

Case report

Eventration of diaphragm: an incidental finding

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INTRODUCTION

Eventration of diaphragm is a difficult diagnosis especially in patients who sustain blunt trauma to abdomen or lower chest. Usually, the final diagnosis is made after a contrast CT scan or MRI. Sometimes, this condition is picked up on routine clinical examination of the patients. It is difficult to differentiate this condition from congenital diaphragmatic hernia of Bochdalek type and also from traumatic rupture of the diaphragm. A case of eventration of diaphragm is presented.

CASE REPORT

A 47 years old man presented in Accident and Emergency with severe pain in the lower left side of the chest and difficulty in breathing after he had a fall from height following an epileptic fit. He was a known case of epilepsy for the last twenty-five years but presently he was not taking any medicines. On examination he was a middle-aged man of average built. His pulse rate was 84/min, Blood Pressure 130/90 mm of Hg and temperature was normal. His trachea was deviated to right side and bowel sounds were audible in left lower chest extending up to left nipple.

A chest x-ray was taken which showed elevated left dome of diaphragm and bowel in the left side of chest. A naso-gastric tube was passed and gastrograffin studies were performed which showed abdominal contents in left pleural cavity. Keeping in view the stable general condition of the patient, CT scan with contrast

was done to rule out traumatic rupture of diaphragm. The scan was consistent with the findings of other investigations that this was a case of eventration of diaphragm. Patient remained stable throughout this period and his all other investigations such as ECG, Arterial blood gases analysis and ultrasound of abdomen were normal. Patient was discharged from the hospital after one week of stay. He was advised to follow up in surgical our door on regular basis.

DISCUSSION

Jean Louis Petit¹ first recognized Eventration of diaphragm in 1774¹. Eventration (“e” out of; “venter” the belly) of the diaphragm is a condition in which all or portion of one hemi-diaphragm is permanently elevated yet retains its continuity and normal attachment to the costal margins. It may be congenital resulting from anomalous development of normal muscle in growth into developing diaphragm or its innervation or it may be acquired due to phrenic nerve injury^{2,3}. The affected diaphragm is abnormally redundant and attenuated, raised and has little or no ability to contract. Symptoms are uncommon with eventration of the diaphragm, which is usually discovered on incidental chest X-rays. A massive eventration in the newborn may cause respiratory failure. In adults, patients may suffer from respiratory compromise while in others it may be a symptomatic incidental finding. The left dome of diaphragm is more commonly affected than the right, presumably because the latter is protected by the liver^{2,4,5}. Partial eventration of the antero-medial segment of the right hemi diaphragm may also occur producing a hump, which may be misinterpreted as mass lesion or middle lobe consolidation^{2,4}.

The abdominal viscous lying within the thorax is covered with a hypo plastic structure and this condition mimics a true diaphragmatic hernia. Clinically, these patients can present with respiratory distress. On clinical examination of the patient the trachea will be displaced to the opposite side and bowel sounds will be audible in the chest. An x-ray of chest will confirm the diagnosis by showing bowel shadow in the chest while abdominal radiographs may show reduced bowel contents³⁻⁵. The diagnosis is best confirmed by fluoroscopy, which demonstrate the paradoxical movement of diaphragm. Flexibility of the mediastinum in infants

permits transmission of the paradoxical motion of diaphragm to the contra lateral side ^{2,6}.

Differentiation between eventration of the diaphragm and a large congenital hernia of the Bochdalek type may be difficult or impossible clinically and usually diagnosed at operation ^{7,8}. Eventration of diaphragm has clinical significance only if it is associated with symptoms or it cannot be differentiated from other serious conditions. Usually the symptoms are minimal and management is then conservative and surgical treatment is only necessary if symptoms are severe or disabling ^{2,8,9}. It is not a true hernia as the gut is below the diaphragm. Half of the diaphragm has defective musculature due to failure of muscular tissues to extend into the pleuro-peritoneal membrane on the affected side. As a result there is upward displacement of abdominal contents into an out pouching of the diaphragm ^{6,7}.

The acquired forms of eventration are secondary to damage or entrapment of the phrenic nerve. If respiratory distress doesn't intervene, observation alone is indicated. In symptomatic cases plication through low thoracic approach may be beneficial. In the special instance of the intra-operative injury to phrenic nerve, immediate plication of the diaphragm, particularly in infants avoids postoperative problems. In 80% of the patients treated with immediate plication, diaphragm motion appears to return to normal when studied fluoroscopically ^{8,9,10}. Injury to the diaphragm occurs in 4-5% of patients with blunt or penetrating trauma and mainly on the left side as the liver protects the right hemi diaphragm ⁶. The mechanism in blunt injury is sudden intrathoracic or intra-abdominal force applied against the fixed diaphragm.

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