CASE REPORT

Handlebar Herniation: A Case of Near Missed Abdominal Injury

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SUMMARY

Timely identification of specific injuries in a polytrauma case is of paramount importance in order to reduce morbidity and mortality. Unfortunately, some of these injuries are subtle and can be missed on initial primary and secondary assessments. In this paper, we report one such injury in a case of a 16-year old motorcyclist who complained of abdominal pain over the right lumbar region after the motorcycle handlebar hit his abdomen. Although initial assessment was uneventful, he was subsequently diagnosed to have a traumatic abdominal wall herniation on abdominal computed tomography after more than 24 hours of observation in the ward.

KEY WORDS:
Handlebar, Hernia, Traumatic abdominal wall herniation

INTRODUCTION

Road traffic injuries continue to be one of the major causes of morbidity and mortality, not just in Malaysia[1], but also globally[2]. According to the statistics from the Ministry of Health (MOH) Malaysia, accidents was the sixth, out of the top ten causes of death in MOH hospitals in 1996[1]. The latest World Health Statistics released this year by the World Health Organization (WHO) revealed that road traffic accidents was the ninth leading cause of death globally, contributing to 2.2% of the total deaths[2]. Incredibly, it is postulated that by the year 2030, road traffic accidents will rise to be the fifth leading cause of death globally[2]. Unfortunately, although it is imperative that specific injuries, especially potentially lethal injuries be identified in the earliest instance, certain injuries are more subtle and difficult to be detected during the initial primary and secondary assessments in emergency department (ED). In this paper, we report a case presented with such subtle and relatively rare abdominal injury.

CASE REPORT

A 16-year old motorcyclist collided with an oncoming car while on the way to school and was rushed to our ED. He complained of abdominal pain over the right lumbar region where his motorcycle handlebar had hit his abdomen. He also complained of pain over his left wrist. Otherwise, he had no history of loss of consciousness, vomiting or headache.

Physical examination was essentially normal with stable vital signs except for his tender and swollen left wrist. His abdomen was generally soft and not distended. There was a 5cm x 5cm ecchymosis with superficial abrasion (Figure 1). Serial focused abdominal sonography for trauma (FAST) examinations were normal. Plain radiography of the left distal radius revealed a closed comminuted fracture, which was then treated in the ED with a cast. Other radiological investigations were normal. Although he appeared to have sustained a superficial subcutaneous hematoma at his abdomen, we decided to admit him to the surgical ward for observation.

However, over the next 36 hours, his abdomen became progressively more distended. He was tachycardic, with a pulse rate of 140 beats/min, as compared to 90 beats/min on admission. His temperature was 39°C. However, other than a localized mild tenderness over the bruise, no other signs of peritonism detected. Because of the ambiguous clinical features, we decided to order an abdominal CT.

Abdominal computed tomography (CT) performed at this point revealed a herniation of a loop of small bowel through a 4.5cm x 4.5cm defect in the right rectus abdominis (Figure 2). A diagnosis of traumatic abdominal wall herniation was made. The patient was subsequently rushed to the operation theater where emergency exploratory laparotomy was performed. Resection of the gangreneous 5cm transected loop of jejunum was done with an end-to-end anastomosis. Post-operatively, he recovered and discharged well from the ward.

DISCUSSION

Traumatic abdominal wall herniation is a relatively rare condition. Classically it is also coined as handlebar hernia because of its common association with the impact of the handlebar on the abdomen[3]. A MEDLINE search using the combination of Medical Subject Heading (MeSH) keywords of "handlebar", "traumatic abdominal wall", "hernia" and "herniation" revealed about 65 reported cases in the literature. Most of these papers are anecdotal case reports. There has yet to be a systematic study to look at the epidemiologic pattern of handlebar herniation as well as its various causative factors. Its pathogenetic basis is often cited as a result of the focal transfer of kinetic energy from a blunt object such as the handlebar that splits the layers of the underlying abdominal wall musculature without penetrating the relatively elastic skin[3]. The diagnosis of this condition is not always apparent on initial assessment and investigations[3,4]. In our case, the diagnosis was delayed for up to 36 hours. In a case reported from Singapore[4], the diagnosis was delayed until day-four post trauma despite of an initial abdominal CT scan that had been done on the day

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Fig. 1: The deceptively normal-looking abdomen of the patient showing a superficial abrasion with a 5cm x 5cm ecchymosis

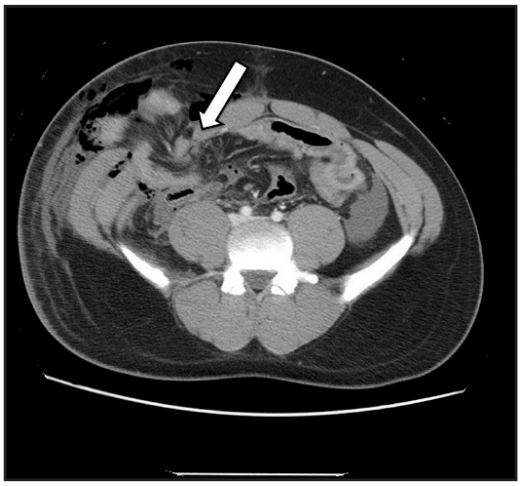

Fig. 1: Abdominal CT showing a herniation of a loop of small bowel through a 4.5cm x 4.5cm defect in the right rectus abdominis (arrow)

of admission! In that case, the diagnosis was finally clinched on a repeat abdominal CT scan following the abdomen becoming progressively distended. In that paper, the authors postulated that a plausible reason why the abdominal wall defect was not picked up on initial abdominal CT scan was because of the pain and muscle spasm that masked the defect[4]. Subsequent muscle relaxation and increasing intra-abdominal wall pressure accentuated the weakening of the defect[4].

In our case, we missed the diagnosis during initial assessment because of the normal serial FAST scan. With hindsight, however, this is not surprising given the fact that FAST scan may not pick up injuries that are not associated with hemoperitoneum[5]. This is especially so in cases of hollow viscus injuries, as opposed to solid organ injuries where the main sequelae is hemorrhage. In fact, in the hands of most operators, FAST scan usually requires at least a minimum of 200 ml of intraperitoneum fluid in order to become positive[5].

In conclusion, an important reminder that we learned from this case is to maintain a high index of suspicion especially with the presence of clinical telltale signs and not to be misled by a normal, albeit serial, FAST scan. Ultimately, the decision for admission of suspected abdominal injuries and the decision for exploratory laparotomy should be a clinical decision. Furthermore, CT scan is not easily available in most district hospitals in Malaysia. In such a case, the MOH plays a vital role in carrying out nationwide trauma surveillance and perhaps, a national acute trauma management clinical practice guidelines encompassing the utility of urgent abdominal CT scan to further improve the care of the trauma patients in our country.

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