Case report:

Diaphragmatic hernia dissimulating as left sided Pleural effusion

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Abstract

Diaphragmatic hernia is “Intrathoracic herniation of abdominal contents into thorax.” It may be a congenital or acquired defect in the diaphragm. It is rarely due to negative intrathoracic pressure. When the defect is small it may not be noticed until adulthood. Here we review a case presenting as left sided pleural effusion on chest x-ray which was confirmed to be a diaphragmatic hernia on USG and CT scan.

Key words- pleural effusion, hernia, diaphragmatic

Introduction

Diaphragmatic hernias are defined as a congenital or acquired defect in the diaphragm. There are two main types of congenital diaphragmatic hernia. Bochdalek hernia is more common as compared to Morgagni hernia. Congenital diaphragmatic hernias are seen 1 in 2000-4000 live births. Acquired causes include traumatic diaphragmatic rupture, hiatus hernia and iatrogenic causes. Most of the patients present in infancy but 5-25% are discovered from 1 month of life up to adulthood. These late presenting patients present with wide variety of symptoms and diagnosis thus can be difficult. We therefore present a case that was diagnosed as left sided pleural effusion but subsequently turned out to be diaphragmatic hernia.

Case report

A 28 year old male patient, well built and nourished presented to the department of radiodiagnosis with a history of breathlessness on climbing stairs. He gave a history of heavy weight lifting which was discontinued because of breathlessness. He had no history of cough and fever. Also there was no history of trauma. He had an x-ray chest done (Fig.1) which revealed a large homogenous opacity occupying left lower and part of left middle zone obliterating the left cardiac border and left dome of diaphragm. There was blunting of left costophrenic angle and meniscus sign appeared positive. Hence a diagnosis of left sided pleural effusion was made.

Patient was then subjected to USG guided pleural tap. USG chest revealed multiple heterogenous masses with air pockets in the left lower thoracic region. Left dome of diaphragm was not visualized and spleen was placed high up. Right pleural cavity was free. As there was no fluid collection tapping could not be done and for further evaluation CT thorax was done.

CT scout images showed presence of heterogenous opacities with thick walled round to oval shadows of various sizes filling almost whole of the left hemithorax with mild mediastinal shift to the right. Left dome was not visualized. (Fig.2)
Plain CT thorax revealed discontinuation of posterior half of left dome (Fig.3). Multiple bowel loops, mesentery and spleen were seen above the left dome passing through the defect in the diaphragm (Fig.4).

Mediastinum was displaced to the right side and left lung volume was markedly reduced. Thus the diagnosis of Bochdalek type of diaphragmatic hernia was made.

Fig.1 Chest x-ray PA view shows a large homogenous opacity left lower and part of left middle zone obliterating the left cardiac border and left dome of diaphragm with blunting of left CP angle and positive meniscus sign.

Fig.2 CT scout view AP show heterogenous opacities with thick walled round to oval shadows in the left hemithorax with mild mediastinal shift to the right.

Fig.3 CT sagittal image left lateral show discontinuation of posterior half of left dome.

Fig.4 CT Coronal image shows multiple bowel loops, mesentery and spleen were seen above the left dome passing through the defect in the diaphragm.
**Discussion**

Diaphragmatic hernia is an intrathoracic herniation of abdominal contents into the thorax. It can be a congenital or an acquired defect in the diaphragm or rarely due to negative intra thoracic pressure. Congenital type which is 1 in 2000-4000 is bochdalek (more common) and morgagni. These hernias appear more commonly than previously reported. Reported incidence is 17% in adults [2]. Acquired type includes trauma, iatrogenic and hiatus hernia (most common).

Bochdalek hernia is posterolateral in position and usually encountered in infancy. It is due to the failure of fusion of pleuro-peritoneal canal at 8th week of gestation. It is lateral to the spine on either side and is more frequent on the left. It is rarely bilateral. By its mass effect it causes hypoplasia of the ipsilateral lung. Organs commonly which herniate are tranverse colon, splenic flexure, small gut, spleen and omentum. It can be often associated with an extra rib (13), congenital heart defect, malrotation of gastrointestinal tract, neural tube defects and trisomy 13, 18.

The diagnosis may be straightforward when plain chest films show the presence of bowels in the thorax. They have been misinterpreted as pleural effusion in several case reports, as in our patient [3,4]. Chest xray findings usually reveal an opaque hemithorax initially, with paucity of loops below diaphragm, lucencies contained within bowel in chest and also mediastinal shift to opposite side. Barium studies are often useful and show the presence of bowel in thorax. USG reveals cardiomediasinal shift with abnormal cardiac axis and absent bowel loops in abdomen. Siegel et al [5] showed that ultrasonography was useful in establishing the nature of fluid in the pleural space and may show the presence of an air containing mass in the thorax. Pulmonary hypoplasia can be demonstrated by lung head ratio, if it is <1 it suggests a poor prognosis and if it is >1.4 it suggests a good prognosis. CT and MRI reveal a soft tissue or fatty mass protruding through the defect in posteromedial aspect of hemidiaphragm. Wilbur et al [6] encouraged computed tomography of the chest in adults for direct visualization of the focal defect and definitive diagnosis of either a hernia or other chest masses.

Differential diagnosis includes eventration, cystic adenomatoid malformation, staphylococcal pneumonia, streptococcal pneumonia, bronchogenic cyst, pulmonary sequestration and pleural effusion as in this case. Failure to consider the diagnosis early can lead to worsening morbidity for complications, including intestinal obstruction, intestinal perforation, pulmonary hypoplasia, persistent fetal circulation syndrome, pulmonary hypertension and mortality in 50% of the cases and respiratory distress, which are not uncommon and have been described in several case reports [7-9].

Treatment includes surgical repair which includes reducing the abdominal contents and repairing the defect by a mesh. Thoracotomy is done when separating adhesions between thoracic contents and herniated contents is to be done and laparotomy is done while dealing with obstruction, strangulation, perforation, malrotation. Thoracoscopic or laparoscopic repairs can also be undertaken.

**Summary**

A case of diaphragmatic hernia which was misrepresented as left sided pleural effusion has been reported. This case referred for chest xray examination should have had a high index of suspicion and should have been evaluated with higher daignostic modalities for the benefit of patient. Failing to do so will increase the morbidity and mortality by missing the real diagnosis.
References


