Acute hypovolemic shock due to a ruptured aneurysm of the right hepatic artery caused by segmental arterial mediolysis

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Background
Segmental arterial mediolysis (SAM) is a non-atherosclerotic, non-inflammatory arteriopathy of unknown etiology. It is typically affecting medium sized abdominal arteries. Clinical presentations vary from self-limiting, non-specific abdominal pain to severe pain with intra-abdominal hemorrhage.

A rupture of the aneurysm commonly presents with life-threatening abdominal or retroperitoneal haemorrhage. Treatment options include conservative care, endovascular therapy or a surgical approach. When SAM presents with a rupture of a visceral artery aneurysm, a mortality rate up to 50% has been reported.

Against this background we want to emphasize spontaneous abdominal bleeding due to SAM as an important differential diagnosis of the acute abdomen. Hemodynamic stabilisation and controlling of the bleeding might be crucial.

Results
The patient recovered uneventfully and was discharged six days after the operation. Histological findings confirmed the diagnosis of segmental arterial mediolysis. A follow-up CTA half a year later showed an almost complete resorption of the hematoma and normal values of liver enzymes were measured in the blood tests. (Figure 3).

Conclusion
SAM may lead to an potentially life-threatening hemorrhage, as described in this case. A standard therapy does not exist and must be selected individually. Interventional radiology is one option but surgery has to be considered, in particular if an endovascular approach is not feasible.

Case presentation
A 57-years old woman presented with an acute onset of right upper abdominal pain and was admitted to our hospital with suspected cholecystolithiasis. During the hospitalisation the patient was suddenly found unresponsive due to hypovolemic shock. After successful resuscitation the computed tomography angiography (CTA) of the abdomen revealed a large intrahepatic hematoma with perforation of the liver capsule (Figure 1). As cause of the hematoma several aneurysms of the right hepatic artery were identified (Figure 2).

The morphological pattern of the CTA was suspicious for a segmental arterial mediolysis. Due to the risk of dissection of an additional coeliac trunk aneurysm an interventional endovascular approach was excluded. The patient developed an intra-abdominal compartment and an immediate laparotomy was performed. Three litres of blood were evacuated and the right hepatic artery was ligated to prevent recurrent hemorrhage.

References

Figure 1: CTA of the liver with a large intrahepatic hematoma in segments V and VIII.

Figure 2: The CTA showed multiple aneurysms of the right hepatic artery and the coeliac trunk.

Figure 3: CTA after 6 months showed a small residual hematoma in the liver. Note peripheral arterial blood flow in the right liver most probably due to intra- or extrahepatic collaterals.