Intrahepatic haemorrhage as beginning of polyarteritis nodosa

Clinical History:
A 59-year-old woman was referred to the emergency department complaining of severe abdominal pain in the right upper quadrant. Blood pressure was 90/60 mmHg, pulse 130 bpm, and temperature 37ºC. Laboratory findings revealed haemoglobin 10 g/L and leukocytosis (1.6x10⁹/ L).

Imaging Findings:
A non-enhanced abdominal CT evidenced a heterogeneous intrahepatic mass with hyperdense areas in the right hepatic lobe. Hyperdense free fluid was observed secondary to massive haemoperitoneum. A contrast-enhanced CT performed in early arterial phase showed hepatic extravasation of intravenous contrast media, indicating hepatic bleeding [Fig. 1, 2]. Digital subtraction arteriography was performed using a pigtail catheter positioned in the abdominal aorta. Renal, splenic, and superior mesenteric arteries appeared to be normal [Fig. 3]. The arteriography demonstrated the presence of luminal irregularities in the hepatic arteries and multiple microaneurysms in hepatic artery branches [Fig. 4]. Active contrast extravasation was seen in the right hepatic segment [Fig. 5]. Supraselective catheterization of the right hepatic artery using a microcatheter was performed [Fig. 6]. Selective embolisation of the affected vessels with polyvinyl alcohol particles was practiced successfully. Post-embolisation arteriography showed successful embolization with no further contrast extravasation [Fig. 7].

Discussion:
Polyarteritis nodosa (PAN) is a necrotizing vaculitis that typically affects medium and small-size arteries. It is characterized by multifocal microaneurysm formation and luminal narrowing of the arteries, which can result in vascular rupture and ischaemia [1, 2, 3]. PAN can affect almost any organ. However, most frequently it affects kidneys, skin, peripheral nerves, central nervous system, musculoskeletal system…etc. Gastrointestinal (GI) involvement occurs in 14 to 65% of patients depending on the consulted literature [1, 2]. Most of the patients have non-specific symptoms such as constitutional syndrome, abdominal pain, peripheral neuropathy, arthralgias, myopathy and skin lesions. When GI symptoms are referred, abdominal pain due to ischaemia is the most frequent symptom and small bowel or gallbladder are the most commonly affected organs [1]. Although half of the patients have hepatic artery involvement, spontaneous intrahepatic or perihepatic bleeding is very uncommon and it represents one of the most severe complications [1, 2]. Arteriography is considered the best imaging study to demonstrate abdominal PAN affection. Imaging findings in the
arteriogram are luminal narrowing, mycroaneurisms and artery occlusions, as well as vascular flow disturbance, especially in the kidneys. Mycroaneurysms usually appear in the renal arteries and less frequently in the hepatic, pancreaticoduodenal, mesenteric, cerebral, coronary or musculoskeletal arteries. They are eccentric and saccular and are the most characteristic but not specific lesions. In fact, they can be found in other vasculitic disorders such as systemic erythematous lupus, Churg Strauss, rheumatoid arthritis and Wegener’s disease [1, 3]. Spontaneous intrahepatic haemorrhage in patients affected with PAN is not frequent but some cases have been reported in the medical literature [2, 4, 5, 6].

There are several treatment options reported in the literature. Few cases were treated conservatively [2, 4], others received surgery procedures [2, 4, 5]. Catheter arteriography with embolisation has been used with increasing frequency in the management of ruptured visceral artery aneurysm associated with PAN [4, 5, 6]. We report a patient that presented with haemodynamic shock due to intrahepatic haemorrhage. Arteriographic findings suspected a vasculitic disorder and intraarterial hepatic embolisation with particles resolved the acute bleeding. Histopathology of sural nerve and laboratory tests confirmed PAN diagnosis.

In conclusion, PAN should be considered in the presence of spontaneous hepatic bleeding. Selective arteriography can be used to show vessels anomalies of PAN and the origin of haemorrhage. Percutaneous embolisation is a good option to manage GI haemorrhage in patients affected with PAN.

**Differential Diagnosis List:** Gastronintestinal PAN, Vasculitis, Spontaneous haemorrhage in a hepatic neoplasm, Coagulation disease

**Final Diagnosis:** Gastronintestinal PAN

**References:**


Description: CT obtained in the early arterial phase shows a heterogeneous hepatic mass with intravenous contrast media extravasation, indicating hepatic bleeding. Hyperdense free fluid in the perihepatic and perisplenic spaces indicates haemoperitoneum. Origin: Department of Radiology, Hospital de la Ribera, Valencia, Spain
Figure 2

Description: CT obtained in the early arterial phase shows a heterogeneous hepatic mass with intravenous contrast media extravasation, intracapsular hepatic haematoma and hyperdense free fluid in the perihepatic and right paracolic gutter demonstrating haemoperitoneum. Origin: Department of Radiology, Hospital de la Ribera, Valencia, Spain.
Description: Abdominal arteriogram showing that the renal, splenic, and superior mesenteric arteries were normal. Origin: Department of Radiology, Hospital de la Ribera, Valencia, Spain.
Description: Hepatic arteries with luminal irregularities and multiple mycroaneurysms. Origin: Department of Radiology, Hospital de la Ribera, Valencia, Spain.
Description: Arteriography of the hepatic artery shows intrahepatic arterial branches. Intraarterial contrast media extravasation indicates active bleeding in the right hepatic lobe. Origin: Department of Radiology, Hospital de la Ribera, Valencia, Spain.
Description: Supraselective catheterization of the right hepatic artery using a microcathether demonstrating irregular arterial branches. Origin: Department of Radiology, Hospital de la Ribera, Valencia, Spain.
**Description:** Selective embolisation of the affected vessels with particles was successfully performed. Arteriogram shows arterial embolisation with complete cessation of bleeding. **Origin:** Department of Radiology, Hospital de la Ribera, Valencia, Spain.