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## Traumatic abdominal wall hernia Delayed repair: Advantageous or taxing

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## ABSTRACT

**INTRODUCTION:** Traumatic abdominal wall hernia (TAWH) is a rare entity. Most cases occur in children, following an injury from the bicycle handle bar. In adults, it usually results from road traffic accidents (RTA). We present one of the largest reported cases of TAWH following RTA managed by delayed mesh repair.

**PRESENTATION OF CASE:** A 35 yr old obese male with RTA was diagnosed with TAWH with 19 cm × 15 cm defect in left flank. As there were no intra abdominal injuries and overlying skin was abraded, he was planned for elective repair after 6 months. On exploration a defect of 30 cm × 45 cm was found extending from midline anteriorly to 8 cm short of midline posteriorly in transverse axis and costal margin to iliac crest in craniocaudal axis. After restoration of bowel into abdominal cavity, primary closure or even approximation of muscular defect was not possible thus a mesh closure using 60 cm × 60 cm prolene mesh in subcutaneous plane was done. After 4 months follow up, patient is healthy and has no recurrence.

**DISCUSSION:** Emergent surgical management of TAWH is usually favoured due to high incidence of associated intra abdominal injuries. Delayed repair may be undertaken in selected cases.

**CONCLUSION:** TAWH, although rare, should be suspected in cases of RTA with abdominal wall swellings. With time, the hernia defect may enlarge and muscles may undergo atrophy making delayed repair difficult.

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### 1. Introduction

Traumatic abdominal wall hernia (TAWH) is a rare entity and is caused by blunt trauma to the abdomen. Although, TAWH was first described by Selby<sup>1</sup> a century ago, fewer than 100 cases have been reported in English literature. 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”.<sup>2</sup> Skin can be bruised but normally remains intact. Most TAWH are diagnosed on presentation with contrast enhanced computed tomography of abdomen and most authors advocate immediate laprotomy in view of high incidence of intra-abdominal injuries. We present one of the largest reported cases of TAWH managed by onlay meshplasty, 6 months after initial trauma.

### 2. Case presentation

A 35 yr old obese male, presented to emergency after road traffic accident (hit by a car while driving a two-wheeler). He was conscious, oriented and complained of left sided abdominal pain.

On examination his pulse was 102/min and blood pressure was 126/74 mm Hg. Initial survey of the abdomen revealed a large swelling over left flank extending over to left hip joint with abrasion and ecchymosis of the overlying skin. The swelling was tender but was soft and cystic. There was no guarding or rigidity over the abdomen. Examination of all other systems was unremarkable. An initial diagnosis of subcutaneous haematoma was made and patient was assessed further.

His haemoglobin was 10.6 gm/dl and rest of the haematological and coagulation profiles were within normal range. Skeletal survey did not reveal any bony injury. Focussed ultrasound of the abdomen revealed mild amounts of free fluid in abdominal cavity. As the patient was haemodynamically stable, he underwent a contrast enhanced computed tomography (CECT) which revealed a complete tear of left anterolateral abdominal wall musculature with a defect of 19.5 cm in vertical and 15 cm in anteroposterior axis. Small bowel loops occupied subcutaneous plane up to the level of hip joint. A final diagnosis of TAWH with large defect was made (Fig. 1).

In view of a large defect which would have resulted in difficult primary closure, unhealthy overlying skin with abrasion and haematoma and reluctance to use of mesh in emergency surgeries because of infectious complications, a decision was made to observe the patient and post for elective surgery once the overlying skin got healed.

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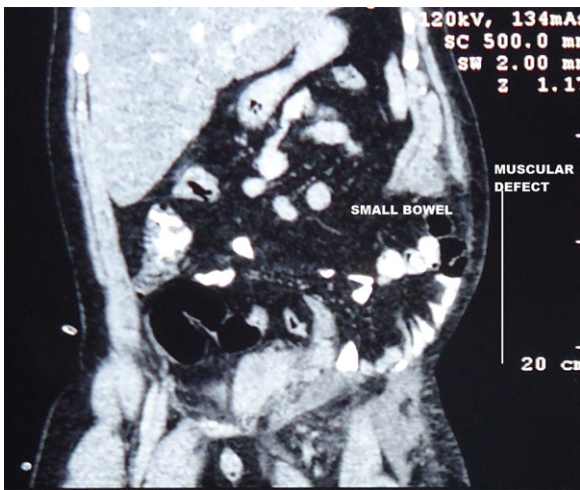


Fig. 1. Initial CECT showing hernial defect.

