

Authors' reply

Sir,

With respect to the article titled "Pathogenesis of acquired tracheo-broncho-esophageal fistula following blunt chest trauma" we would like to make the following comments.^[1]

- We would like to clarify that the pathogenesis elucidated in the article titled "Choking after blunt trauma and an interesting radiological finding"^[2] had referred to the most commonly described pathogenetic mechanism of trachea-esophageal (TOF) formation involving ischemic necrosis of the adjacent tracheal posterior wall and anterior esophageal wall due to crushing injury in between the vertebral column and the sternum. As reviewed by Reed *et al.* this was deemed to be the mechanism operative in 59% of TOF cases (in their series) occurring after blunt trauma to the chest^[3]
- However, we agree with the authors of "Pathogenesis of acquired tracheo-broncho-esophageal fistula following blunt chest trauma" that normally the ischemic necrosis and resultant fistulous connection is manifested in 3-10 days. Hence, this particular mechanism might not be the dominant one in the case discussed by us^[2] as the onset of symptoms was within a few hours of sustaining injury
- The alternative hypotheses enumerated by the authors, namely compression injury, shearing stress or traction injury at the carina might explain the airway injury (i.e., tracheo-bronchial injury) but is clearly inadequate to explain the concomitant esophageal injury as seen in our patient. The normal site of injury to the esophagus in blunt injury to the chest is usually the cervical esophagus while in our patient the rent in the esophagus was adjacent to the trachea-bronchial defect (at and around the carinal level). Due to its muscular consistency esophageal injury due to traction or tension forces are unlikely and since the volume of air inside the esophagus is small injury due to sudden rise in intraluminal pressure is also improbable.^[4]
- Thus, in our patient it is difficult to explain the pathogenesis of trachea-esophageal fistula based on these hypotheses only. An alternative explanation as proposed by Stothert *et al.*^[4] however strives to explain the same - "intrathoracic bursting injury" to

the esophageal wall followed by rupture as a result of energy released due to the tracheal rupture. Thus, the explosive rupture of the trachea (and bronchus) transmits the energy to the esophageal wall causing its disruption as well. However, it is to be remembered that this is merely a conjecture originally proposed to explain the combined TOF and esophageal rupture in a patient in whom the presence of other forms of injury like deceleration injury etc., were deemed to be unlikely. But it might still explain the sudden and simultaneous rupture of both airway and esophagus in cases of blunt injury as seen in our patient.

We would like to thank the authors for showing such keen interest in our article and for highlighting the putative mechanisms of TOF in cases of blunt injury to chest.

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