

## **Delayed Presentation of Traumatic Diaphragmatic Hernia: A Case Report**

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### **I. Introduction**

Traumatic diaphragmatic hernias are an unusual presentation of trauma. The diagnosis is often missed because of non-specific clinical signs, and the absence of additional intra-abdominal and thoracic injuries. Thus, a delay in diagnosis may occur which, in the presence of obstruction and/or strangulation, is associated with a high mortality and morbidity.

### **II. Case Report**

A 69 year-old Malay male presented with left hypochondriac pain for 5 days duration associated with no bowel opening and no passing flatus. Previously he had a history of fall from 6 feet height, 8 months prior to this presentation and sustained left 7<sup>th</sup> and 8<sup>th</sup> ribs fractures.

Clinically, he was mildly dehydrated with tachycardia, tachypneic and temperature of 38.3°C. His abdomen was distended with tenderness over upper abdomen. Bowel sound was normal. Chest x-ray showed loss of left diaphragmatic shadow and present of bowel within left hemithorax. Abdominal x-ray showed grossly dilated small bowel. Urgent CT abdomen confirmed the left diaphragmatic herniation with obstructed large bowel.

A left chest tube was inserted to the left hemithorax prior to laparotomy. Intraoperatively, herniation of loop of transverse colon with part of omentum was seen. Proximal large bowel and terminal ileum was dilated.

There was no perforation or ischemic changes. No bowel resection was done. The transverse colon and omentum was reduced back into abdomen. There was a defect measuring about 2cm x 2cm at posterolateral aspect of left diaphragm. The hernia opening was repaired in 2 layers with Prolene 0. An abdominal drain was inserted.

However, postoperatively patient's condition deteriorated. He developed severe hospital-acquired pneumonia with cardiac event. He succumbed to death at day 49 post-operative day.

Figure 1 : Chest x-ray showed loss of left diaphragmatic shadow and present of bowel in the left hemithorax (arrow).

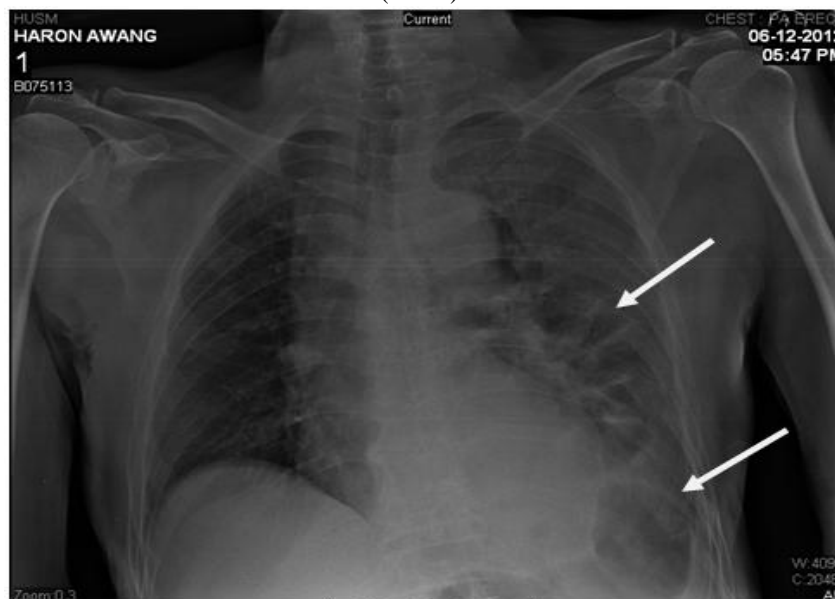
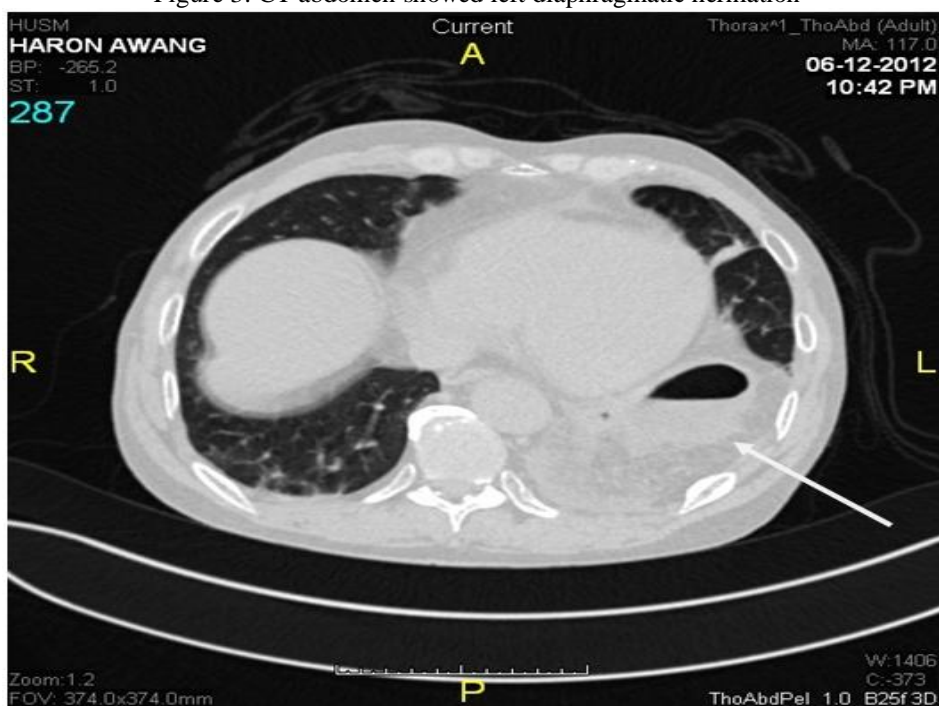


