

# A Case of Post Traumatic Abdominal Wall Hernia after Impact from Handlebar

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**Abstract:** Traumatic abdominal wall hernia are rare entity resulting from the blunt abdominal trauma. Often these are addressed as the 'handlebar hernia' if resulting from the impact of the handlebar of vehicles - like blunt object. Usually these are misinterpreted as hematoma or contusion or soft tissue swelling following trauma on the initial assessment, but CT - scan remain as the gold standard for the diagnosing this post traumatic hernia. Here we present the case of 16 year young male patient who developed hernia following impact of the handlebar of bicycle. He was asymptomatic on initial clinical assessment and ultrasound, but CT scan revealed hernia. He was operated and the breach in the abdominal musculature was repaired.

**Keywords:** Trauma, Handle bar injury, Abdominal wall hernia

## 1. Introduction

Traumatic abdominal wall hernia (TAWH) are rare type of hernia resulting following the sudden blow by high energy impact to the inertia of the abdominal wall. This force is such that it is insufficient to breach the elasticity of skin but able to cause the disruption of the muscles of anterior abdominal wall. It presents mainly in the pediatric age group population where the elasticity of skin is much more than the adult age population. The impact causing this hernia is mostly tangential causing the disruption of the abdominal wall muscles caused by sudden deceleration injury - blow of the handlebar or other such mechanism. Often on examination of such patients, it shows contusion, hematoma and impact mark of the blunt object but later - on these patients present with the complications like strangulation and obstruction. The clinical diagnosis can sometimes not address this hernia, so CT - Abdomen+

Pelvis remains prime in the diagnosis of this rare condition. Sometimes they are discovered on the surgical exploration.

## 2. Case report

A 16 year young male patient presented to Surgical OPD following accidental blunt abdominal injury due to impact of handlebar of bicycle before 10 days. On thorough clinical examination, he had bruising over right lower abdomen with semicircular impact mark of the object with visible bulge on exertion.

Chest and abdominal radio graphs were unremarkable. Ultrasound of the abdomen & pelvis was normal.

CT scan of abdomen and pelvis was done, which showed - ill defined defect of size  $19 \times 25 \text{ mm}^2$  is noted in anterior abdominal wall on lateral aspect of right rectus muscles in right iliac fossa.



Figure 1: Showing bulge at the right iliac fossa region

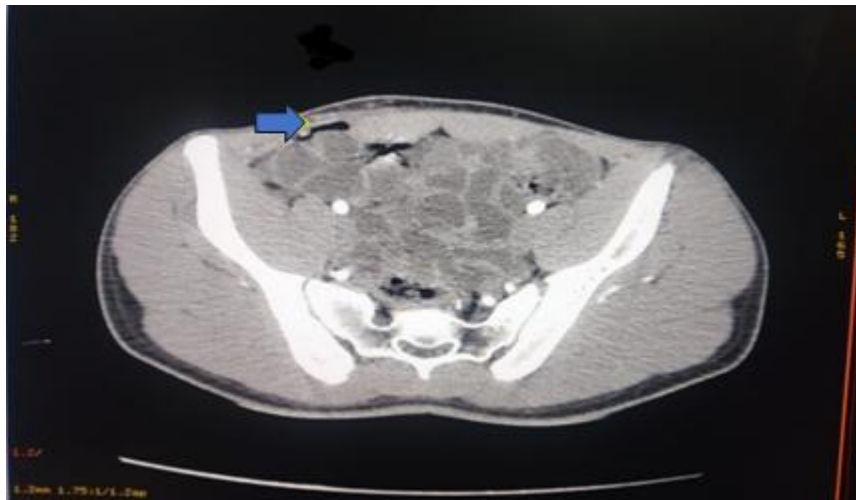


Figure 2: CT scan showing the defect

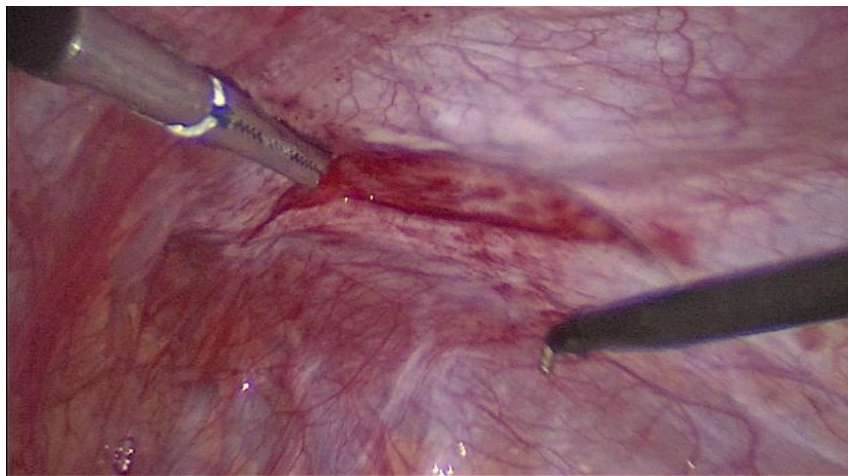


Figure 3: Intra - operative picture showing breach of abdominal musculature

### 3. Treatment

There was defect of size approximately 6\*2 cm<sup>2</sup> in anterior abdominal wall at right iliac region. Rest of the solid organs, bowel and mesentery were normal. The defect was primarily closed with barbed PDS 2 - 0 in continuous interlocking manner. He was then discharged from hospital on post operative day - 2 and followed up in surgical OPD. There were no any complication during the follow up visit.

