

Pneumothorax following flexible fiberoptic bronchoscopy: A rare occurrence

Sir,

Pneumothorax following flexible fiberoptic bronchoscopy is rare. It occurs 1 in 450 bronchoscopy.^[1] We report a case of such event in a trauma victim. A 34-year-old male patient with alleged history of road traffic accident admitted in our trauma center. On initial examination, his airway was patent, he was breathing at the rate of 22 breaths/min with air entry diminished over the right lung. Initial hemodynamics were stable with heart rate of 96 beats/min and blood pressure of 126/88 mmHg. Contrast-enhanced computed tomography scan chest revealed the fracture of 1st, 2nd, 3rd, and 7th ribs on the right side with hemopneumothorax and multifocal contusions in all lobes of the right lung. A right-sided intercostal tube drain (ICD) was placed. Pneumothorax and hemothorax resolved subsequently. He was shifted to the general ward. After 4 days of admission, patient developed acute respiratory distress with fall in oxygen saturation (90%)

and was transferred to trauma intensive care unit (ICU). On initial evaluation, his chest X-ray showed [Figure 1] right lung collapsed with mediastinal shift toward the right side. A flexible bronchoscopy was contemplated in view of provisional diagnosis of mucus plug obstructing the major airways. A flexible bronchoscopy was carried out and a large mucus plug was aspirated from the right bronchus thereby clearing the airway. The patient was kept on positive pressure ventilation after the procedure. Immediately following the flexible bronchoscopy a large air leak became apparent in right-sided ICD. A follow-up chest X-ray showed a new large pneumothorax and collapse whole lung [Figure 2]. Ventilatory settings were adjusted to minimize the leak and the ICD was connected to negative pressure of 15 mmHg. A second ICD was inserted in order to control the leak and expand the lung. After 2 days, air leak controlled and lung got expanded. Patient was shifted to high dependency unit for further care.

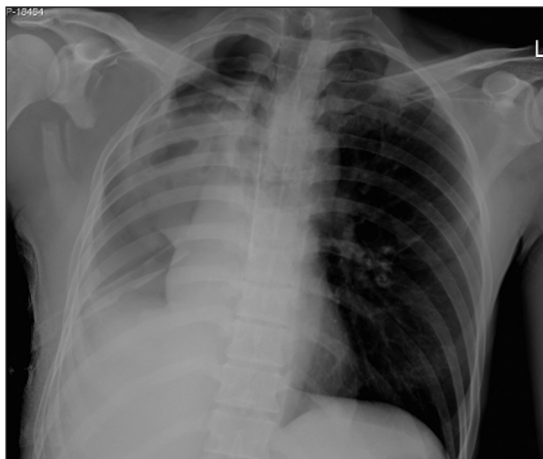


Figure 1: Chest X-ray showed collapsed right lung with mediastinal shift toward the right side

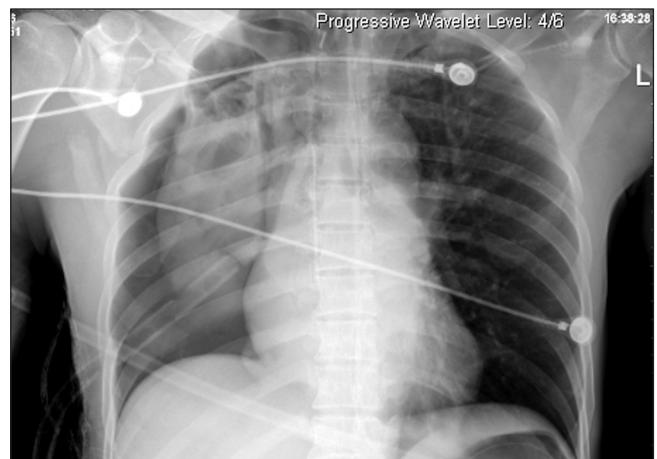


Figure 2: Chest X-ray demonstrated a new large pneumothorax and collapse of whole the right lung

Flexible fiberoptic bronchoscopy is a safe procedure carried out in patients admitted to ICUs. Its indication varies between diagnostic to therapeutic interventions including regular bronchoalveolar lavage for microbiological sampling, diagnosis of pulmonary hemorrhage, use in cases of difficult intubation, as a control in percutaneous tracheostomies, and aspirations of secretions.^[2] Its use in clearing the airway because of mucus plug is considered as a standard practice particularly in patients where physiotherapy has failed to do so. However, its complications are infrequent. Most frequent complications cited in the literature are supraventricular tachycardia (3.8%), transient hypoxemia (6.7%), and slight bleeding of the bronchial mucosal membrane (2.4%).^[2] Pneumothorax following flexible bronchoscopy has been reported infrequently in literature. Pue *et al.* have reported pneumothorax following flexible bronchoscopy in 0.16% of cases. Predominantly, it followed transbronchial biopsy procedure.^[3] de Blic *et al.* analyzed prospectively in 1328 flexible bronchoscopy procedures in children and noted 0.1% incidence of pneumothorax.^[4] In both the above analysis, none has reported pneumothorax following aspiration of secretion or mucus plug in case of chest injury following trauma. Moreover, flexible fiberoptic bronchoscopy was used here as a diagnostic modality to identify the cause of persistent pneumothorax and bronchial injuries. Mechanism that might have led to pneumothorax in our patient can be attributed to initial lung injury. Probably, the mucus plug had sealed the existent bronchial rent underlying lacerated lung and corrected the initial hemopneumothorax. As soon as the mucus plug got aspirated during flexible bronchoscopy the lung laceration got exposed to high airway pressures and caused escaping of air into the pleural cavity. To conclude, although flexible bronchoscopy is a

safe procedure, it mandates close monitoring during and after the procedure. It is important to have a high index of suspicion and a follow-up chest X-ray to identify a potentially dangerous complication.

Kapil Dev Soni, Sukhen Samanta,
Richa Aggarwal, Sujay Samanta¹

Department of Anesthesia and Critical Care (Trauma Centre),
JPNA Trauma Centre, AIIMS, New Delhi, ¹Department of Critical
Care Medicine, Sanjay Gandhi Post Graduate Institute of Medical
Sciences, Lucknow, Uttar Pradesh, India

Address for correspondence:

Dr. Sukhen Samanta,
17 Dr. A N Paul Lane, Bally,
Howrah - 711 201, West Bengal, India.
E-mail: dr.sukhensamanta@gmail.com

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Quick Response Code:	Website: www.saudija.org
	DOI: 10.4103/1658-354X.144105