3.
2. Reed MF, Mathisen DJ. Tracheoesophageal fistula. Chest Surg Clin N Am 2003;13:271-89.
3. Didee R, Shaw IH. Acquired tracheo-oesophageal fistula in adults. Contin Educ Anaesth Crit Care Pain 2006;6:105-8.
4. Available from: http://www.en.wikipedia.org/wiki/Tracheobronchial_injury. United States of America: Wikimedia Foundation, Inc.; c2008. Available from: http://en.wikipedia.org/wiki/Tracheobronchial_injury. [Last accessed on 2013 Sep 9].

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