Case Study of the Month

Life-Threatening Complication after Right Renal Extracorporeal Shock Wave Lithotripsy: Large Hepatic Haematoma Requiring Embolisation of the Right Hepatic Artery

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1. Case report

In March 2006, a 37-year-old woman with a symptomatic nephrolithiasis on the right side was referred to our department for an extracorporeal shock wave lithotripsy (ESWL; Fig. 1). The preoperative evaluation including the patient’s history, computed tomography (CT) scan of the abdomen, and blood analysis ruled out the presence of any topographic anomaly, hepatic disease, or alteration of the blood clotting system. The treatment consisted of 3000 shock waves (voltage: 16 kV, positive energy of the 5-mm focal area E + 5 mm: 10.1 mJ, electromagnetic Dornier MedTech DL 50, Germany) applied to a 5-mm stone in the right kidney. Some 36 h after treatment the patient suffered from intense right
upper abdominal pain with radiation to the shoulder, nausea, dizziness, tachycardia, and hypotension. Abdominal ultrasonography and CT scan revealed a large subcapsular haematoma of the liver (Fig. 2). Contrast extravasation was consistent with persisting active bleeding in liver segment VIII. The serum haemoglobin level dropped from 12.7 to 6.2 g/dl, which required transfusion of three erythrocyte concentrates and the patient’s transfer to the intensive care unit (ICU) due to haemorrhagic shock. Percutaneous transluminal angiography failed to identify a vascular lesion or further active bleeding (Fig. 3a). However, with the intention to establish a hypotensive haemostasis an incomplete proximal coil embolisation of the right hepatic artery was
performed (Fig. 3b) and strict blood pressure control was achieved with a continuous nitroglycerin infusion. The CT scan 2 d later showed a slight increase in size of the haematoma, but no more extravasation of the contrast agent (Fig. 4). Furthermore, stone disintegration was documented. Plasma creatinine, lactate, and electrolyte levels remained within normal ranges, whereas lactate dehydrogenase and the liver enzymes alanine aminotransferase (ALT) and aspartate aminotransferase (AST) increased and peaked at the fourth day after ESWL and normalised 3 wk after the intervention. After a transient episode of supraventricular tachycardia the patient showed a rapid improvement of her health condition and was discharged from the hospital 2 wk after the intervention.

In the follow-up examination 4 mo after discharge a remarkable reduction of the haematoma was seen on CT (Fig. 5). Small (insignificant) residual stone fragments were present in the right kidney.

**EU-ACME question**

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**Question:**

Which statement is not correct:

A. The most common reported complication of the nonoperative management of hepatic injuries is delayed or recurrent haemorrhage with an overall incidence between 2.4% and 5%.

B. Surgery is often indicated in case of hepatic haematoma owing to the high incidence of secondary rupture.

C. Angiographic embolisation is the first-line treatment of delayed vascular complications with a technical success rate of approximately 90%.

D. Embolisation should be done as close as possible to the injury site to decrease the risk of massive liver ischaemia.