

# Acute Direct Inguinal Hernia Resulting from Penetrating Abdominal Trauma: Case Report

Meghraj Chawada<sup>1</sup>, Utkarsh Ghavghave<sup>2</sup>

{<sup>1</sup>Assistant Professor, <sup>2</sup>PG resident 2<sup>nd</sup> Year} Dept. of General Surgery, Government Medical College and Hospital, Latur (MS) INDIA.

Corresponding Addresses:

<sup>1</sup>[meghraj.chawada@gmail.com](mailto:meghraj.chawada@gmail.com), <sup>2</sup>[utkarshv.ghavghave@gmail.com](mailto:utkarshv.ghavghave@gmail.com)

## Case Report

**Abstract:** We report a case of traumatic inguinal hernia following penetrating abdominal trauma after a bull horn injury and describe the circumstances and technique of repair. The patient suffered a sudden penetration of bull horn while feeding it and developed acute swelling of the right groin. USG scan confirmed the acute formation of a traumatic inguinal hernia. Surgical repair was deferred until resolution of the acute swelling and subcutaneous haematoma. But the patient develops sudden obstructive symptoms and the indication for surgery was the potential for visceral strangulation or ischaemia with the patient describing discomfort on coughing and constipation. At surgery there was complete obliteration of the inguinal canal with bowel and omentum lying immediately beneath the attenuated external oblique aponeurosis. A resection anastomosis was performed for strictured ileal loop and hernia repair was performed after reconstructing the inguinal ligament and canal in layers and approximating fascia transversalis. To our knowledge, this is the first documented case of the formation of an acute direct inguinal hernia caused as a result of penetrating abdominal trauma with complete disruption of the inguinal canal. Surgical repair outlines the principles of restoration of normal anatomy in a patient who is physiologically recovered from the acute trauma and whose anatomy is distorted as a result of his injuries.

### Introduction:

In India, Bull gore injuries are frequently observed in villages but incidences related to deaths from bull gore are infrequently seen in Metropolitan cities. The horn of bull are long, curved directed forwards with smooth tapering ends (Figure 4) that produces lacerations and can also penetrate the body cavities. The pattern of injuries vary as described by various authors depending on the height of the victim, the height of the bull and relative position of the animal at the time of attack. The injuries occur more commonly on the abdomen and perineum. 1, 2, 3, 5, 9, 11 In the abdomen, the horn first tears the subcutaneous tissues and later muscles and further if the violence is more, the peritoneum is punctured.5 The frequency of injuries over the

abdomen in other studies being 11.3%, 10.3%, 12 and 64%.1 Since the head of bull is at the same level as victim's abdomen, this part of body is most exposed to the attack.1 Although the surface area of abdomen is same as that of the chest, the abdomen suffers more than any other site. The reason appears to be lack of bony shield over the abdomen permitting the horn hook to engage and penetrate.3

In the bullring, the bullfighters most commonly sustain injuries on the abdomen.6 These injuries can be in the form of perforations of abdominal wall, and internally hemorrhages and perforations involving mesentery and bowels.1, 9 visceral injuries involving spleen and more frequently liver being situated on right region of body are commonly encountered.

The inguinal canal extends from the anterior superior iliac spine to the pubic tubercle. A defect in the posterior wall results in a direct hernia. In our case, all boundaries of the inguinal canal including the floor, posterior, inferior, medial walls and deep and superficial rings were obliterated causing traumatic herniation of the terminal ileum and caecum beneath an attenuated external oblique aponeurosis.

### Case Presentation:

A 45 year old man was admitted with us with history of bulge over his right inguinal region following bull horn injury to that region 8-10 days back. On arrival to the Emergency Department the patient was haemodynamically stable and fully conscious. Primary survey revealed a soft abdomen with tenderness, swelling and scab in right inguinal region. There was no previous history of groin hernia.

Investigations revealed formation of new right inguinal hernia with no damage to internal organs.



Acute onset right groin hernia with scab and swelling.

At the surgery it was found that there was a large defect in the posterior wall of inguinal canal of about 8-10cm with bulging of fascia transversalis along with hernia sac (fig 1). Incision was taken along the bulged part of fascia transversalis in a controlled manner. On exploration it was found that a 10-12 cm long segment of terminal ileum was incorporated into the rent and was the content of hernia sac. The segment was narrowed and was showing multiple strictures throughout its length. (Fig. 2) There were dense adhesions between the sac and the ileal segment.



*Fig. 1 Bulged fascia transversalis with hernia sac within Fig. 2 Strictured Ileal segment with its mesentery*



### Conclusion:

Here we discuss the first reported case of the formation and successful repair of an acute direct inguinal hernia resulting from penetrating abdominal trauma where the inguinal canal was completely obliterated causing bowel to lie immediately beneath an attenuated external oblique aponeurosis. Technically there was no direct or indirect hernia as there was no inguinal canal. Traumatic injuries do not respect abdominal planes; normal anatomy is frequently distorted. Delayed repair afforded the resolution of haematoma and oedema that may have resulted in more challenging surgery.

As the defect was unilateral and the procedure was exploratory in the first instance an open approach was undertaken. The size of the defect afforded easy inspection of the peritoneal cavity for visceral injury. As primary repair was feasible without tension this was undertaken by reconstructing the inguinal region in layers. An alternative technique of repair would have been a laparoscopic intraperitoneal approach rather than extra peritoneal due to the location of abdominal viscera beneath the skin and obliteration of the abdominal wall in the right inguinal region.

Adhesiolysis was done and loop was separated. Resection anastomosis of ileal loop done. The redundant hernia sac was returned to peritoneum and posterior wall repair done by approximation of fascia transversalis with prolene 1-0. Meshplasty was not done as muscle tone was found to be good. Pelvic ADK was kept. Incision closed in layers and skin approximated with stapler. Post-operatively the patient received antibiotics for 5 days, made an uneventful recovery and was discharged after 8<sup>th</sup> day of operation. Patient was followed up after 5 months and there were no complications.

### References:

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2. Ng H S. Blunt abdominal trauma associated with testicular dislocation and contralateral inguinal hernia. *Clin Rad Extra.* 2003;59(1):1-2. doi: 10.1016/S1477-6804(03)00029-3. [\[Cross Ref\]](#)