



CASE REPORT: TRAUMATIC PNEUMATOCELE

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ABSTRACT Traumatic pneumatocele or pulmonary pseudocyst or traumatic lung cyst is a rare phenomenon following blunt chest trauma. It can be single or multiple. It usually resolves spontaneously with supportive treatment unless complicated by infection or hematoma formation within the cavity. We are presenting a case of post traumatic pneumatocele in a 21 year old patient.

KEYWORDS : Trauma, pneumatocele

Introduction

Blunt trauma to thorax usually causes multiple injuries in the form of either pulmonary contusions, hemothorax, pneumothorax, rib fracture. But rarely it can cause pneumatocele [1]. Traumatic pneumatocele occurs mostly in young adults and children with 85% of patients younger than 30 years of age [2]. Chest CT scan is required for early diagnosis. Pneumatocele can occur at any location except apices of lungs [3]. It is a benign condition which requires observation and supportive care. In few cases it is complicated by infection and hematoma formation.

The cystic lesion is described as pseudocyst as it is not lined by an epithelium or bronchial wall elements. In young patients blunt trauma causes increased pressure on lung parenchyma due to elastic nature of thorax causing lacerations of the lung parenchyma without rupture of pleura leading to cyst formation.

Case report:

A 21 year old male previously healthy, nonsmoker presented to emergency department after a motorcycle accident with chief complaint of chest pain and breathlessness. On examination he was conscious and oriented, Glasgow coma scale score was 15. Vitals were pulse rate- 104/ min, BP- 120/74mmhg, respiratory rate was 25/min, oxygen saturation was 97% at room air. On examination of chest wall flail segment was seen on the right side. On auscultation breath sound was decreased over right chest wall and normal over left side.

Patient was admitted and investigated. Chest X-ray revealed opacity right lower zone and a large cavity in the right upper zone. CT scan thorax showed multiloculated irregular thick walled cavity lesions with diameter of approximately 5.5cm in right upper lobe with areas of consolidation in right lower lobe. Mild right pleural effusion was also noted. Fracture of right first and second ribs with sternal fracture and depression was seen.

In view of thick walled cavity patient was evaluated to exclude infectious causes. Gram stain, AFB stain, KOH mount of sputum was negative. Sputum culture was sterile.

Patient was managed conservatively. His condition started improving gradually and he was discharged in a stable condition. After two weeks follow-up CT thorax revealed decrease size of pneumatocele. Patient was again followed up after 6 weeks and X-ray chest revealed complete resolution of pneumatocele.

Fig1. Chest X-ray at presentation showing right upper lobe thick walled cavity

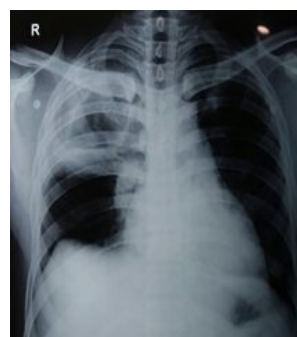


Fig 2. CT thorax at presentation showing right upper lobe cavity

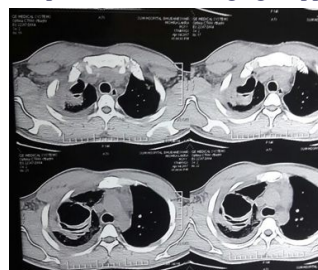


Fig 3. CT thorax after 2 weeks of accident showing decrease in size of right upper lobe cavity



Fig 3. Chest X-Ray after 3 months of accident – complete resolution of right upper lobe cavity



Discussion

Development of traumatic pneumatocele depends on three factors i.e. the impact velocity, chest wall elasticity and displacement of chest wall [4]. In young patient as the chest wall is more elastic, it allows transmission of kinetic energy to lung parenchyma. Peripheral pseudocyst is formed when there is high velocity impact with less chest wall displacement and the reverse causes central pseudocyst i.e. low velocity impact with high displacement of the chest wall [5]. In both cases pulmonary lacerations followed by airway disruption with leakage of air into pulmonary parenchyma.

Patient with traumatic cyst may be asymptomatic or present with hemoptysis, chest pain or cough [6].

It is detected in chest X-ray immediately or hours after trauma. In 50% of cases diagnosis is not possible with X-ray alone [7]. CT scan is more sensitive. Sizes vary from 2-14cm in diameter [8]. Differential diagnosis includes tuberculosis, fungal cavity, pulmonary abscess and cavitary carcinoma. Gradual decline of the lesion in CT thorax with history of trauma is sufficient to diagnose traumatic pneumatocele [9]. Management of traumatic pneumatocele include oxygen inhalation, chest physiotherapy and adequate analgesia. Outcome of pneumatocele is good. Some cyst resolves completely while some persists and regular follow up is required [10]. Surgery is indicated in cases of complication like pneumothorax, hemothorax, abscess formation or increase size due to hemorrhage.

Conclusion

Traumatic pneumatocele is a benign lesion secondary to blunt chest trauma in young adult. They resolve spontaneously in 2-3 months period. Patient should be followed up closely as some patient develop complication like pneumothorax, infections.

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