Print ISSN: 2321-6379
Online ISSN: 2321-595X

Case Report

Post-traumatic Abdominal Wall Hernia with Transmesocolic Hernia: A Case Report

Prarthana Bandekar[1], Kanchan Gupta[1], Mohammad Dungarpurwala[1], Meena Kumar[2], Niket Attarde[3]

[1]3rd Year Resident, Department of General Surgery, Dr. D Y Patil University and School of Medicine, Navi Mumbai, Maharashtra, India, [2]Professor and Head, Department of General Surgery, Dr. D Y Patil University and School of Medicine, Navi Mumbai, Maharashtra, India, [3]Associate Professor, Department of General Surgery, Dr. D Y Patil University and School of Medicine, Navi Mumbai, Maharashtra, India

Abstract

Traumatic abdominal wall hernia is rare, with incidence of 1%. There is a disruption in the abdominal wall musculature along with fascial defect. This can occur due to high-velocity trauma or rather alternatively due to low-velocity trauma against a small blunt object. Transmesocolic hernia is a subtype of internal hernia with an incidence of 8%. We present a case of 29-year-old male with high-velocity road traffic accident with intra-operative findings of abdominal wall disruption along with internal herniation of gangrenous bowel segment. Resection of gangrenous bowel with temporary ileostomy was done initially. The stoma was closed at a later date.

Key words: Internal hernia, Transmesocolic hernia, Traumatic abdominal wall hernia

INTRODUCTION

Traumatic abdominal wall hernia or TAWH is a rare entity among the hernias, with reported incidence of approximately 1%.[1] In TAWH, there is breach in the abdominal wall musculature with fascial defect, leaving the skin without any breach within, caused due to high-velocity trauma. TAWH was first reported in 1906.[2] The criterion for a hernia is to be labeled as TAWH is the absence of hernia before trauma, absence of breach in skin, and presence of abdominal hernia. Internal hernia indicates herniation of bowel within the peritoneal cavity. Transmesocolic hernia is a type of internal hernias which can either be congenital or acquired post-surgery or trauma. In order of frequency, these are paraduodenal hernias (53%), pericecal (13%), transmesenteric (8%), hernias through the foramen of Winslow (8%), supravesical and pelvic (6%), intersigmoid (6%), and finally, transomental (1–4%).[2] In this study, we report a case of TAWH with a transmesocolic hernia.[3]

Access this article online

www.ijss-sn.com

Month of Submission : 04-2023
Month of Peer Review : 05-2023
Month of Acceptance : 06-2023
Month of Publishing : 06-2023

CASE REPORT

A 29-year-old gentleman presented to the emergency ward of our hospital with alleged history of road traffic accident with polytrauma. The patient was sitting on the front passenger seat of a 4 wheeler with seatbelt on, when his vehicle collided with a heavy vehicle on a highway. He was taken to a primary center nearby wherein first aid was provided to him and then was referred to a tertiary center.

On presentation, he had his vitals: Pulse rate, blood pressure, and respiration rate within normal limits with GCS of 15/15. His primary symptom was abdominal pain which was acute in onset, colicky in nature and continuous, generalized, transiently relieved on analgesics and was associated with nausea. The patient was provided management according to advanced trauma life support protocol on arrival to the casualty. On detailed per abdomen examination, his abdomen was distended with bluish discoloration of periumbilical skin with multiple linear abrasions over the abdomen [Figure 1] and bilateral lower limbs. On palpation, he had generalized tenderness and guarding present.

After primary survey, e-FAST was done which was suggestive of minimal fluid in the abdominal cavity. X-ray chest and X-ray Pelvis and Both Hips(X-ray PBH) were unremarkable. The patient did not have any known co-

Corresponding Author: Dr. Prarthana Bandekar, 1401, Spiro Tower, V B Phadke Road, Neelam Nagar, Mulund (East), Mumbai - 400 081, Maharashtra, India.

morbidities. After adequate fluid resuscitation and analgesics, the patient was shifted for contrast-enhanced computed tomography (CT) abdomen and pelvis with IV contrast which revealed the following findings - 7.6 cm × 5 cm sized defect in the supraumbilical region in the anterior abdominal wall through which omentum and bowel loops were seen herniating. Minimal free fluid was seen in the herniated sac with fat stranding and minimal free fluid in the pelvic cavity, suggestive of hemoperitoneum. Significant short segment narrowing of celiac trunk with 80% luminal compromise for a length of 9 mm was seen at its origin with 7 mm × 4 mm hypodense filling defect, suggestive of chance of it being a thrombus [Figure 2].

