Case report

Traumatic duodenal rupture in a soccer player

Shirzad Houshian

Abstract

Traumatic duodenal rupture resulting from blunt trauma during soccer is an extremely rare occurrence. A case report of this unusual condition is presented together with a review of the literature.

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Keywords: soccer; football; duodenal rupture; trauma

Case report

A healthy 28 year old man was admitted to the emergency department with acute midepigasttric abdominal pain, having been struck in the abdomen by the knee of an opponent during a soccer game.

Physical examination on admission showed a diffusely tender abdomen with extreme rigidity, rebound tenderness, and decreased bowel sounds.

Blood pressure, pulse, and temperature were all normal. Blood analysis showed a haemoglobin concentration of 15.7 g/100 ml, a white blood cell count of $7.4 \times 10^9/l$, a C reactive protein concentration of <10 mg/l, and an amylase level of 66 mg/100 ml. Urine analysis was normal.

Abdominal roentgenograms and sonography were unremarkable. A contrast enhanced computed tomographic scan of his abdomen showed retroperitoneal air and distension of the small bowel (fig 1).

Acute laparotomy showed a 2 cm transverse anterior perforation between the descending and horizontal part of the duodenum. The perforated edges were debrided and closed in two layers. Recovery after the operation was uneventful.

Discussion

Duodenal rupture following blunt abdominal trauma is usually related to motor vehicle accidents.¹⁻³ Five cases of duodenal rupture following sport related blunt injury have been described in the literature.⁴⁻⁷ The causes of the injuries were cycling, hockey, skating, and American football.

Berqvist *et al*⁸ documented 136 abdominal injuries related to sports over a 30 year period in Skaraborg county, Sweden. In their study only three cases of small intestine injury were mentioned. Only three cases of jejunal rupture from sporting activities have been reported: two in American football and one in soccer.^{9 10}

The mechanism of intestinal rupture is variable and controversial. Most authors consider direct compression with tearing between two opposing surfaces, such as the abdominal wall and spine, to be the most likely cause of intestinal injury.¹¹ Fixed areas of the bowel, such as the duodenum, proximal jejunum, terminal ileum, or areas with adhesions are at increased risk of injury. Because blunt abdominal trauma leaves no external sign of injury, its seriousness may be minimised or the injury completely overlooked. Abdominal pain is the most common symptom and a patient with a duodenal injury usually experiences a sharp midepigasttric pain at the time of injury, followed by signs of chemical peritonitis within a few hours. The severity of signs and symptoms can vary considerably.

Early diagnosis of duodenal rupture is essential, the delay of which is associated with increased morbidity and mortality.^{1 3} The diagnosis of this injury remains problematic because the signs and symptoms of retroperitoneal viscus rupture are notoriously subtle. Free intraperitoneal air, bile, blood, and high amylase content are not usually present and depend on the severity of the injury. Contrast enhanced computed tomography is a sensitive tool for the diagnosis of pneumoperitoneum and abdominal injuries.

Although traumatic duodenal rupture is rare in the sporting population, it should be suspected in a patient with midepigasttric abdominal pain, peritoneal irritation, and radiographic findings suggestive of free retroperitoneal air. A contrast enhanced computed tomography scan is the tool of choice in diagnosing duodenal rupture and is therefore recommended.

Figure 1 Contrast enhanced computed tomography scan showing pneumoperitoneum.

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Take home message

A case of an unusual traumatic duodenal rupture resulting from blunt trauma during a soccer game is reported. Diagnosis was by computed tomography scan. The perforated edges were debrided and closed. Recovery was uneventful.

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