CASE REPORT

Blunt abdominal trauma associated with testicular dislocation and contralateral inguinal hernia

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Introduction

Blunt abdominal trauma (BAT) can lead to injuries of various abdominal organs. Typically documented injuries include damage to the hepatobiliary system, spleen, pancreas, bowel loops and mesentery.1–3 Inguinal hernia and testicular dislocation (TD) are rarely listed among the possible complications of BAT. We report a case of a middle-aged man who simultaneously developed a right inguinal hernia and left TD after a motorcycle accident. To our knowledge, such concomitant complications of BAT have not been reported before. Knowledge that such injuries can occur as a result of BAT, and of their rapid and unequivocal diagnoses, will be valuable to clinicians.

Case report

A conscious, but acutely ill, 35-year-old man was admitted to the emergency room of Chang Gung Memorial Hospital complaining of severe abdominal pain after the motorcycle he was riding on collided with an automobile. Physical examination revealed bruising over the abdominal wall and rebound abdominal pain. Furthermore, the right hemiscrotum was enlarged, but there was no discernable swelling or discolouration of the bilateral scrotal wall. Laboratory data revealed mild anaemia. Abdominal computed tomography (CT) showed no obvious abdominal visceral injury. However, CT did reveal the presence of dilated bowel loops entrapped within the right hemiscrotum, indicative of right inguinal hernia, and of an empty left hemiscrotum with the presence of the testis in the left pubic region, indicative of TD (Fig. 1). The patient confirmed that, before his accident, he had bilateral, normally located testes, and that the accident precipitated the gradual swelling of his right hemiscrotal sac. After general anaesthesia, a manual closed reduction of the dislocated left pubic testis and subsequent right inguinal herniorrhaphy were performed smoothly. Recovery was uneventful and the patient was well at a 3-year follow-up examination.

Discussion

BAT typically produces injuries to various abdominal viscera, such as the hepatobiliary system, liver, spleen, pancreas, and kidneys. The extent and type of BAT injury depend on the nature of the impact. For example, an impacting force likely results in a compression injury of viscera, and the abrupt forces of deceleration may tear organs from their points of fixation.4 In the present case, the presence of bruising on the anterior abdominal wall and rebound abdominal pain in the patient was consistent with the delivery of a considerable force to the abdomen. Traumatic abdominal hernia has been rarely associated with BAT. Typically, the abdominal hernia occurs in the diaphragm, inguinal canal, and abdominal wall. Of these, diaphragmatic hernia is most often associated with BAT, being caused by sudden increase in intra-abdominal pressure.4,5 In contrast, inguinal hernia associated with BAT has hitherto been unusual. Indeed, due to the infrequent occurrence of BAT and inguinal hernia, we considered the possibility that our patient might have had a weakened area behind the remnant of the fused processus vaginalis and that the abrupt increment of intra-abdominal pressure during BAT allowed bowel loops to herniate into the inguinal canal toward the scrotum, contributing to the appearance of the indirect inguinal hernia. TD is an unusual accident.6 It most commonly results from severe direct scrotal trauma with simultaneous crushing and squeezing actions, and is usually seen in motor vehicle accident victims.6–8 These coincident traumatic forces act to pop the

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testis out from the scrotal sac to various positions, including the pubic, inguinal, penile, crural, perineal or even intra-abdomen regions.9–11 Scrotal injury is usually presents with a swollen and ecchymotic sac, and is commonly associated with severe pelvic injury. Diagnosis of TD can be made upon physical examination when an empty scrotal sac is found or an abnormally located testis is palpated.9,12 However, scrotal tenderness, oedema, haematoma or obesity sometimes precludes early disclosure of TD.8,9,12 Conversely, TD may occasionally even occur in minor scrotal trauma. Indeed, TD has even been ascribed to preloading of the cremaster muscle in sexual relations.13 However, TD has been rarely documented in association with BAT. In this particular patient, a lack of scrotal oedema or ecchymosis was suggestive of only minor direct scrotal trauma. Presumably, the patient’s TD resulted from the abnormally brisk cremasteric contraction in response to trauma, or rapid changes of intra-abdominal pressure, especially during the recoil of the abdominal cavity in BAT, with a resultant retractile force to draw the left testis out from the scrotal sac.

CT is commonly used to detect visceral injury in patients with BAT.1–3 In our patient with traumatic enlarging of the right hemiscrotum, CT clearly showed right inguinal hernia by demonstrating dilated bowel loops in the inguinal canal and scrotum. Furthermore, CT clearly differentiated the hernia from traumatic testicular hydrocele, haematocele, varicocele, haematoma and post-traumatic epididymitis. Lastly, CT also showed clinically subtle left TD, manifested as a left empty hemiscrotum and an ectopic testis in the left pubic region.

Early recognition of inguinal hernia and TD can prompt timely treatment, lessening the risk of intestinal strangulation and abnormal spermatogenesis, respectively.5,10,11 Thus, as highlighted by this case, the detailed physical examination and close scrutiny of abdominal CT down to the inguinal level are important in patients with BAT.

References