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Rare Traumatic Abdominal Wall Hernia Following Blunt Trauma: A Case Report

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***Abstract**:*
***Aim:** Approach to the traumatic abdominal wall hernia following the blunt trauma.*
***Case:** 45 years old male came to the hospital with an alleged history of a road traffic accident 20 days back. Presented to hospital with complaints of swelling and dull aching pain in the left inguinal region. No comorbidities and no previous history of any abdominal surgery. On examination, the patient was vitally stable, and swelling in the left inguinal region of size 8x5 cm was noted.*
***Discussion:** Herniation in the anterior abdominal wall following trauma to the abdomen is relatively rare. The incidence of the traumatic abdominal wall hernia is 1%. The blunt trauma is either low velocity or high-velocity trauma. The traumatic herniation happens because of the disruption of the muscle layers of the abdominal wall. Earlier surgical repair of the defect is found to have more advantages compared to the late closure of the defect.*
***Conclusion:** Traumatic hernia is a rare entity. Earlier surgical repair is found to have advantages for the patient compared to the late surgical repair. Corrective repair is the definitive treatment for the traumatic hernia.*

***Keywords:** Traumatic hernia. abdominal wall disruption, surgical repair.*

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I. Introduction :

Traumatic abdominal wall hernia is a rare case scenario with an incidence of about 1 % in the literature. Herniation of the bowel and viscera through the abdominal wall disruption generally follows the blunt trauma to the abdomen. The trauma which causes the abdominal wall disruption can be of low velocity or high velocity. Mostly skin remains intact because of its elastic nature. Treatment modalities of the patient with a traumatic hernia are challenging as there is less information in the literature. Here we are going to share our experience with a case of blunt trauma to the abdomen causing a traumatic abdominal wall hernia.1.2.3

II. Case Presentation:

45 years old man presented to the hospital with complaints od swelling and dull aching pain in the left iliac fossa. The patient had a history of a road traffic accident 20 days back, following which the patient was admitted and conservatively treated for abdominal pain. 10 days after the discharge, the patient started to develop swelling in the left iliac fossa at the trauma site. The swelling was small and found to increase in size over time. Swelling increases in size when there is an increase in abdominal pressure such as during defecation, coughing, etc. swelling decreases in size on lying down. The patient had no comorbidities. No previous history of surgery in the abdomen or any other surgeries. The patient had a history of bull horn injury in the left thigh 3 years ago, which healed by primary intention.

On examination, the patient was vitally stable with PR: 80 /min BP: 120/70 mm hg. On local examination: swelling of size 10 x 5 cm noted in the left iliac region, non-tender, reduces in size while lying down, cough impulse is present. A previous scar is noted in the left thigh secondary to bull horn injury. No swelling over the scar.

Clinical pictures and intraoperative pictures

Image 1: clinical picture showing the swelling in the left iliac region which is marked with a sterile skin marker.

III. Management

The patient underwent an ultrasound abdomen and computed tomography of the abdomen, which showed a defect in the left iliac region with contents herniating through the defect. The decision was taken for the surgical repair of the hernia. the patient was planned for surgery.

Under spinal anaesthesia, an oblique incision was taken in the left iliac region and deepened in layers. The hernia sac was identified along the side of EOA (external oblique aponeurosis). Adhesions are removed and the sac opened. Contents of the sac (ileal loops) are reduced after checking the viability of the bowel and after checking for contamination of the wound site. The peritoneum is closed with vicryl 2-0 RB and then the muscle layer is closed with prolene and further layers are closed without tension.

