

## Pseudomembrane Formation after Traumatic Left Bronchial Injury

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**Abstract:** Thoracic trauma is major cause of trauma related hospitalization with mortality ranging from 15-77%. Among them tracheobronchial injury is on rise. Bronchoscopy is mandatory for exclusion or confirmation of bronchial rupture. Spiral C.T. scan is helpful for diagnosis and localization of injury. Though conservative treatment is useful for small lesion early surgical intervention may be necessary to prevent irreversible loss of lung parenchyma. Early diagnostic techniques like bronchoscopy are useful in revealing condition of the bronchus as seen in this case of 20 yr old female patient whose bronchus obliterated with formation of pseudo membrane after injury. Early surgical intervention can prevent complications due to mediastinitis leading to sepsis and MODS.

**Keywords:** tracheobronchial injury, bronchoscopy, sepsis, chest injury.

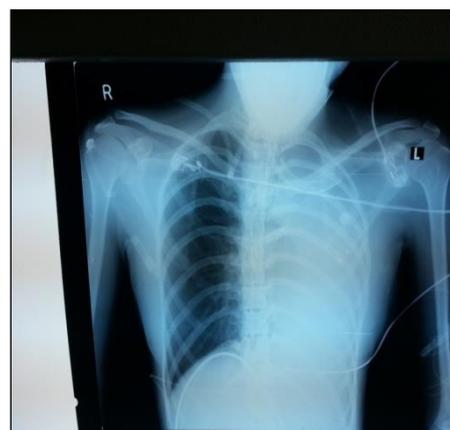
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### INTRODUCTION

Thoracic trauma is major cause of trauma related hospitalization in the world consisting almost 15% with associated mortality ranging from 15-77% [1,2]. Tracheobronchial injury incidence is on rise amongst them. Conservative treatment is more successful in small lesions as initial choice but should be considered carefully as sometimes surgery may be necessary. Diagnosis of bronchial rupture after blunt chest trauma may be difficult [3]. Bronchoscopy is mandatory for exclusion or confirmation of a bronchial rupture. Spiral CT scan is helpful for diagnosis and localization of bronchial injury [4]. Early diagnosis allows prompt surgical therapy that will avoid irreversible loss of pulmonary parenchyma.

### CASE REPORT

A 20 year old female had road traffic accident had head injury, blunt injury chest and abdomen and presented to the emergency ward in peripheral hospital with epigastric and retrosternal pain. Chest radiograph revealed fracture of left 5<sup>th</sup> and 6<sup>th</sup> ribs and pneumothorax so intercostal drain was placed was placed. (Fig-1)

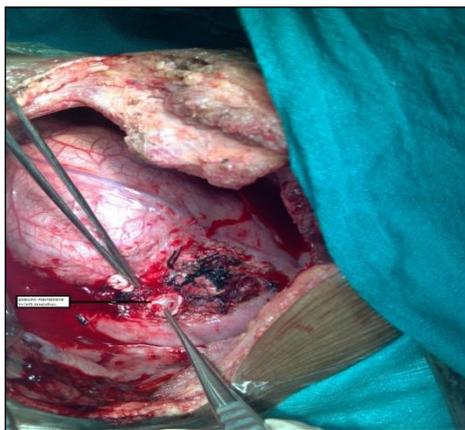


**Fig-1: Preoperative chest x ray showing collapse of left lung**

Ultra Sonography of abdomen revealed splenic injury for which exploratory laparotomy and splenectomy was done. She was on mechanical ventilation and was weaned after 7 days following improvement in general condition. After 10 days she again presented to the same hospital with shortness of breath and decreased air entry on left side of chest.

On examination patient is conscious, coherent and decreased air entry on left side of chest, chest radiograph revealed left lung collapse. Patient was intubated in view of falling oxygen saturation to < 92% and started on nor adrenaline as mean arterial pressure was < 65 mm of Hg and patient was referred to us for evaluation. On receiving patient in our Intensive care

unit, on examination patient is conscious pao2 180 on 100% Fio2. pt was kept on broad spectrum antibiotics on further evaluation chest x ray showed left lung collapse and bronchoscopy revealed obliteration of left bronchus. Later patient deteriorated and there was fall in saturation to 90%. So surgical intervention was planned and she was posted for Pneumonectomy. Written informed consent was taken and standard anesthesia technique followed .Intraoperative findings collapsed left lung with 200 ml of fluid in pleural cavity, total obliteration of left main bronchus with psedomembrane and destroyed left lung was observed (Fig-2).



**Fig-2: Lung dissection showing pseudo membrane**

HistoPathological examination confirmed intraoperative findings. Patient was shifted to intensive care unit for further management. Blood cultures which were sent before Pneumonectomy came positive for acinetobacter baumannii sensitive to colistin and she was started on colistin 1.25 million international units QID. On improvement in condition she was extubated on 3<sup>rd</sup> post operative day. Chest radiograph was taken and she was kept in high dependency unit for next 48 hrs and discharged after 10 days. (Fig-3)



**Fig-3: Chest x ray before discharge showing post Pneumonectomy status.**

## DISCUSSION

Rupture of the trachea or major bronchi is a serious injury with an estimated mortality of 30% [5]. Except in small bronchial tear involving less than one third in all other types of tracheobronchial injury, thoracotomy should be performed as soon as possible .There are case reports of formation of granulation tissue after the repair in post operative period [5]. Etiology of pseudo membrane would be infectious especially with aspergillosis, tuberculosis, diphtheria and so on. Pseudo membrane can also occur after instrumentation especially during rigid bronchoscopy or in airway injury by fire accident and formation of exudates. But in this patient injury to bronchus had lead to the formation of membrane which is detected in pre operative period. Clinicians should have high index of suspicion to make such diagnosis. Diagnostic techniques like MRI, CT scan may reveal abrupt termination of bronchus as seen in our case.

## CONCLUSION

Bronchoscopy should be carried out when tracheobronchial rupture is suspected, since it is the most reliable means of establishing the diagnosis. Early diagnosis and prompt surgical intervention of bronchial rupture may prevent complications arising due to stenosis and infections arising from prolonged ICU [2].

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