

Case Report

Traumatic abdominal wall hernia: a rare case report and review

Chinmay Sumatilal Gandhi*, Prameyratna Kadam, Dajiram Mote, Gautam Ingle

Department of Surgery, Bharati Vidyapeeth Deemed University Medical College and Hospital, Sangli, Maharashtra, India

Received: 01 August 2016

Accepted: 10 September 2016

***Correspondence:**

Dr. Chinmay S. Gandhi,

E-mail: chinmaygandhi00@yahoo.co.in

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

Blunt abdominal trauma is common in surgical practice. Traumatic abdominal wall hernia is a rare complication of blunt abdominal injury. Here the patient had a high kinetic energy injury leading to traumatic abdominal wall hernia with intraabdominal complication. Due to high index of clinical suspicion, early CECT of abdomen and emergency surgery, patient had excellent recovery from surgery.

Keywords: Blunt abdominal trauma, Hernia repair, Handlebar hernia, Traumatic abdominal wall hernia

INTRODUCTION

Blunt abdominal trauma is common emergency in surgical practice. Traumatic abdominal wall hernia is a rare condition, occurring in 1% of the all abdominal traumas.¹ Author presents a case where patient had an accidental fall in a well while working in farm, leading to traumatic abdominal wall hernia with intestinal intra-abdominal complications. Patient undergoes emergency surgery with excellent result.

CASE REPORT

63 year male gives history of accidental fall in well from 60 feet at 2 pm. History suggested hitting the stairs of the well before falling in waters. Patient arrived in emergency at 4 pm with chief complaint of pain in abdomen. On examination patient was conscious, oriented with vitals stable. Blood pressure was 150/90, pulse was 88 per minute and respiratory rate was 22 per minute. Respiratory system, cardiovascular system and central nervous system were normal.

Per. Abdominal examination revealed Rt. lower abdominal swelling, contusion and ecchymosis. There

was localized tenderness and guarding. There was no major extra abdominal injuries noted (Figure 1).



Figure 1: Abdominal examination showing swelling, contusion and ecchymosis.

Lab reports were: HB% 14 gms, total counts: 5,400 with polymorphs 70% and lymphocytes 26%, B. Urea: 42 mg%, S. Creatinin: 1.8 mg%. All other laboratory reports

were normal. USG abdomen suggested abdominal wall defect with bowel herniation with minimal intraabdominal free fluid. CT suggested abdominal wall defect with bowel herniation without solid organ injuries and minimal free fluid (Figure 2).

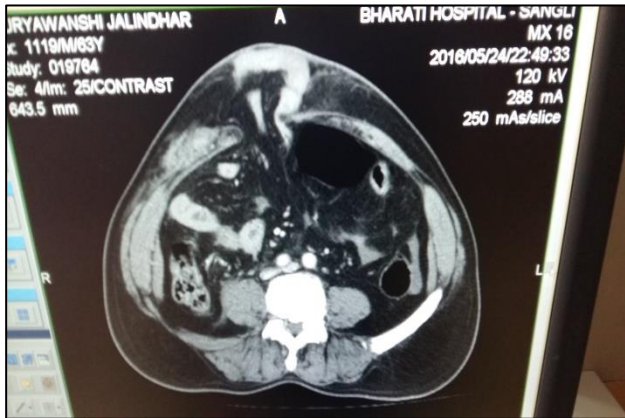


Figure 2: CT abdomen showing small intestine herniating through abdominal wall.

In this case early laparotomy through the defect to prevent incarceration and strangulation of herniated bowel was done. There was minimal hemorrhagic fluid in the abdomen. We found intestinal (ileal) perforations at two places along with laceration, gangrene. There was mesenteric tear and hematoma at iliocolic junction of bowel with gangrene of appendix tip.

We had done appendicectomy, mesenteric tear suturing, bowel resection for lacerated, perforated and gangrenous ileum with anastomosis. TAWH repair was done after intra-abdominal repair of injured bowel. Early anatomical repair of transverse tear (5 cm) in posterior rectus sheath and 2 cm tear in anterior rectus sheath was done with proline suture. Due to contamination mesh was not used. Subcutaneous fat and skin required debridement.

Patient had skin and subcutaneous tissue loss causing nonhealing ulcer which required split skin graft after 6 weeks of injury.

DISCUSSION

Traumatic abdominal wall hernia was first reported by Selby in 1906.² Dimyan described relation of handlebar and traumatic abdominal wall hernia in 1994.³ Handlebar hernia is a type of traumatic abdominal wall hernia. Less than 250 TAWH are reported in literature.¹ Tangential forces leading to disruption of abdominal muscles, fascia and peritoneum is the main cause of TAWH.⁴ TAWH is defined as "herniation through disrupted musculature and fascia, associated with adequate trauma, without skin penetration and no evidence of a prior hernia defect at the site of injury".⁵ Skin being more elastic, it remains intact in most cases.

Woods classified TAWH in 3 major types.⁶ Type 1 is high energy injuries due to motor vehicle, motorcycle accidents are associated with intraabdominal injuries are list common, Type 2 is Low energy injuries due to bicycle handle bar mostly without intraabdominal injuries are seen in young children and are more common. Type 3 resulting from deceleration are seat belt injuries.

TAWH may be associated with extra abdominal injuries like pelvic, lumbar and rib fractures when significant kinetic energy is involved. Many a times herniation is seen at anatomically weak points due to blowout near iliac crest(lumbar),inguinal region or lateral to rectus muscle away from site of primary impact.⁷ Tension of abdominal musculature between pelvic bones increases potential for disruption in right lower abdomen lateral to rectus muscle through oblique and transverse muscle after blunt abdominal trauma.

