Difficult Ventilation in a Tracheobronchial Injury

Introduction

We described a polytrauma case with severe chest injury who sustained tracheobronchial injury and severe alveolar air leak. Patient developed persistent hypoxia from the severe leak, necessitating a change in ventilation strategy. We performed various interventions in the ED to minimise alveolar air leak that led to his improved oxygenation and ventilation.

Case report

A 45 YO male involved in MVA, sustained severe chest injury. Primary survey revealed Left tension pneumothorax & finger decompression was performed followed by left tube thoracostomy. Patient was intubated and ventilated using the injured lung strategy, ie the Lung Protective Ventilation. Patient subsequently having persistent desaturation and frequent hypotensive episodes. Persistent and constant bubbling of chest tube throughout inspiration and expiration with worsening subcutaneous emphysema rose the suspicious of alveolar air leak or bronchopleural fistula. Another tube thoracostomy was inserted on the left chest and ventilator strategy was changed to remedy the persistent leak and hypoxia while maintaining normal low Mean airway pressure. Emergency bronchoscopy revealed laceration near carina and an immediate CT thorax revealed a subtle defect at the posterior tracheal wall suggestive a tracheal injury along with left lung laceration. Patient was subsequently referred to cardiothoracic team for further management. He achieved good saturation throughout his ED stay and his mean airway pressure maintained within normal limits. He was later admitted to ICU for close monitoring and conservative treatment.

Conclusion

We need to maintain high index of suspicion when managing patient with severe thoracic trauma of the possibilities of tracheobronchial injury and alveolar air leak. These necessitate a change in ventilation strategy to optimise lung mechanics, improve oxygenation while at the same time maintaining lung inflation and prevent worsening of air leak.