After 6 months, the overlying skin got healed and patient lost 15 kg of weight but the hernia increased in size. The palpable defect was bigger with well defined margins and the sac now reached up to the knee joint (Fig. 2). Patient was taken up for surgery as he complained of poor quality of life and inability to work because of the hernia. He also complained of continuous dragging pain which we ascribed to the pull of small bowel mesentery which was a content of this hernia. Patient was positioned in right lateral position and with a transverse incision overlying the defect, the peritoneum was opened. A muscular defect of 30 cm × 45 cm was found extending from midline anteriorly to 8 cm short of midline posteriorly in transverse axis and from costal margin to iliac crest and inguinal ligament in craniocaudal axis was present. Defect was lined by rectus muscle in the anterior midline, erector spinae muscle posteriorly, costal margin cranially and iliac crest and inguinal



Fig. 2. Showing large hernia (compare with initial CECT).

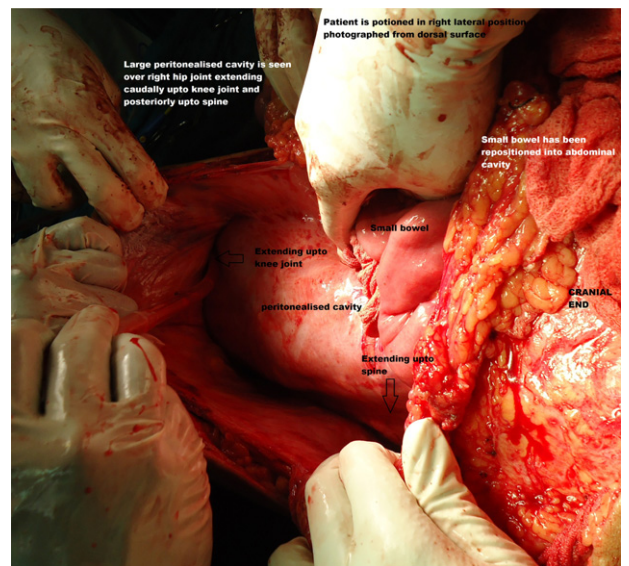


Fig. 3. Intraoperative photograph showing hernial sac.

ligament caudally. Rectus muscle of ipsilateral side was atrophied and was pulled to opposite side. The oblique muscles were also atrophied and lined the margins of the defect. Through this defect, in the subcutaneous plane overlying the erector muscles of the back and gluteal and quadriceps muscles of the thigh, there was a peritonealised hernial sac containing loops of small bowel and clear straw coloured fluid (Fig. 3). This sac extended from costal margin above to knee joint below and vertebral column posteriorly to communicate with peritoneal cavity anteriorly through muscular defect. There was no way to close or even approximate this defect. Thus, a peritoneal flap with some amount of subcutaneous tissue was raised at upper margin of the incision up to the costal margin. Margins of this flap were sutured to margins of the muscular defect so as to close the peritoneal cavity separating it from the subcutaneous hernial sac. The peritoneum of hernial sac was scrapped and approximated to each other. A 60 cm × 60 cm prolene mesh was placed above the flap and sutured to the margins of the defect (Fig. 4). The overlying skin approximated after inserting several suction drains. Thus we were able to close the muscular defect with help of a mesh and manage to place peritonealised flap between bowel and mesh.

Patient was nursed in intensive care settings for 3 days. On 4th post operative day he developed superficial skin necrosis at the upper margin of the suture line which healed by secondary



Fig. 4. Intraoperative photograph showing prolene mesh being fixed.

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