

Case Report

Delayed presentation of diaphragmatic hernia as acute intestinal obstruction due to an old penetrating trauma: a rare case report

Prakash Biswas¹, Neha Yadav^{2*}, Rachith Sridhar¹, P. K. Bhatia¹, Binoy Patel¹

¹Department of General Surgery, Maharishi Markendeshwar Institute of Medical Science and Research, MMDU, Mullana, Ambala, Haryana, India.

²Department of Anaesthesia, Maharishi Markendeshwar Institute of Medical Science and Research, MMDU, Mullana, Ambala, Haryana, India.

Received: 17 January 2020

Accepted: 06 March 2020

*Correspondence:

Dr. Neha Yadav,

E-mail: nehayadav05@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Acquired diaphragmatic hernias (ADH) are uncommon following penetrating thoraco-abdominal injuries. This is a case report of ADH with bowel obstruction following an old penetrating abdominal trauma without any signs and symptoms of respiratory distress.

Keywords: Acquired, Bowel, Diaphragmatic, Hernia

INTRODUCTION

Diaphragmatic rupture is an infrequent consequence of trauma, occurring in about 1.1-3.9% of severe closed thoraco-abdominal injuries.¹ Herniation of abdominal contents occur in less than 50% of the patients with diaphragmatic injuries.² Patients can present with a range of clinical signs and symptoms which can vary from asymptomatic cases to serious respiratory or gastrointestinal symptoms.

Acquired diaphragmatic hernias can result from all types of trauma (blunt, penetrating or can be spontaneous in rare cases), with blunt forces accounting for the majority. Such hernias are more likely to be seen on the left than the right side as liver provides a cushion effect on the right side. Such patients can present years after the initial trauma. Early presentation may be associated with shortness of breath, respiratory distress, abdominal pain and ipsilateral absent breath sounds or bowel auscultation in chest. Smaller defects generally present late. Depending on involvement of other organs, mortality rates can reach 25%.³

This is a case report of young male with old penetrating abdominal trauma presenting to us with signs and symptoms of acute intestinal obstruction.

CASE REPORT

A 17 year old male presented to the Emergency room of the hospital with chief complaints of abdominal pain, vomiting for 3 days and inability to pass stool and flatus and abdominal distension for 2 days. Patient had past history of abdominal injury over left side of abdomen after falling over a slab having a protruding rod 5 years back while playing. He was taken to a local doctor and primary suturing of the abdominal wound was done at that time. On examination, the patient had mild tachycardia and hypotension with firm, tense and distended abdomen and exaggerated bowel sounds. There was a scar mark present over left upper side of abdomen. Per rectal examination was normal with no evidence of impacted stools. Blood investigations revealed an Hb of 12.8 gm/dl, TLC of 9900/mm³, platelet count of 2.2 lac/mm³. RFT's, LFT's, S. Electrolytes, S. Amylase and lipase were within normal limits. Patient was admitted and initial diagnosis of acute intestinal obstruction was

made on the basis of X-ray abdomen erect which revealed dilated gut loops and multiple air fluid levels (Figure 1 and Figure 2). Initial resuscitation was done with iv fluids and conservative treatment was started. After 4-5 hours of presentation patient started developing shortness of breath. A repeat chest X-ray followed by X-ray abdomen was done, which revealed multiple air fluid levels with intrathoracic gut loops in left side (Figure 3).



Figure 1: Outside chest X-ray showing normal studies.



Figure 2: Defect in diaphragm (shown by artery forceps).

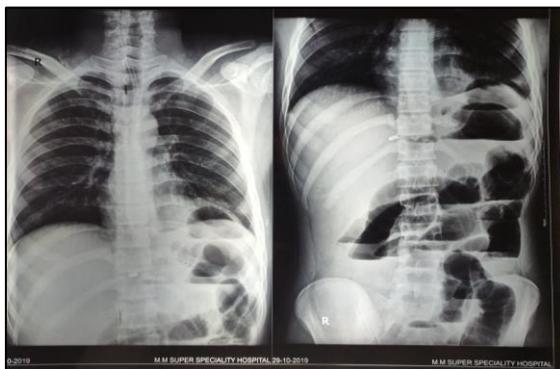


Figure 3: X-ray abdomen erect showing dilated gut loops and multiple air fluid levels.

Abdominal CT could not be done due to technical difficulty. Patient was then taken up for surgery. Midline

abdominal incision given. Intra-operatively, small intestine and proximal colon (caecum, ascending and transverse colon) were found to be distended up to the level of splenic flexure and the distal colon was found collapsed. There was evidence of a defect measuring 1.5x2 cm in the diaphragm with gut loops, omentum and mesentery entering the defect (Figure 4). Midline incision was then extended to left subcostal region. Contents were reduced back into abdomen. There was no evidence of any gangrene or strangulation. The defect was closed with prolene 2-0. Drain placed in splenorenal pouch and abdomen closed in layers (Figure 5).

Postoperatively, bowel sounds appeared and patient passed flatus on day 3. He was allowed orally on post operative day 4 and tolerated feeds well. Patient was able to pass stools and drain was removed on day 5. Patient was discharged in satisfactory condition.



