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Case Report

Silent Missed Injury in Penetrating Chest Trauma Manifesting after Three Years

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Abstract: 24 year old male had penetrating trauma to left lower chest injuring pleura and diaphragm. On initial presentation patient was asymptomatic for abdominal complaints and diaphragmatic injury was missed. It remained silent for three years when stomach herniated partially to become acute surgical emergency. Prompt surgical intervention salvaged the patient.
Keywords: Penetrating injury, missed injury, silent injury, diaphragmatic hernia, tract of injury, tertiary Survey

INTRODUCTION:

Missed injuries in a trauma patient can vary in a very wide spectrum ranging from as simple as minor abrasion without much adverse effect on outcome of a trauma patient to more serious life threatening injuries causing significant morbidity and mortality[1]. Overall incidence of missed injuries and delayed diagnosis ranges from 1.3% to 39% [2]. Of these, clinically significant missed injury incidence is around 15% to 22.5%[2]. Here we report a case where missed injury remained silent for a prolonged period before becoming symptomatic when patient required urgent surgery for the same.

CASE REPORT:

Twenty four year male patient was admitted to accident and emergency department with history of penetrating trauma to left side of the chest due to assault by a sharp weapon half an hour ago. On admission patient was fully conscious and cooperative. Had pulse of 96/ min and blood pressure of 120/80 mm of Hg. He had mild dyspnea but no pallor. On examination there was a sharply incised wound of dimension 3* 0.5 cms on left lower chest wall near anterior axillary line in seventh intercostal spacewith no active bleeding. Patient had reduced air entry on left mid and lower zones. On local exploration of the wound pleural breach was confirmed. Abdominal examination was normal and there were no other external injuries seen. Chest radiograph revealed left haemo pneumothorax. Abdominal USG was normal. In view of above left sided intercostal underwater tube drainage was performed in a sixth intercostal space posterior axillary line through a separate incision. Intercostal tube drained around 200ml of blood. Repeat X-ray showed tube in optimal position and complete expansion of lung. Chest wall wound of penetrating injury was sutured after a thorough lavage. Patient had uneventful recovery; chest tube was removed after 3 days and patient discharged after 5 days.

Patient was completely asymptomatic for 3 years when he experienced sudden excrutiating left upper abdominal pain and had vomiting immediately following meals. Patient is sedentary worker and had no history of trauma.Abdominal and chest examination was unremarkable. X-ray chest had faint opacity in left lower zone. Abdominal USG was normal. CECT chest and abdomen showed left diaphragmatic hernia with part of proximal body of stomach herniating in thoracic cavity` through a constricting ring formed by diaphragmatic defect.

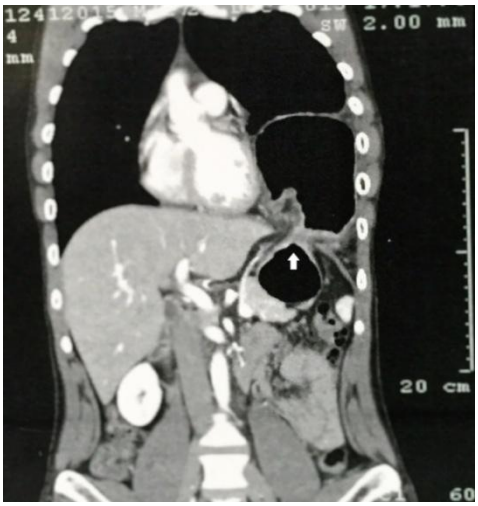

Fig 1: CECT showing diaphragmatic hernia site with herniated part of stomach in chest.(marked by arrow).

Urgent surgery was performed in view of above findings on CT and potential risk of strangulation of herniated part of stomach due to narrow constricting ring of diaphragmatic defect. Abdominal route preferred. We found around 3 to 4 cms diaphragmatic defect laterally corresponding to scar site of previous stab wound (Fig.2) and in the line of tract of previous penetrating injury. Proximal half of body of stomach had herniated through the tight ring of diaphragmatic defect and was irreducible. It was reduced with difficulty after widening the ring of defect. Herniated stomach was congested but still viable and could be salvaged. Impression over stomach at the ring was giving it an hour glass shape. Diaphragmatic defect was closed with monofilament non-absorbable synthetic suture material in interrupted manner over chest and abdominal drainage tubes. Patient had a speedy recovery uneventfully after surgery and was discharged 8 days later. He is symptom free till now.

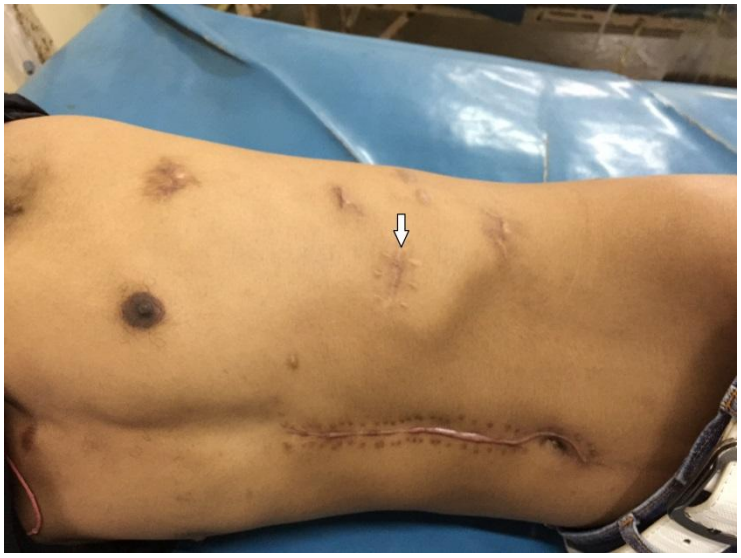

Fig 2: Showing scar of previous penetrating injury site (marked by arrow).

DISCUSSION:

Diaphragmatic injury had occurred in this patient at the time of primary penetrating injury due to assault by a sharp long weapon at left lower lateral intercostal space (point of entry of tract of weapon). The tract of injury extended from lateral parietal chest wall musculature, lateral parietal pleura to pleural space to diaphragmatic pleura to breach diaphragm as well and end in sub-diaphragmatic peritoneal cavity without injuring any intra peritoneal organ and hence remaining asymptomatic for abdominal complaints then. At the time of primary presentation immediately following injury, diaphragmatic defect due to injury existed but there was no herniation of intraperitoneal contents through it, thus it remained asymptomatic and undetected even on imaging investigations. Explanation for persistence of defect in diaphragm for such a prolonged period of 3 years without spontaneous healing is presence of partially herniate omentum at the site of diaphragmatic defect not allowing approximation of cut edges.

Sudden occurance of symptoms after a long asymptomatic period could be correlated to more recent herniation of stomach which occurred through persistant defect immediately prior to second presentation. It resulted into obstructive symptoms leading to vomiting and compromised blood supply to herniated part due to tight ring compression resulted in pain.

CONCLUSION:

This patient could be salvaged due to timely intervention after detection. But in general missed injuries have potential to cause significant morbidity and mortality [1-3]. These can be minimised by following principals of management of a trauma patient strictly. Importance of detailed and timely secondary and tertiary survey [4] cannot be overemphasised. One should have high index of suspicion and try to look for and rule out possibilities of such injuries. In case of penetrating trauma entire tract of injury has to be considered and explored if necessary [5, 6].

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