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Case Report

CASE REPORT

Coil embolization for intrahepatic haemorrhage following liver biopsy in a patient with hepatitis C virus infection and hepatic microaneurysms

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Abstract

Intrahepatic bleeding secondary to rupture of hepatic microaneurysms is an uncommon clinical entity more frequently associated with polyarteritis nodosa (PAN) or rarely with other vasculitis or autoimmune disease. Hepatic vasculitis is reported in chronic hepatitis C virus (HCV) infection and an association between hepatitis C and PAN is described. The current report presents the case of a middle-aged female patient with a medical history remarkable for HCV infection who underwent a percutaneous liver biopsy, which was complicated by severe intrahepatic and perihepatic haemorrhage. Computed tomography angiography revealed innumerous microaneurysms. She underwent transcatheter angiography and coil embolization of a peripheral branch of the right hepatic artery which controlled the bleeding. Subsequently, she was empirically treated with a course of Prednisolone. Follow-up imaging showed a good response to treatment.

INTRODUCTION

Vasculitis is characterized by arterial inflammation and necrosis and a presentation that varies, depending on the location and size of the affected vessels. Hepatic arteries are not infrequently affected with clinical manifestations that range from lack of symptoms to hepatic steatosis, portal fibrosis or even severe liver disease [1].

Hepatic microaneurysms are seen in a range of diseases, typically in polyarteritis nodosa (PAN), a cause of small- and medium-size-vessel vasculitis. PAN is characterized by inflammation and eventually multifocal segmental necrosis of the muscular layers, ultimately leading to vascular stenosis and aneurysm formation (usually <1 cm) [2, 3]. Aneurysms can rupture, leading to haemobilia, intrahepatic or subcapsular haemorrhage [4]. PAN is frequently associated with hepatitis B virus and much less commonly with hepatitis C virus (HCV) infection, although the percentage of a PAN-type vasculitis in some series is reported as high as 20% of all HCV-related vasculitis and is associated with microaneurysm formation [5]. Hepatic microaneurysms may also be seen in systemic lupus erythematosus (SLE) and catastrophic bleeding may in fact occur as a consequence [6]. In the differential diagnosis of liver microaneurysms, one should also include granulomatosis with polyangiitis (GPA), formerly known as Wegener granulomatosis, although this is rare [7].

This case reports a patient with HCV infection who, following percutaneous liver biopsy, required coil embolization for significant peri- and intra-hepatic haemorrhage; the significant bleeding was due to the presence of previously unknown, multiple hepatic microaneurysms that were inadvertently punctured.

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A 63-year-old Afro-Caribbean female patient was electively admitted to The London Clinic in London, UK for a liver biopsy prior to starting anti-viral treatment for recently diagnosed HCV infection. Liver assessment with non-invasive means had previously failed, as transient elastography produced inconsistent results. Her past medical history was remarkable for B cell lymphoma and cholecystectomy. She was a non-smoker and denied any alcohol consumption. She was not taking regular medications. She was incidentally diagnosed with HCV infection while managed for the lymphoma and subsequently she was referred for further management. Viral load at that point in time was 1.5×10^6 IU/ml.

A single pass 18-gauge ultrasound guided percutaneous liver biopsy was carried out and tissue was taken from the right lobe; the procedure was well-tolerated. Later during the day, she reported severe right upper quadrant abdominal pain radiating to the right shoulder, with associated nausea and vomiting. An abdominal ultrasound was carried out and a large right perihepatic haematoma and a moderate-sized haematoma within the right liver extending centrally were shown. There was a gradual fall in haemoglobin from 129 g/dl on admission to 111 g/dl after the biopsy and 106, 87 and 67 on Days 2, 3 and 4 after the biopsy respectively. She remained haemodynamically stable and packed red cells were transfused. A repeat ultrasound showed stable appearance of the haematoma and a trace of free fluid in her abdomen. CT angiography two days after the biopsy demonstrated innumerable tiny (1–2 mm) predominantly peripheral and subcapsular microneurysms (Fig. 1A). Subsequently, the coeliac axis and hepatic artery were catheterized and digital subtraction angiography confirmed the presence of the microaneurysms (Fig. 1B). Co-axial microcatheter technique was used to interrogate the right hepatic artery branches; the branch that was clearly bleeding was embolized with coils (Fig. 1C). The appearance of the microaneurysms was resembling that seen in PAN [3–5].