Image 2: intraoperative image showing the defect and the contents out of the defect (ileal loops)

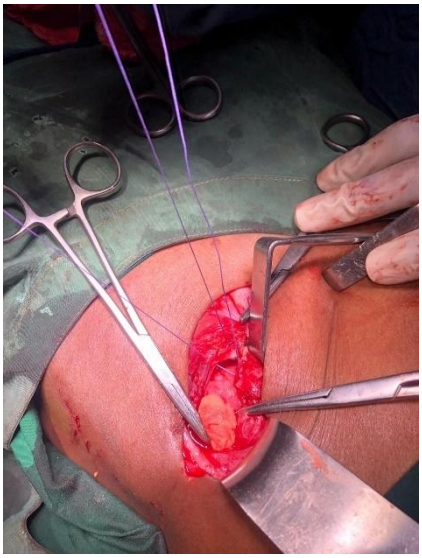

Image 3: contents are reduced and the peritoneum is closed with vicryl 2-0 RB.

the post-surgery patient was started on intravenous antibiotics and analgesics. The patient improved symptomatically. No surgical site infection was noted. On a postoperative day, 5 patient was discharged.

IV. Discussion

Herniation in the anterior abdominal wall following trauma to the abdomen is relatively rare. The incidence of the traumatic abdominal wall hernia is 1% in a tertiary care centre3. Traumatic herniation generally follows blunt trauma to the abdomen. This traumatic herniation happens because of the disruption of the muscle layers of the abdominal wall. Generally, the skin of the abdominal wall remains intact1. Pathophysiology of the traumatic hernia is based on the tangential force acting on the anterior abdominal wall which disrupts the abdominal wall muscles. The blunt trauma is either low velocity or high-velocity trauma. The low-velocity trauma is generally because of the small blunt trauma which causes a small defect in the anterior abdominal wall. The high-velocity injury is mainly secondary to the road traffic accident or any serious violence to the anterior abdominal wall.1,2

The risk factors for the abdominal wall disruption mainly depends on the size of the object, the resulting distribution of the pressure load, and the force of impact. Compared to other layers of the anterior abdominal wall, the skin is more elastic hence it remains intact even though there is a disruption in the underlying musculature4

Trauma to the abdominal wall will be mostly associated with other internal visceral or bowel injuries. Treatment of herniation secondary to trauma is challenging when it is associated with other injuries.2

Preoperative evaluation of the patient is required before treating the patient with a traumatic hernia. ultrasonography and computed tomography of the abdomen are required to rule out the extent od disruption following the trauma and also to rule out other visceral or bowel injuries2. CT scan guided grading was framed by Dennis R Marshall et al3, which is illustrated in the table-1 below.

Abdominal wall disruption grade definitions.3

Abdominal wall (AW) injury grade	Definition
I	Subcutaneous tissue contusion
II	AW muscle hematoma
III	Single AW muscle disruption
IV	Complete AW muscle disruption
V	Complete AW muscle disruption with herniation of abdominal contents
VI	Complete AW disruption with evisceration

Traumatic hernia associated with other internal visceral injuries is challenging to operated secondary to the contamination of the wound. The decision for the usage of mesh is based on the contamination level of the wounds. If there is contamination, the decision is taken for the use of the biological mesh despite its durability. The prevention of mesh infection is the main consideration.

On the other hand, conservative management can benefit patients with no visceral injury, with a small defect, and no other associated injury. If a patient was found to have a large defect, bowels herniating through the defect, and it is going for complication needs surgical repair. The decision for mesh-plasty depends on the defect size provided there is no contamination secondary to the visceral injury to prevent the infection. If there is tension-free closure is possible, simple primary closure is sufficient in small defects.4

Earlier surgical repair of the defect is found to have more advantages compared to the late closure of the defect. Earlier surgical repair can prevent complications such as an increase in the hernial defect size, bowels going for complications such as obstruction, incarceration, and it prevents the muscle from going to atrophy which further leads to difficulty in primary closure of the defect5.

V. Conclusion

Traumatic abdominal wall hernia is a rare case which is mainly due to both low and high-velocity injury. The damage is maximum with the high-velocity injury such as road traffic accidents. ultrasound and computed tomography is helpful in the diagnosis of hernia and also the associated internal visceral injury. Traumatic hernia requires an early repair of the defect before the complication arises. Early intervention helps in preventing the morbidity of the patient. Mesh can be placed in patients with weak abdominal wall to prevent the recurrence.

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Informed consent was taken from the patient and relatives of the patient.
The author declares there is no conflict of interest regarding the publication of this paper.

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