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Comparative Treatment of Hemothorax

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Abstract:
Hemothorax is defined as collection of blood in pleural cavity. An injury or trauma to the chest is the most common cause. It is identified through physical examination, auscultation and different imaging techniques. The study was based on 50 patients admitted in department of CTVS, PMCH, Patna in a time period of 6 months. The different treatment modalities were used in management of the selected patients. The management included removal of collected blood by inter costal chest drain (ICD), a thoracotomy and performing thoracoscopic surgery for very risk patients. In the present study intercostal chest tube drainage treatment showed better result in early intervention. Out of 50 patients, 3 developed minor infection which was treated by aseptic dressing and IV antibiotics. 80% of the selected patients recovered when treated by intercostal chest tube drainage treatment technique and rest 20% recovered by thoracotomy and thoracoscopic surgery. No mortality was reported in the study for next 6 months.

Keywords: Hemothorax, Thoracotomy, Intercostal Chest Tube Drainage Empyema

Introduction:

Hemothorax is a common clinical problem worldwide. As per reports 3 lakhs cases is reported everywhere around the world. It is also considered as major health problem. If left untreated it is associated with 20-30% mortality and empyema in 20-25% cases. It is a health condition that affects the space between lungs and rib cage.[2]

It can be caused by:- [5]

1. Laceration of lungs, intercoastal vessel.
2. Blunt or penetrating trauma.
3. Major surgeries like open heart surgery.
4. Repetitive blunt impact to chest and abdomen.

Symptoms: -

1. Severe shortness of breath.
2. Anxiety and extreme restlessness.
3. Symptom of shock in bleeding patients like tachycardia, low blood pressure, old extremities and weakness.
4. Chest pain.
5. Pain with deep breathing.

Objective of the study:

To identify clinical, surgical and management outcome of the patients selected for study.

Methodology:

Study design:

A retrospective study of patient in age group of 10 to 75 years over a period of 6 months.
50 patients were identified for the study.

Investigation:

Clinical and radiological diagnosis were done that included x ray chest and city thorax.

Following information were obtained and recorded: -

Patient data, medical and surgical history, clinical characteristics, presence of underlying risk factors, data from investigations like imaging, serology, hematology, liver and renal function test.
Previous medical and surgical treatment and antibiotic usage to know any allergic reaction in the past was also recorded.

Management:

It included stabilizing the patient's condition, stopping bleeding and removing blood and air from pleural space.[5] [6]

Oxygen therapy:

Depending upon saturation recorded, ABG and shock like condition.

Intercostal chest drain:

A Chest tube was inserted in triangle of safety between the ribs to drain blood and air, was connected to water seal chest drain bottle. The chest tube was kept till the lung re expanded
.[1].

Thoracotomy:

After all, above mentioned medical and surgical measures, if bleeding continued to fill the pleural space, then thoracotomy was performed under general anesthesia. In thoracotomy bleeders were ligated and laceration of lung was repaired by Proline 4-0. Every possible bleeding site was identified and cauterized. After surgery chest was closed by apposing ribs and by suturing muscle and subcutaneous tissues. Blood transfusion was done in case of blood loss in the patients.[1] [3].[10]

Physiotherapy:

It included spirometry, assisted coughing and mobilization exercises.[2]
The severity of haemothorax was determined by amount of blood loss and patient's clinical condition. Small haemothorax, less than 100 ml. can be treated conservatively by antibiotics, analgesics and by rib stabilization. 80% of the patients of hemothorax at our center were treated with intercostal chest drain.[4]. The position of chest drain inserted was confirmed by X ray chest. Lack of clinical improvement in first 48 hrs. were usually related to chest drain blockage or malposition. Blockage of chest drain was prevented by frequent flushing during surgery. After discharge patients were routinely followed by clinical improvement in their condition, saturation monitoring and X ray chest.[12] City thorax was done in selected cases on the basis of their complain and clinical deterioration.[5]

Flail chest:
It is a traumatic disorder that happened in cases when 2 or more ribs anteriorly and posteriorly located next to each other were fractured at 2 or more places. It was managed by stabilizing the patient on oxygen support and operative fixation of ribs via thoracotomy under general anesthesia. Adequate ventilation, fluid management, pain management and stabilizing the chest wall was main stay treatment.[7]

Stove in chest:
It is rare form of flail chest in which there is collapse of segment of chest wall that is associated with high mortality. In this type of injury section of chest wall moved in opposite direction when compared with undamaged chest wall. The management of this condition included steel wire fixation of chest wall via thoracotomy, adequate pain relief, optimizing gaseous exchange (positive ventilation) and prevention of sepsis. Tracheostomy was required in 2-3% of cases.[7] [8]

Risk of operative treatment:[8]
1. Bleeding
2. Air leak
3. Injury to nerve, diaphragm
4. Respiratory failure

All the above-mentioned risk factors were explained to patient and their attendant.

Discussion:

Fig 1: Pre operative X Ray Chest

Fig 2: Post operative X Ray Chest

Haemothorax is a major health problem worldwide. If large haemothorax are left untreated, it is associated with 20-30% mortality and can cause empyema in 20 to 25% of cases [13]. Early intervention is crucial for management as it decreases morbidity and mortality.[11] There are 3 major categories of haemothorax, spontaneous, iatrogenic and traumatic. Progressive trauma is most common.[9]. Thoracic trauma

contributes 16,000 to 30,000 deaths per year. Fig 1 and 2 shows the improvement in the patient after treatment.

Conclusion:

The present case study at our center intercostal chest tube drainage showed better result in comparison to morbidity and mortality. Out of 50 patients, 1 patient developed respiratory failure who can not be revived. 3 patients developed minor infection that was treated by aseptic dressing and IV antibiotics. 49 patients out of 50, were discharged in 2 to 3 weeks post-surgery. They were followed post operatively for 6 months having no previous complain like fever, cough and shortness of breath. On the basis of observations, it can be concluded that most of the patients treated by intercostal chest drain fully recovered, henceforth, it is sufficient treatment for haemothrax.

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