The patient was taken for emergency exploratory laparotomy with due written informed consent. A transverse incision was taken in view of periumbilical hematoma. Intraoperatively following findings were seen; A 25 cm segment of gangrenous small bowel [Figure 3] was noted approximately 15 cm proximal to ileoceacal junction which was seen herniating though the defect in the anterior abdominal wall. There was also a tear in the mesentery of the same as well as adjacent small bowel through which the herniated gangrenous bowel was seen protruding causing internal herniation. There is no evidence of any solid organ trauma and rest of the peritoneal cavity was unremarkable. Resection of the gangrenous bowel segment was done and a temporary double barrel ileostomy was taken out. The transverse abdominal wall incision was closed enmass.

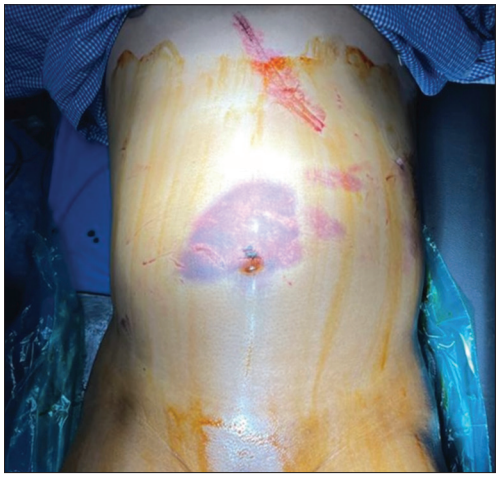

Figure 1: Clinical image of the abdomen findings of the patient

The patient was initially shifted to the intensive care unit for immediate post-operative management. The rest of the course of the patient in the hospital was uneventful. The patient was discharged with stoma and was later re-admitted for stoma closure after 8 months which was uneventful as well.

DISCUSSION

TAWH is caused by herniation of visceral organ or a part of it through disrupted musculature and fascia following trauma, when the skin is intact and there is no prior evidence of hernia detected at the site of injury.[4]

For abdominal wall disruption to occur, the traumatic force must be abrupt, tangential, and powerful enough to cause an acute rise in intra-abdominal pressure leading to TAWH.[5-7]

Wood *et al*.[8] described two forms of TAWH:

The first is sustained with high-velocity trauma, such as a motor vehicle crash or a fall from a height. Associated intra-abdominal visceral injury is common and depends on the location of the herniation. Infraumbilical ventral hernias are rarely associated with intra-abdominal injury.[7] Supraumbilical and flank hernias have a higher incidence with both solid and hollow organ injuries. The fascial defect is generally large.[19-21]

The second type is caused by low-velocity impact against a small blunt object, such as a bicycle handlebar infrequently associated with intra-abdominal injuries.[9,10]

Patients usually complaints of a bulge in the abdominal wall that is tender on palpation. Clinically, a subcutaneous fluctuant swelling may be seen that may or may not be reducible.[10,11]

Abdominal wall bruising and ecchymosis are common presentations.

Figure 2: Contrast-enhanced computed tomography abdomen and pelvis plates demonstrating herniation of bowel loops through anterior abdominal wall

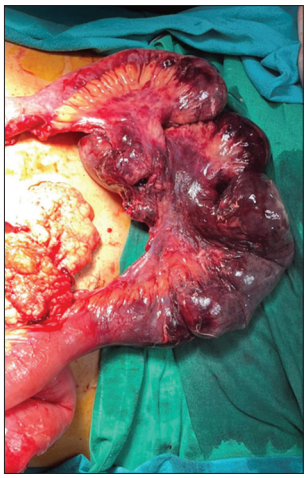

Figure 3: Gangrenous segment of small bowel with mesenteric tear

CT scan with intravenous contrast should be used as a diagnostic modality in vitally stable patients with blunt abdominal trauma and suspected TAWH.[13-19]

Complications due to internal herniation can be either early or late following injury. Early complications can be bowel wall ischemia and perforation. Bowel perforation is caused by the high-energy blow to the abdomen, direct injury to an intestinal wall or blood vessels, or as a result of strangulation. Due to such high risk of complications, the need for high degree of suspicion and timely interventions is of utmost importance to reduce the level of resection required along with associated high morbidity and mortality with such hernia.[12]

Late complications include recurrent abdominal wall herniation due to the breakdown of the primary repair and delayed bowel obstruction due to entrapment of the bowel in an unrecognized or concealed hernia.[13]

CONCLUSION

Acute TAWH are usually rare, thus in vitally stable patient, a CT scan with IV contrast should be performed after primary resuscitation of the patient and careful attention given to the abdominal wall and muscular insertions.

