

A Case of Traumatic Haemopneumothorax Lessons Learnt

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Abstract: A 22 year old male presented with left sided chest pain since one month following a trauma road traffic accident by an auto rickshaw in which he was travelling turning tortle. He also had shortness of breath on moderate activity for a month which had worsened for the last 10 days. Patient also had complaint of cough with haemoptysis for 20days. Clinical examination revealed there were decreased breath sounds over left side of the chest. Chest x-ray and chest CT scan done which showed left sided hydropneumothorax with undisplaced multiple rib fractures on ipsilateral side. Patient underwent left thoracotomy on one lung ventilation which revealed approximately 500 ml of thick pus underneath the ribs along with the collapsed left lung with undisplaced multiple rib fractures. The pus was evacuated and sent for culture and sensitivity and bits of excised pleura were sent for histopathological examination. Culture and sensitivity showed abundant pus cells with no growth and with no microorganisms. Histopathological examination showed resolving pleural lesion of acute and chronic inflammation.

Keywords: Traumatic Haemopneumothorax

1.Introduction

Hemopneumothorax is the accumulation of blood and air in the pleural cavity that is between the lungs and the pleura. It is most commonly caused by trauma, and other non-traumatic causes include lung cancer, haemophilia and tuberculosis. The usual symptoms include: shortness of breath, tachycardia, chest pain, decreased breath sounds on affected side. Significant radiological finding: presence of air fluid levels on chest x ray.

Common Complications:

Lung collapse

Empyema

Shock

Investigations: X-ray, CT scan.

Treatment: Thoracotomy.



Figure 1: Image show multiple rib fractures, significant air fluid levels demonstrating hydropneumothorax with shift of mediastinum to right side

2.Case Report

A 22 year old male presented to the cardio thoracic vascular surgery outpatient department with left sided chest pain since 1 month following a trauma road traffic accident by an auto rickshaw in which he was travelling turning tortle. The patient had taken treatment at local hospital. Despite the treatment at the local hospital patient presented because pain was persistent not subsided. Pain was non radiating type, aggravated on deep inspiration and relieved on rest. He also had history of shortness of breath for a month following moderate activity which had worsened over the last 10 days. Patient also had complaint of cough with haemoptysis for last 20 days.

His past medical history was unremarkable with no similar events or co morbidities. The patient is a known smoker since 4 years and an occasional alcoholic. He had no history of diabetes, hypertension, bronchial asthma, tuberculosis, coronary artery disease, cerebrovascular disease.

His vitals at the time of presentation: Blood pressure: 100/70 mmhg.

Pulse rate: 96 beat per minute. Respiratory rate: 26 cycles/minute.

On clinical examination: There were decreased breath sounds on left side of the chest. On percussion dull note present on affected side.

On chest X-ray: left sided air fluid level was noticed indicating left hydropneumothorax along with undisplaced multiple rib fractures. (Figure 1)

Figure 1: Image show multiple rib fractures, significant air fluid levels demonstrating hydropneumothorax with shift of mediastinum to right side

Chest CT scan showed left lung collapse with significant deviation of mediastinum to right side (Figure 2).



Figure 2: Image show Chest CT scan left lung collapse with significant deviation of mediastinum to right side.

He was treated conservatively for a month since fractures are unstable and he was not having symptoms of infection like fever, asthenia, purulent sputum, diaphoresis. He was treated with antibiotics and analgesics. After a month since there was no change in chest x ray and clinical findings he was taken up for left thoracotomy.

Operative Procedure:

Patient in right lateral decubitus position. Under one lung ventilation with general anaesthesia. Chest was opened by left posterolateral thoracotomy. On opening multiple rib fractures present along with thick pus present in pleural cavity (Figure 3). The pus was evacuated by suction (Figure 4). Pleural adhesions to mediastinum were released. Visceral and parietal pleura excised. (Figure 5). The collapsed left lung was excised as a pleural peel with blunt and sharp dissection with intermittent use of warm mops.



