Sir,

Although several cases of barotrauma after manual ventilation have been reported till now, tension pneumothorax with spontaneously breathing patient is out of imagination as high pressures are extremely rare to develop. Here, we report a case of tension pneumothorax in spontaneously breathing intubated patient on oxygen by T-piece.

An 8-year-old male child presented in emergency with intestinal obstruction and planned for emergency laparotomy. His preoperative vital parameters and routine investigations including chest X-ray were within normal limits. Surgery was performed under general anesthesia, and intraoperative period was uneventful. After completion of surgery, the patient reversed with return of good spontaneous efforts. Due to poor conscious level, the patient was not extubated and planned to shift to the Intensive Care Unit (ICU) on oxygen by T-piece [Figure 1]. This decision was made to safeguard the airway and to avoid midnight struggle for reintubation. The patient was shifted with an endotracheal tube (ETT) in situ with adequate oxygen flow rate on T-piece. It took 5 min to shift the patient to the ICU where receiving doctor found that the patient was in respiratory distress with facial swelling. Immediately, intermittent positive pressure ventilation (IPPV) started with Ambulatory manual breathing unit (AMBU) bag with no improvement in oxygen saturation. In the meantime, the patient also had bradycardia which responded to one dose of atropine and correct position of ETT was reconfirmed. Sudden onset of respiratory distress, decreased breath sound, and bradycardia was in favor of tension pneumothorax. Hence, two wide bore needles of 16-gauge were inserted in the second intercostal space bilaterally to relieve tension pneumothorax. As a result, there was sudden improvement in oxygen saturation with air release, and permanent measures were taken by inserting bilateral intercostal drains. Thereafter, the patient remained hemodynamically stable and was maintained with IPPV. Further, supportive ventilation was continued for 1 day and patient extubated on the 3rd day when extubation criteria were satisfied.

Intrahospital transportation on manual ventilation poses a significant risk to mechanically ventilated critically ill patients. A high airway pressure is an important factor in the pathophysiology of barotraumas, and it is higher during manual ventilation due to the absence of an air leak.[1-3] It is worth noting that any pneumothorax can turn into a tension pneumothorax if positive pressure is applied. Abrupt presentation of tension pneumothorax with impending cardiac arrest as occurred in our case demands immediate needle decompression.

What can be the cause in our case where no manual ventilation was used during transport but still has complication? In our case, the likely cause of pneumothorax can be unintentional/accidental closure of the expiratory port of T-piece by patient’s relatives/patient’s blanket or sudden increase in the oxygen flow rate while shifting. The condition was exacerbated further by positive pressure ventilation. It has been reported that the appropriate oxygen flow rate should not exceed 6 L/min in adults and even less in small children during apnea testing.[4] These days, newer T-piece with small transparent expiratory limb [Figure 2] is available for shifting the spontaneously breathing intubated patient as these are made to prevent an accidental blockade of expiration port and better monitoring of respiration through the transparent tubing of the expiratory limb.

In conclusion, transportation of intubated patient on Ayres T-piece can result in lethal complication such as tension pneumothorax during transportation of patient on Ayres T-piece: A rare but lethal experience!

![Figure 1: T-piece used for transportation (without expiratory long limb)](image1)

![Figure 2: T-piece with expiratory long limb](image2)
Letters to Editor

pneumothorax, even in spontaneously breathing patient. It is always better to shift the intubated patient on a transportable ventilator or newer T-piece with long expiratory limb, to avoid these iatrogenic complications.

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Sapna A. Nikhar, Kewal Krishan Gupta
Department of Anaesthesia and Intensive care, Nizam Institute of Medical Sciences, Hyderabad, Telangana, 1Department of Anaesthesia and Intensive care, GGS Medical College and Hospital, Faridkot, Punjab, India

Address for correspondence:
Dr. Kewal Krishan Gupta,
House No. 204, Medical Campus, Faridkot - 151 203, Punjab, India.
E-mail: doc_krishan31@yahoo.co.in

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