Delay in repair of such hernia can lead to complications such as strangulation of bowel and necrosis leading to resection of the strangulated bowel and anastomosis or exteriorization, and hence, early operative measures should be taken.

Primary closure of the defect may be performed if a tension-free approximation can be obtained. If this is not feasible, prosthetic mesh closure is the preferred option.

However, the ideal time for definitive management of such hernia remains a topic of continued discussion.

ACKNOWLEDGMENT

Authors would like to thank Dr. Nida Khan and Dr. Abhishek Mahadik for their guidance.

REFERENCES

1. Salam DH, Al-Tarakji M, Alaieb AI, Singh R, El-Menyar A, Al-Thani H, *et al.* Post-trauma transmesocolic hernia: A case report. J Surg Case Rep 2020;2020:rjaa417.
2. Selby CD. Direct abdominal hernia of traumatic origin. JAMA 1906;XLVII:1485-6.
3. Bharatam KK, Kaliyappa C, Reddy RR. Right sided transmesentric hernia: A rare cause of acute abdomen in adults. Int J Surg Case Rep 2014;5:1154-7.
4. Donald D, Jeffrey L, Randel T. Acute traumatic abdominal hernia: Case reports. J Trauma 1994;36:273.
5. Martinez BD, Stubbe N, Rakower SR. Delayed appearance of traumatic ventral hernia: A case report. J Trauma 1976;16:242-3.
6. Manuola R, Kekomaki M. Traumatic hernia: Two cases of traumatic subcutaneous rupture of the abdominal wall. Acta Chir Scand 1965;130:256.
7. Clain A. Traumatic hernia. Br J Surg 1964;51:549-50.
8. Wood RJ, Ney AL, Bubrick MP. Traumatic abdominal hernia: A case report and review of the literature. Am Surg 1988;54:648-51.
9. Guly HR, Stewart IP. Traumatic hernia. J Trauma 1983;23:250-2.
10. McWhorter GL. Inguinal hernia due to direct trauma: Technique of operation. Am J Surg 1939;45:316.
11. Fraser N, Milligan S, Arthur RJ, Crabbe DCG. Handlebar hernia masquerading as an inguinal haematoma. Hernia 2002;6:39-41.
12. Gomes R, Rodrigues J. Spontaneous adult transmesentric hernia with bowel gangrene. Hernia 2011;15:343-5.
13. Wechsler RJ, Kurtz AB, Needleman L, Dick BW, Feld RI, Hilpert PL, *et al.* Cross-sectional imaging of abdominal wall hernias. AJR Am J Roentgenol 1989;153:517-21.
14. Arnaud JP, Eloy R, Adloff M, Grenier JF. Critical evaluation of prosthetic materials in repair of abdominal wall hernias: New criteria of tolerance and resistance. Am J Surg 1977;133:338-45.
15. Dayton MT, Buchele BA, Shirazi SS, Hunt LB. Use of an absorbable mesh to repair contaminated abdominal-wall defects. Arch Surg 1986;121:954-60.
16. Gutteridge I, Towsey K, Pollard C. Traumatic abdominal wall herniation: Case series review and discussion. ANZ J Surg 2014;84:160-5.
17. Kaude J. Traumatic rupture of the abdominal wall with subcutaneous herniation of the transverse colon and perforation of the small bowel. Br J Radiol 1966;39:950-1.
18. Dubois PM, Freeman JB. Traumatic abdominal wall hernia. J Trauma 1981;21:72-4.
19. Losanoff JE, Richman BW, Jones JW. Handlebar hernia: Ultrasonography-aided diagnosis. Hernia 2002;6:36-8.
20. Fredlund P, Dahn I. Traumatic subcutaneous rupture of the abdominal wall with intestinal prolapse. Case report. Acta Chir Scand 1967;133:501-3.
21. Dajee H, Nicholson DM. Traumatic abdominal hernia. J Trauma 1979;19:710-1.

How to cite this article: Bandekar P, Gupta K, Dungarpurwala M, Kumar M, Attarde N. Post-traumatic Abdominal Wall Hernia with Transmesocolic Hernia: A Case Report. Int J Sci Stud 2023;11(3):1-3

Source of Support: Nil, **Conflicts of Interest:** None declared.