Figure 4: Showing primary closure of the defect.



Figure 5: X-ray chest and abdomen erect showing intrathoracic gas shadow.

DISCUSSION

Diagnosis of diaphragmatic injuries is challenging and requires a high index of clinical suspicion.⁴ Acquired diaphragmatic hernias (ADH) mostly occurs in adults secondary to trauma. Blunt trauma accounts for 75% of cases while rest to penetrating trauma. Very rarely DH occurs spontaneous with no obvious cause. However, there is always a possibility that this category of cases may be secondary to a remote trivial trauma or a small congenital defect which got precipitated during physical exertion. ADH occurs 4 times more commonly in males. Its left sided predisposition is partly due to protection offered by the liver and partly because embryonic fusion

defects commonly occurs in the left. Most of the cases present with symptoms of respiratory distress while few are an incidental finding. This spontaneous form may be asymptomatic for decades and becomes symptomatic in late stage when extensive.⁵

In our case, patient might have developed diaphragmatic injury due to that penetrating trauma 5 years back but did not develop any sign, symptoms or complications as the defect and the wound was small and might have missed the vital organs. Later on patient developed pain abdomen while playing and the series of events might have led to intestinal obstruction due to herniation of abdominal contents through the defect.

Acute intestinal obstruction requires adequate fluid resuscitation before any surgical intervention. With early diagnosis, the Obstruction has to be relieved before the compromise of blood flow as closed loop obstruction seen in hernias is generally associated with strangulation. Mortality has been reported in approximately 25-60% of patients with ADH due to lack of timely surgical intervention.^{6,7} The mainstay of surgical management is reduction of herniated contents and diaphragmatic repair. Diagnosis of diaphragmatic injuries is challenging and requires a high index of clinical suspicion.⁴ ADH mostly occurs in adults secondary to trauma. Blunt trauma accounts for 75% of cases while rest to penetrating trauma. Very rarely DH occurs spontaneous with no obvious cause. However, there is always a possibility that this category of cases may be secondary to a remote trivial trauma or a small congenital defect which got precipitated during physical exertion. ADH occurs 4 times more commonly in males. Its left sided predisposition is partly due to protection offered by the liver and partly because embryonic fusion defects commonly occurs in the left. Most of the cases present with symptoms of respiratory distress while few are an incidental finding. This spontaneous form may be asymptomatic for decades and becomes symptomatic in late stage when extensive.⁵

In present case, patient might have developed diaphragmatic injury due to that penetrating trauma 5 years back but did not develop any sign, symptoms or complications as the defect and the wound was small and might have missed the vital organs. Later on patient developed pain abdomen while playing and the series of events might have led to intestinal obstruction due to herniation of abdominal contents through the defect.

Acute intestinal obstruction requires adequate fluid resuscitation before any surgical intervention. With early diagnosis, the obstruction has to be relieved before the compromise of blood flow as closed loop obstruction seen in hernias is generally associated with strangulation.

Mortality has been reported in approximately 25-60% of patients with ADH due to lack of timely surgical intervention.^{6,7} The mainstay of surgical management is reduction of herniated contents and diaphragmatic repair.

CONCLUSION

The above case presented as a young male with past history of penetrating injury of abdomen. ADH generally present with respiratory symptoms like breathlessness, tachypnoea, bluish discoloration. However our case presented with acute abdomen. Diagnosis was made clinically and with X-rays. Early presentation and diagnosis, adequate resuscitation and pre-operative stabilization followed by timely surgical intervention aided in early recovery of the patient.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

REFERENCES

1. Romaldas R. Diaphragmatic injuries. Eur J Cardio-Thorac Surg. 2001;20:53-7.
2. Wael HC, Lorenzo FE, Fata P, Razek T, David MS. The current status of traumatic diaphragmatic injury: lessons learned from 105 patients over 13 years. Ann Thorac Surg. 2008;85(3):1044-8.
3. Saladyga AT, Talavera F, Talavera DS, Milliken JC. Acquired diaphragmatic hernias. In: Acquired Diaphragmatic Hernias. New York, NY: WebMD. 2018.
4. Kutsal T, Makay O, Cakan A, Samancilar O, Firat O, Icoz G, et al. Traumatic diaphragmatic rupture: look to see. Eur J Cardiothorac Surg. 2008;33:1082-5.
5. Katukuri GR, Madireddi M, Agarwal S, Kareem H, Devasia H. Delayed diagnosis of left-sided diaphragmatic hernia in an elderly adult with no history of trauma. J Clin Diag Res. 2016;10(4):4-5.
6. Hung YH, Chien YH, Yan SL, Chen MF. Adult bochdalek hernia with bowel incarceration. J Chin Med Assoc. 2008;71(10):528-31.
7. Pross M, Manger T, Mirow L, Wolff S, Lippert H. Laparoscopic management of a late-diagnosed major diaphragmatic rupture. J Laparoendosc Adv Surg Tech. 2000;10(2):111-4.

Cite this article as: Biswas P, Yadav N, Sridhar R, Bhatia PK, Patel B. Delayed presentation of diaphragmatic hernia as acute intestinal obstruction due to an old penetrating trauma: a rare case report. Int Surg J 2020;7:1310-2.