

Isolated Left Diaphragmatic Injury from Unusual form of Trauma

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ABSTRACT

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Diaphragmatic injury following blunt abdominal trauma is an often missed diagnosis in the emergency setting unless looked for specifically.

We present the case of a 47 year old manual laborer who presented to casualty with history of a fall from a tree on to his back. He complained of pain in the left shoulder and back.

A plain X ray of the chest showed a left scapular fracture and tenting of the left hemi diaphragm with stomach fundic gas shadow and colonic shadows in the left lower zone. A contrast enhanced computed tomogram of the lower chest and abdomen showed a rupture of the left hemi diaphragm with herniation of the stomach fundus and body and distal transverse colon into left hemi thorax.

Keywords: Blunt trauma, Hemidiaphragm rupture

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INTRODUCTION

Diaphragmatic injury following blunt abdominal trauma is an often missed diagnosis in the emergency setting unless looked for specifically, especially in patients who present in extremis where the priority goes to tackle the immediately life threatening injuries. Sometimes however, even unusual forms of trauma can cause diaphragmatic injury and only a high level of suspicion will enable one to pick them up.

CASE REPORT

We present the case of a 47 year old manual laborer who presented to casualty with history of a fall from a tree on to his back. He complained of pain in the left shoulder and back. The patient was hemodynamically stable with a pulse of 90/ min and blood pressure of 130/80 mm Hg. There was mild tachypnoea with a respiratory rate of 20/ min but no distress. The oxygen saturation was maintained at 96% on room air. The abdomen was soft to palpation with no guarding or signs of peritoneal irritation. Air entry was reduced in the left infraaxillary region.

A plain X ray of the chest showed a left scapular fracture and tenting of the left hemi diaphragm with stomach fundic gas shadow and colonic shadows in the left

lower zone. An X ray of the abdomen showed fracture of the left transverse process of L2 vertebra. Blood investigations did not reveal any fall in the hematocrit values. A contrast enhanced computed tomogram of



Figure 1. X ray showing left diaphragmatic hernia

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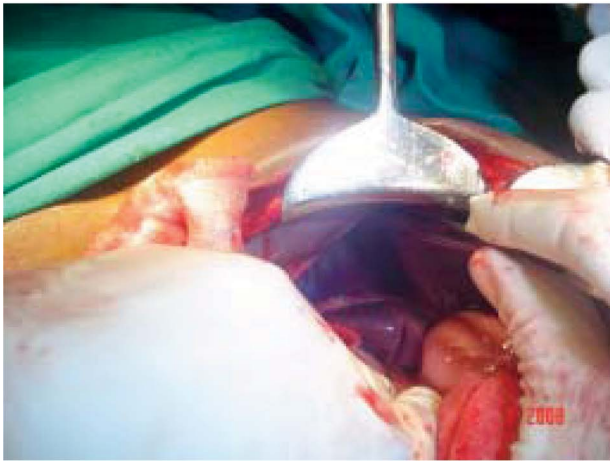


Figure 2. Intraoperative picture showing diaphragmatic tear and intact spleen

the lower chest and abdomen was done. It showed a rupture of the left hemi diaphragm with herniation of the stomach fundus and body and distal transverse colon into left hemi thorax.

Patient was taken up for laparotomy. There was a complete tear of the left hemi diaphragm extending from the central tendon to the lateral edge. The spleen was intact and the diaphragmatic tear was just above the upper edge of the spleen. There were no other visceral injuries and after a thorough exploration, the diaphragmatic tear was closed with simple continuous sutures using no. 1 Prolene. The defect was sutured in two layers and the wound closed after a tube thoracostomy. Patient had an uneventful recovery. He was started on oral feeds on day one and the chest drain was removed after two days. Patient is doing fine at three months of follow up.

DISCUSSION

Diaphragmatic injuries can result from both blunt and penetrating injuries to the chest and abdomen. They are usually associated with injuries to other viscera.¹ Isolated diaphragmatic injuries are less common. In one study, only four of seventeen patients had isolated diaphragmatic injury.¹

One of the major causes of blunt abdominal trauma is motor vehicle accidents with the steering wheel causing blunt trauma to the chest and abdomen. Diaphragmatic injuries can be missed at presentation especially when associated with other vascular and visceral injuries which need priority in tackling. With penetrating abdominal injuries, associated diaphragmatic injury is picked up at laparotomy.² A routine chest X ray for all cases of trauma can pick up dia-

phragmatic injury. However, a chest X ray may miss diaphragmatic injuries. In one study only 29 patients (51%) were diagnosed to have diaphragmatic injury on X ray. Whether a supine film may help in picking up even smaller rents with herniation compared to an erect X ray is debatable. However, diaphragmatic tears with no immediate herniation of the bowel may be missed on X ray.

Similarly, right sided tears of the diaphragm may not show herniation because of the liver. Also many a times there may not be any specific symptomatology to point towards diaphragmatic injury as in this case.³ If not clear on X ray, a contrast CT of the lower chest and abdomen can pick up diaphragmatic injuries with collapse of the lung.

Once diagnosed, the tear can be approached through a laparotomy. This will also enable exploration of the other viscera. If CT abdomen, has ruled out other major injuries, it may be feasible to do laparoscopic repair of the diaphragmatic tear, depending on the skill of the surgeon and the facilities available. Injuries detected later on may be better dealt with by a thoracic approach, especially on the right side.

Though usually associated with anteriorly placed blunt abdominal injuries, diaphragmatic tears can also occur with unusual presentations like fall on the back as in this case. In this context, it is advisable to remember that fractures of the scapula (as in this case), first rib and sternum suggest severe traumas and necessitate a thorough evaluation to rule out multi system injury.

CONCLUSION

Diaphragmatic injuries can present in isolation following unusual forms of trauma and a high index of suspicion will enable one to diagnose and treat them on a priority basis.

END NOTE

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