# Lateral abdominal wall hernia following blunt trauma – a rare case

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ABSTRACT

The presence of superficial bruising, no abnormal signs on abdominal examination and a negative FAST scan of the abdomen may not be enough to rule out intra-abdominal pathology. We report on the usefulness of CT in diagnosing a post-traumatic abdominal wall hernia.





## CASE REPORT

### CASE REPORT

A haemodynamically stable 47 year old male patient was brought into the emergency room having been involved in a road traffic accident. He had been driving a motorbike and collided with a car at about 30mph and was flung onto fixed railings by the side of the road.

Clinical examination showed bruising over the right flank (Fig. 1) but his abdomen was non-distended, soft and non-tender. Focused assessment with sonography for trauma (FAST) of the abdomen was negative but worried about intra-abdominal organ injury, a Computed Tomography (CT) scan was performed of his abdomen. He also had an open distal tibia/fibula fracture with absent pulses in the foot (Fig. 3). The patient required 2 litres of ringers lactate intravenously over 6 hours but remained haemodynamically stable throughout.

CT of the abdomen showed a large right flank haematoma extending from just below the lower pole of the right kidney to the level of the pelvis. Underlying this was a complete rupture of the abdominal wall musculature with retraction of the right anterior abdominal wall muscles. There was a herniation of intra-abdominal fat through the resulting defect (Fig. 2). There was no other intra-peritoneal pathology found (Fig. 2).

### DISCUSSION

By definition, a hernia is an abnormal protrusion from one anatomical space to another. As much as 10% of the population develops some type of hernia during life. Fourteen percent of all presenting hernias are umbilical (female-to-male ratio, 1.7:1), 5% are femoral (female-to-male ratio, 1.8:1), and 10% are incisional (female-to-male ratio, 2:1). More than a half million hernia operations are performed in the United States each year. Fifty percent of these hernia operations are for indirect inguinal hernias, with a male-to-female ratio of 7:1, while 25% are for direct inguinal hernias. The prevalence of all varieties of hernias increases with age (1).

The Abdominal wall hernias due to blunt trauma are much more uncommon with no known incidence and can vary in size and presentation (2-6). Bowel loops are thought to be the most common herniating viscera, but bowel strangulation within the hernia is rare (2,7). Abdominal wall hernias can be detected on ultrasound where there is a suggestive history and the operator is looking for hernias. This is not the case in the emergency setting where the operator is 'programmed' to look for intra-peritoneal fluid (usually hemorrhage). Rare or unusual presentations such as traumatic abdominal wall hernias are more likely to be missed in this setting hence the importance of the secondary survey and CT.

Surgical management of hernias involves the resection of non-viable tissue (e.g. infarcted mesentery or bowel), returning the herniated contents back to their proper anatomical space

and the closure of the hernia. This can be by direct closure, mesh repair, or the use of flaps (8).

Indications for immediate exploration of an abdominal wall hernia with a possible definitive repair in a trauma setting; would include evidence of bowel obstruction or strangulation or where the patient required a laparotomy for intra-abdominal haemorrhage causing haemodynamic instability. There were no immediate indications for surgical repair of the abdominal wall hernia in this case and it was decided to observe with a view to definitive treatment of the hernia in the future.

The patient also had an open distal tibia/fibula fracture which had compromised the circulation to the distal foot (Fig. 3). This took priority and was de-brided and managed with an external fixator within 6 hours of presentation and it was decided to postpone elective repair of the abdominal wall hernia to a later time.

## TEACHING POINT

Blunt trauma can cause abdominal wall hernias. These hernias may not be determined clinically hence the importance of Computed Tomography and an experienced radiologist. FAST scans performed by non-radiologists while good at detecting intra-peritoneal fluid may not be a reliable diagnostic tool for traumatic abdominal hernias.

## ABBREVIATIONS

F.A.S.T = Focused assessment with sonography for trauma
CT = Computed tomography

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## FIGURES

**Figure 1:** 47 year old man with a lateral abdominal wall hernia after blunt trauma. Image showing the right flank haematoma on the patient.

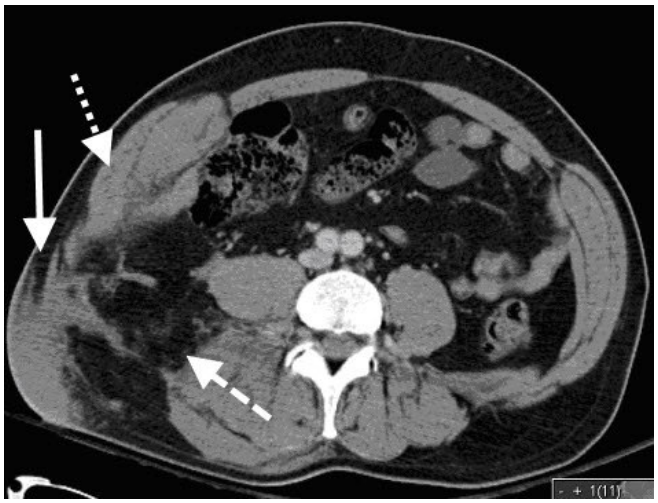

**Figure 2:** 47 year old man with a lateral abdominal wall hernia after blunt trauma. Non-contrast axial CT films of the abdomen showing a large right flank haematoma (white arrow) extending from just below the lower pole of the right kidney to the level of the pelvis. Underlying this is a complete rupture of the abdominal wall musculature with retraction of the right anterior abdominal wall muscles (dotted arrow). There is a herniation of intra-abdominal fat through the resulting defect (dashed arrow).


**Figure 3:** 47 year old man with lateral abdominal wall hernia (not shown) and displaced distal tibia/fibula fracture after motor vehicle accident. Lateral x-ray of the right foot showing a complete and displaced distal tibia/fibula fracture.

KEYWORDS

Trauma, abdominal wall hernia, bruising

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