Figure 2 : Abdominal x-ray showed grossly dilated bowel.



Figure 3: CT abdomen showed left diaphragmatic herniation



### III. Discussion

Blunt diaphragmatic rupture is a rare. About 0.8-1.6% of blunt trauma cases result in diaphragmatic hernia<sup>1</sup>. Early diagnosis is challenging because of its low incidence and presence of associated injuries. Therefore, this hernia may present later or even years after the trauma<sup>2</sup>. Usually the diaphragmatic injury can be suspected when patient had prior history of violent force applied to the upper abdomen or lower chest, such as in motor vehicle accident. If the diaphragmatic injury is not immediately recognized after trauma, the patient may: 1) recover and remain asymptomatic, 2) suffer from chronic abdominal and/or chest symptoms, or 3) present with an acute crisis, often with signs of intestinal obstruction or strangulation<sup>2</sup>. In the case presented, the patient

presented with symptoms of bowel obstruction. He gave history of blunt trauma to the chest 8 months prior to the presentation.

Most of diaphragmatic tears occur on the left side, accounting about 68.5%, and 24.2% are on the right and 1.5% are bilateral. The left-sided diaphragmatic tear is more predominance due to the relative weakness of the left hemidiaphragm and the protective effect of the liver on the right side of diaphragm<sup>1,3,4</sup>. In diaphragmatic hernia, the most commonly found organs are the stomach and colon within the chest because of their mobility and proximity to the diaphragm<sup>2</sup>.

The most common imaging methods used to diagnose diaphragmatic hernia are chest radiographs and computed tomography<sup>1,5</sup>. Others include upper gastrointestinal contrast studies diagnostic peritoneal lavage, fluoroscopy, ultrasound, magnetic resonance imaging and intraperitoneal injection of radioisotopes. Specific diagnostic findings of diaphragmatic tears on chest radiographs include: (a) intrathoracic herniation of a hollow viscus (stomach, colon, small bowel) with or without focal constriction of the viscus at the site of the tear (collar sign) and (b) visualization of a nasogastric tube above the hemidiaphragm on the left side<sup>3</sup>.

Once the diagnosis is made and the patient adequately resuscitated, operation is mandatory<sup>2</sup>. The definite treatment of diaphragmatic hernia is surgical repair because such hernias are invariably associated with strangulation and even for small tears; the defect will not heal spontaneously<sup>4,5</sup>. The gold standard for the closure of small defects is by primary repair with non-absorbable sutures, whereby those with large defects require patch closure with a mesh<sup>4,5</sup>. In this case, the left diaphragmatic defect was 2cm x 2cm. He underwent primary repair with Prolene 0.

Mortality was seen in 4.3% patients. Early deaths usually are a result of associated injuries not the diaphragmatic tear. Other main causes included preoperative hemorrhagic shock, and the development of adult respiratory distress syndrome (ARDS)<sup>6</sup>. Postoperative complication developed in 43.5% patients mainly related to pulmonary complications.

#### **IV. Conclusion**

Diaphragmatic hernia may present later after many years of initial trauma. The diagnosis of traumatic diaphragmatic hernia is frequently overlooked or delayed because of its atypical presentation unless associated injuries demand immediate intervention. Therefore, high index of suspicion is necessary in those patient presented with signs of intestinal obstruction with history of chest trauma.

#### **References**

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