Letters to Editor

Do we need bronchoscopy during percutaneous tracheostomy?

Sir,

Percutaneous tracheostomy (PCT) is a standard procedure in many Intensive Care Units (ICUs). It is considered as a safe procedure over open conventional tracheostomy.[1] It has several complications some of which could be life threatening. Recently, many studies have supported the view of performing PCT without fiberoptic bronchoscopy control.[2] However, in our case, during PCT, a serious complication was diagnosed because of the use of bronchoscopy.

A 25-year-old male who underwent multiple surgeries during his 5 months stay at our hospital was admitted to our ICU in view of sepsis and acute respiratory distress syndrome. On the 10th day of intubation in view of ongoing ventilatory...

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Figure 1:

The endotracheal tube was deflated and withdrawn, and the cuff was inflated at the level of cords. Bronchoscopy was done, and the site of desired tracheal level was identified by transillumination and then withdrawn above to visualize the procedure. After the identification of tracheal lumen by the introducer needle, J wire guide was introduced freely into the trachea under bronchoscopic vision. The tracheal insertion site was then dilated with 14 F pre tracheal dilator over the guide wire followed by Blue Rhino dilator that passed in the tracheal lumen by the use of optimal force. The tracheostomy tube (mounted on the loader) was then passed over the guidewire and stylet kept in situ. Slight resistance was felt while inserting the tracheostomy tube through the stoma, which was overcome by using a little force. The tracheostomy tube was inserted, and loader removed. The bronchoscopic view showed rupture of anterior tracheal ring cartilage and herniation above the tracheostomy tube around the stoma, occluding about 30% of tracheal lumen [Figure 1]. Bronchoscopy was done to confirm the correct placement of tracheostomy tube, any bleeding, or obstruction. Tracheostomy tube cuff was inflated and connected to ventilator without any further complication.

Tracheal rupture and herniation in the tracheal lumen during PCT is not commonly diagnosed in real time. Most of the studies describe this complication on autopsy findings or as a late presentation in the form of tracheal stenosis developing after decannulation. In a study on 1000 bedside PCT, no incidence of tracheal rupture was found.

The above case illustrates the major benefit of fiberoptic bronchoscopy in diagnosing the uncommon complication of cartilage fracture and herniation in real time thus avoiding the error of delayed diagnosis presenting as a late complication in form of tracheal stenosis. Some of the factors that may predispose to tracheal rupture are excessive force, coughing during insertion, difficult anatomy, and old age. However, they were not present in our case and we had applied optimal force during the procedure. We speculate the cause of tracheal injury in our patient might be malnutrition or tracheal ischemia due to long intubation history. Using bronchoscopy to guide PCT provides the advantage of visualizing and recording tracheal mucosal injury, bleeding and excludes passage of guidewire through Murphy eye of endotracheal tube or perforation of the posterior tracheal wall. Although damage to the tracheal skeleton cannot be avoided by use of bronchoscope, however, it may help in early diagnosis of this complication and predict problems during decannulation.

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Conflicts of interest
There are no conflicts of interest.

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airway resistance was found to be... have made no... initiating ventilation with same tidal volume. If further tidal... This would result in dilution of the recorded ETCO...

The tidal volume/minute ventilation requirement is expected... pressures without increasing the airway resistance, as compared... maintained normocarbia at “lower tidal volumes” and peak... versus endotracheal tube (ETT).

The tidal volume/minute ventilation requirement is expected... normocarbia” between ProSeal laryngeal mask airway (PLMA)... ventilatory parameters and airway dynamics needed to maintain... close scrutiny and may indeed be contrary to the quoted finding.

In a randomized controlled trial, Kannan... earlier finding of Berry... to clinical perception regarding the devices as well as the... Second, the... in vivo... calculating of the... known. How was it... calculation by the authors. No previous dataset/value that... comparison or give a probable explanation for this surprising... airway pressure cannot be commented upon.

Kannan... did not measure the plateau airway pressures,... did not measure the plateau airway pressures,... the finding of raised peak airway pressure with ETT is... devices, the finding of raised peak airway pressure with ETT is... then a likely consequence of the raised tidal volume itself. Since... devices, the finding of raised peak airway pressure with ETT is... devices, the finding of raised peak airway pressure with ETT is... does not mean that the airway resistance is also different. If it is accepted that the resistance is indeed similar with both these... and contradictory finding.

Despite... changes of the trachea after percutaneous dilatational tracheotomy. Chest 1996;109:1466-9.

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