

A case of abdominal tamponade

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CASE REPORT

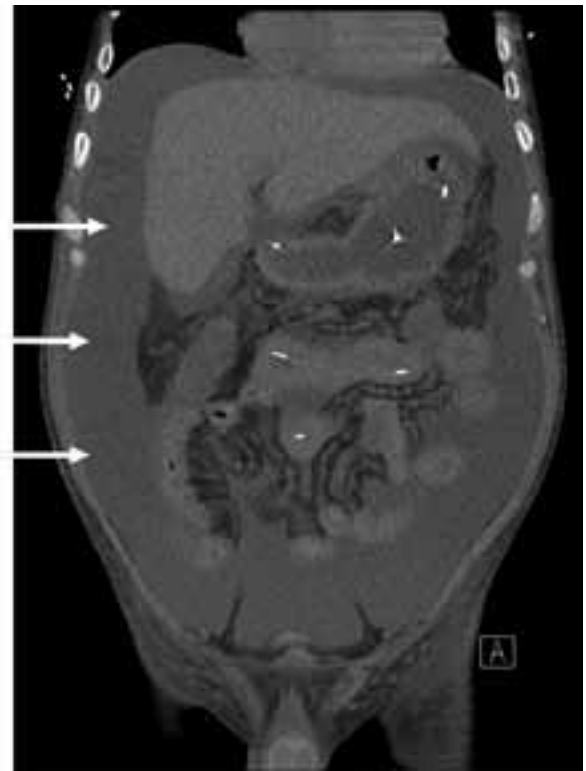
A 44-year-old male was admitted with gastrointestinal bleeding. His medical history revealed alcohol addiction. Besides a haemoglobin level of 2.0 mmol/l, abnormal liver function tests were present. Recent history revealed melaena and haematemesis for several days. Gastroscopy showed a mild gastritis and gastroduodenal varices (grade 1-2). The patient was transfused, stabilised and admitted to the intensive care unit for further analysis and treatment. Ultrasonography of the abdomen was performed demonstrating a moderate amount of ascites and signs of liver cirrhosis including an enlarged liver with increased echogenicity with irregular appearing areas. Paracentesis and cultures did not reveal bacteria.

The next day the patient developed septic shock. Six out of six blood cultures showed *Morganella morganii* and ciprofloxacin was started. An abdominal computed tomography (CT) scan confirmed the suspected liver cirrhosis and ascites, although no abscess or clues for bowel perforation were seen. The patient's condition

Figure 1. Axial CT image showing intra-abdominal fluid and pneumoperitoneum. The large, white arrows indicate the cirrhotic liver with irregular superficial areas. The dotted arrows indicate the pneumoperitoneum



Figure 2. Coronal CT image showing the massive fluid collection surrounding the intra-abdominal organs (white arrows)



stabilised initially. On the 11th day the patient developed abdominal distension, hypotension requiring vasopressive medication, oliguria, and decreased pulmonary compliance. An abdominal CT scan was repeated (figures 1 and 2).

WHAT IS YOUR DIAGNOSIS ?

See page 142 for the answer to the photo quiz.

ANSWER TO PHOTO QUIZ (PAGE 139)

A CASE OF ABDOMINAL TAMPONADE

The diagnosis of abdominal compartment syndrome (ACS) was confirmed by measuring the intra-abdominal pressure (IAP), which proved to be 24 mmHg (normal value 5 to 7 mmHg). ACS occurs when the abdomen becomes subject to increased IAP which results in decreased perfusion of abdominal organs and impairs pulmonary function due to increased intrathoracic pressure. As dictated by the World Society of the Abdominal Compartment Syndrome,¹ the IAP should be indirectly measured via the bladder at end-expiration in a supine position.^{2,3} This ensures that abdominal muscle contractions are absent. The transducer should be zeroed at the level of the mid-axillary line and instillation volume should not be more than 25 ml of saline. Measurements should be performed 60 seconds after installation to allow bladder detrusor muscle relaxation.

Several syndromes can cause ACS.² The treatment of ACS is aimed to reduce the IAP, e.g. improve the abdominal wall compliance, evacuate intra-abdominal fluid collections or remove intraluminal contents.² Furthermore, a definitive treatment for the primary cause of the raised IAP should be initiated.

In this case the subsequent diagnostic laparoscopy demonstrated a perforated caecum with faecal peritonitis as the cause of the ACS. Lavage of the peritoneum was carried out after drainage of six litres of infected ascites and a caecostomy was performed. After the intervention the intra-abdominal pressure dropped to 6 to 13 mmHg facilitating circulation and ventilation. Despite all measures taken, the patient died two days later.

Concluding, in patients with suspected abdominal compartment syndrome the intra-abdominal pressure should be measured and the underlying cause should be treated as soon as possible.

REFERENCES

1. WSACS; <http://www.wsacs.org/>
2. Cheatham ML, Malbrain ML, Kirkpatrick A, et al. Results from the International Conference of Experts on Intra-abdominal Hypertension and Abdominal Compartment Syndrome. II. Recommendations. *Intensive Care Med.* 2007;33(6):951-62.
3. De Keulenaer BL, De Waele JJ, Powell B, Malbrain ML. What is normal intra-abdominal pressure and how is it affected by positioning, body mass and positive end-expiratory pressure? *Intensive Care Med.* 2009;35(6):969-76.