Figure 3: Image show the opening of thorax and presence of pus



Figure 4: Image show the amount of thick pus extracted



Figure 5: Image show excised parietal and visceral pleura

Pleural cavity washed thoroughly with hydrogen peroxide, betadine and saline. Air leak checked and haemostasis achieved. Two intercostal chest drains were placed.

Thoracotomy wound closed in layers. Excised Pleural Specimen sent for histopathological examination. Pus sent for culture and sensitivity.

Intraoperative Findings:

Undisplaced fractured ribs present.

Thick visceral and parietal pleura.

500 ml of pus in pleural cavity.

Collapsed left lung.

Immediate Postoperative X-ray taken it showed shift of mediastinum to left side (Figure 6).



Figure 6: Immediate Postoperative X-ray taken it showed shift of mediastinum to left side

Course in Hospital:

His Postoperative course in the hospital uneventful and drains were removed one by one over next few days. He was discharged on tenth postoperative day with fully expanded lung with no residual collection (Figure 7).



Figure 7: Image show the X-ray taken on tenth Postoperative day

Histopathological Examination:

Histopathological examination showed resolving pleural lesion of acute and chronic inflammation comprising abundant granulation tissue (Figure 8). Acute and chronic inflammatory cell infiltrates, haemorrhages, siderophagia (Figure 9). Fibrosis with few bits of lung parenchyma.



Figure 8: Image show the histopathological slide of pleura with granulation tissue, acute and chronic inflammatory cells

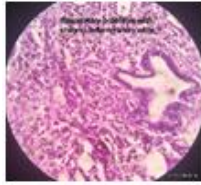


Figure 9: image show respiratory bronchiole with chronic inflammatory cells

Culture: It showed abundant pus cells with no microorganisms and no growth.

3. Discussion

Patients presenting with injuries to chest wall may have pneumothorax, haemothorax, hemothorax and multiple rib fractures.

Usual Symptoms of patient presenting with hemothorax includes Shortness of breath, Chestpain, Cough with haemoptysis, Tachycardia, Hypotension, Tachypnoea, Hypoxia.

Depending on the patient condition thoracotomy has to be performed.

Thoracotomy:

A. Indications of Emergency Thoracotomy:

1. In patients who are having excessive and persistent drainage from intercostal drain with tendency to go to Hypotension and shock.
2. In patients who have polytrauma and who are undergoing adjuvant surgery for other injuries.
3. Patients who have unstable fractures of ribs and are ventilator dependent because of the pain and flail chest.
4. Patients with massive lung contusion needing lung resection.

B. Semiurgent Thoracotomy Indications:

1. Clotted haemothorax.
2. Unexpanded lung.
3. Systemic symptoms like Tachypnoea, tachycardia.

C. Indications for Delayed Thoracotomy as in this Patient:

1. Persistent air fluid level in thoracic cavity.
2. Persistent cough.
3. Postural dyspnoea.
4. Unexpanded lung.

Associated procedures which could be done with Thoracotomy are:

1. Pneumonectomy.
2. Lobectomy.
3. Segmental resection.
4. Removal of clots.
5. Sealing of air leaks if present and repair of bronchial tears and Bronchopleural fistula.

4. Conclusion

Lessons learnt during the treatment of this patient:

1. In a patient who is clinically and hemodynamically stable it is better to wait with antibiotics and analgesics for the fracture segments to heal and stabilize.
2. This period of masterly inactivity also helps in organization of the intrapleural hematoma.
3. By 3-4 weeks after trauma with a stable chest wall a good plane of cleavage is obtained between the parietal pleura and chest wall as well as visceral pleura and lung. Thus, facilitating easy surgical decortication without major lung parenchyma injury.
4. During this period, one must make sure that the patient does not go into sepsis by adequate antibiotic coverage.
5. The postoperative result thus obtained by following this protocol as in our patient helps in reaching better outcome with minimal postoperative morbidity and mortality.
6. However regular follow-up and judicious decision making in the intervening period is a must and this protocol will not be applicable to all major thoracic injuries as with rib fractures.
7. Our patient has been discharged and has returned to his regular duties with no complaints on last follow up.

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