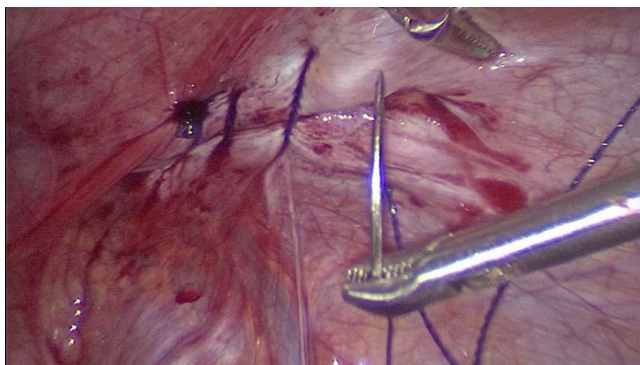


Figure 4: Laparoscopic closure of the defect

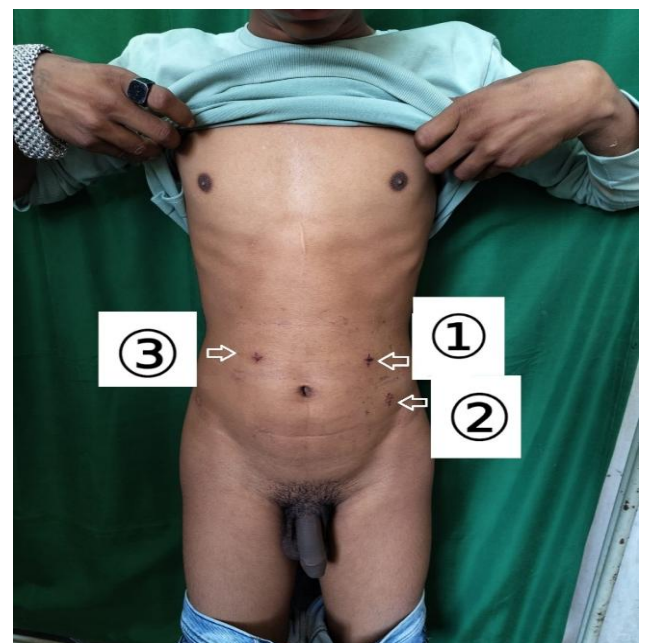


Figure 5: Patient followed in surgical OPD on post operative day - 7<sup>th</sup>

1. - 5mm Camera port at Left hypochondrium
2. - 5mm Working port at Left lumbar region
3. - 5mm Working port at Right hypochondrium

#### 4. Discussion

Handlebar hernias (1) are rare variant of the hernia occurring in pediatric population following blunt abdominal injury by handlebars (2,3). It is defined as disruption of the abdominal fascia and muscles without any skin penetration. This type of hernia is caused by sudden disruption of inertia of abdominal wall following tangential impact of high energy force, that prevents penetration, but remain focal enough to cause such condition. These are usually missed in the initial assessment triage and remain undiagnosed for long period of time which later present with life threatening complications like strangulation and obstruction. So this type of condition are usually diagnosed by CT Scan.

Classification of Traumatic Abdominal Wall Hernia (TAWH) by Dennis(2)

- Grade I: Subcutaneous tissue contusion
- Grade II: Abdominal wall muscle hematoma
- Grade III: Single abdominal muscle disruption
- Grade IV: Complete abdominal wall muscle disruption
- Grade V: Complete abdominal wall muscle disruption with herniation of abdominal contents
- Grade VI: Open herniation (evisceration)

Majority of these patients are hemodynamically stable but rarely some present with mesenteric avulsion and bowel injuries which require emergency exploratory laparotomy. But the patient presenting with such handlebar hernia can be operated electively(5) Depending upon the defect size this patients can be operated either with primary closure of defect (hernioraphy) or prosthetic repair of the larger gap defect (hernioplasty). The timing of the repair depend upon the size of the defect, risk of incarceration, injury to other visceral organs and hemodynamics of the patient. However delay in the repair of this hernia may lead to challenges like muscular atrophy and retraction, enlargement of the defect, leading to difficulty in primary repair and complicating into condition like compartment syndrome(6).

#### 5. Conclusion

So in case of traumatic abdominal wall hernia early diagnosis is to be made clinically and is strongly backed up with radiological evidence i. e. CT scan. A major drawback of patient suffering from this condition is that, it is often missed, so high grade of clinical suspicion is required for the diagnosis and early operative intervention should be done to prevent complications. These hernia are repaired by open surgery during surgical exploration as well as by laproscopic method but the laproscopy would be more beneficial in terms of smaller incisions, faster recovery, reduced post operative pain, early discharge and faster return to daily activities.

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