Traumatic abdominal wall hernia presents as tender palpable lump with ecchymosis and contusion of overlying skin. One should ask for CECT scan of abdomen immediately for early accurate diagnosis of grades (as proposed by Deniss) of disruption and to differentiate it from hematoma and to identify other intra-abdominal injuries.^{3,8,16,17,18,19} CECT will show bowel herniation through defect, but is not reliable investigation to diagnose hollow viscous injuries and mesenteric lacerations.

Netto after retrospective review of 34 patients with TAWH made three recommendations. First mechanism of injury should be deciding factor whether a patient with TAWH (with high energy) needs urgent laparotomy. Secondly clinically apparent hernia appear to have high rate of associated injuries and need urgent laparotomy. Occult TAWH diagnosed only by CT may not require urgent laparotomy or hernia repair.⁹ High index of clinical suspicion is essential as an accompanying hematoma often compound the diagnosis.

In occult TAWH surgery should not be delayed too much as defect may enlarge, muscle may undergo disuse atrophy, primary approximation may become difficult.¹⁰ Also large hernias repaired under tension may cause abdominal compartment syndrome.

According to literature 72% patients with TAWH reported immediately for repair.¹¹ Incision over the defect is usually preferred.¹² 84% cases were repaired with suture only. Anatomical layer by layer closer without tension provides acceptable results.¹³ 25 to 75% patients with TAWH had intra-abdominal injuries. Diaphragmatic hernia is a more common than traumatic abdominal wall hernia after blunt abdominal trauma.

Occult TAWH with large defects having low chances of strangulation and handlebar hernias without intra-abdominal injuries can be repaired electively either open

or laparoscopically with mesh.^{14,12} Recent literature has reported 26% recurrences for TAWH. Acute repair was associated with majority of the recurrences.¹⁵

CONCLUSION

High degree of clinical suspicion and early CECT abdomen with emergency surgery for complicated traumatic abdominal wall hernia is essential for excellent results.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

REFERENCES

- Osama S, Beteddini AL, Abdulla S, Omari O. Traumatic abdominal wall hernia: a case report and literature review. *Int J Surg Case Report*. 2016;24:57-9.
- Selby CD. Direct abdominal hernia of traumatic origin. *J Am Med Assoc*. 1906;47:1485-6.
- Dimyan MB, Robb J, Mckay C. Handlebar hernia. *J Trauma*. 1980;20:812-3.
- Ganchi PA, Orgill DP. Auto penetrating hernia a novel form of traumatic abdominal wall hernia: case report and review of literature. *J Trauma*. 1996;41:1064-66.
- Damschen DD, Landercasper J, Cobill TH, Stolee RT. Acute traumatic abdominal hernia: case report. *J Trauma*. 1994;36:273-6.
- Wood RJ, Ney AL, Bubrick MP. Traumatic abdominal hernia, a case report and review of literature. *Am Surg*. 1988;54:648-51.
- Shiomi H, Hase T, Matusuno S, Izumi M, Tatusta T, Ito F. Handle bar hernia with intra-abdominal extra luminal air presenting as novel form of traumatic abdominal wall hernia report of case. *Surg Today*. 1999;29:1280-4.
- Killen KL, Girard S, De JN, Shanmuganathan K, Mirvis SE. Using CT to diagnose traumatic lumbar hernia. *Am J Roentenol*. 2000;174:1413-5.
- Netto FA, Hamilton P, Rizoli SB, Nascimento B, Brenneman FD, Tien H. Traumatic abdominal wall hernia: epidemiology and clinical implications. *J Trauma*. 2006;61:1058-61.
- Martinez BD, Stubbe N, Rokower SR. Delayed appearance of traumatic ventral hernia: a case report. *J Trauma*. 1976;16:242-3.
- Lane CT, Cohen AJ, Cinat ME. Management of traumatic abdominal wall hernia. *Am Surg*. 2003;69:73-6.
- Drago SP, Nuzzo M, Grassi GB. Traumatic ventral hernia: report of a case with special reference to surgical treatment. *Surg Today*. 1999;29:1111-4.
- Mahajan A, Ofer A, Krausz MM. Traumatic abdominal hernia associated with large bowel strangulation case report and review of literature. *Hernia*. 2004;8:80-2.
- Kublalak G. Handlebar hernia: a case report and review of the literature. *J Trauma*. 1994;36:438-9.
- Colman JJ, Fitz EK, Zarzaur BL, Scott SD. Traumatic abdominal wall hernias: Location matters. *J Trauma Acute Care Surg*. 2016;80(3):390-7.
- Truong T, Costantino TG. Images in emergency medicine traumatic abdominal wall hernias. *Ann Emerg Med*. 2008;52:182-6.
- Steven CJ, Welch C, Honlden CJ, Gosling DC. Traumatic bicycle handlebar hernia. *Eur J Emerg Med*. 2008;15:179-80.
- Motsuo S, Okada S, Matsumata T. Successful conservative treatment of a bicycle handlebar hernia: report of a case. *Surg Today*. 2007;37:349-51.
- Deniss R, Marshall A, Deshmukh H, Bender J. Abdominal wall injuries occurring after blunt trauma, incidence and grading. *Am J Surg*. 2007;197:413-7.

Cite this article as: Gandhi CS, Kadam P, Mote D, Ingle G. Traumatic abdominal wall hernia: a rare case report and review. *Int Surg J* 2016;3:2307-9.