Following rheumatology assessment, serum autoantibodies, including perinuclear and cytoplasmic anti-neutrophil cytoplasmic antibodies, were tested and only weakly positive antinuclear antibodies were demonstrated (titre 1:160); cryoglobulins, rheumatoid factor and anti-citrullinated protein antibody were also negative; immunoglobulins were within normal range. No skin lesions were detectable on clinical examination. With the presumption of hepatic vasculitis, she was empirically commenced on Prednisolone 30 mg daily as per the rheumatologist's recommendation. Recovery was uneventful and the patient was discharged a week later. Follow-up at 3 months showed a predictable change in the ultrasound appearance of the communicating intrahepatic and subcapsular haematoma, typical of an organizing haematoma (Fig. 1D). Prednisolone was gradually reduced and eventually discontinued. She continued with her management overseas, where she was scheduled to receive anti-viral treatment with direct-acting antivirals (DAAs). She also had follow-up cross-sectional imaging at 6 and 12 months after the haemorrhage, and reportedly no microaneurysms were seen.

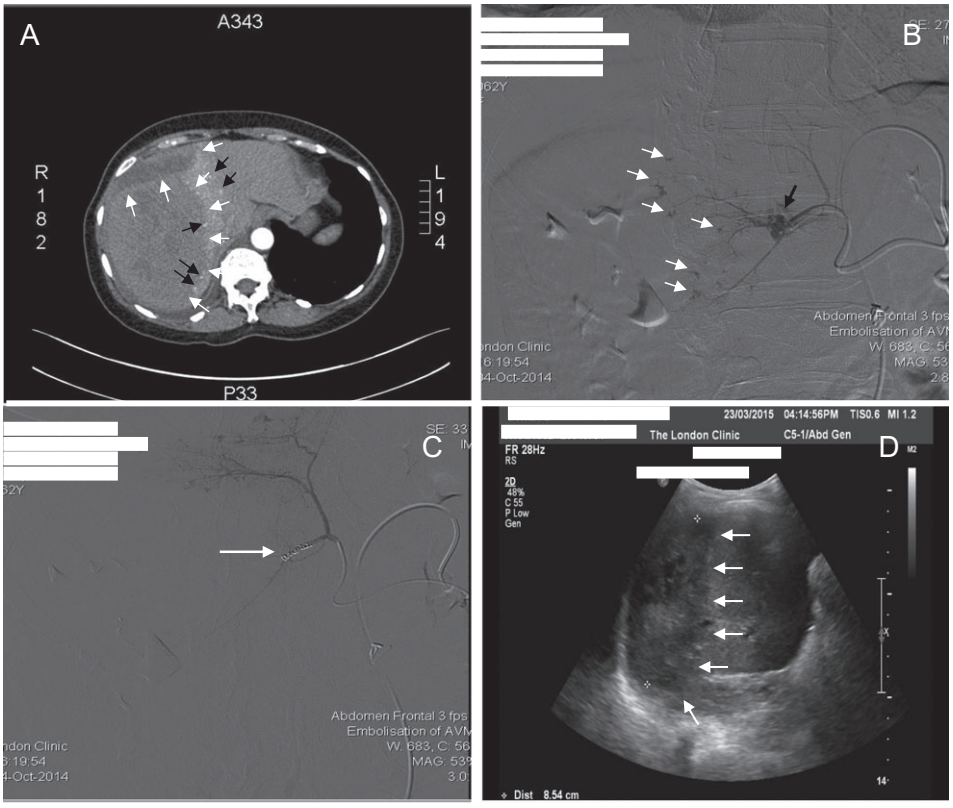

Figure 1: (**A**) Abdominal CT scan with intravenous contrast demonstrating the large haematoma (white arrows) and multiple microaneurysms (black arrows). (**B**) Catheter angiography showing multiple microaneurysms (white arrows) and contrast agent extravasation at a branch of the right hepatic artery (black arrow). (**C**) Coil embolization of the actively bleeding vessel (white arrow). (**D**) Follow-up ultrasound after 3 months showing an organized haematoma (white arrows).

DISCUSSION

Although more typical of PAN, microaneurysms may also occur in SLE, GPA and others [3, 6–8]. HCV infection is known to be associated with PAN, as does with cryoglobulinaemia, but to the best of our knowledge presentation like this one is not described in the literature [5, 9].

A diagnosis of PAN, or other vasculitis or autoimmune disease should be based on a combination of clinical, laboratory or radiological evidence. In particular, the criteria of the American College of Rheumatology (ACR) for the classification of PAN comprise clinical, laboratory, angiographic and histological criteria and 3/10 are required to be met [9]. The patient of this report did not have any extrahepatic manifestations, or other features to establish a firm diagnosis of PAN, or other vasculitis. In fact, only 1/10 ACR criteria were met. Interestingly, the liver biopsy did not contribute to the diagnosis either, and provided histopathological evidence of HCV infection and did not show fibrosis.

In this patient however, initiation of oral corticosteroids resulted in significant improvement on radiology, as well as clinical and laboratory amelioration. Further CT examinations some months later, once intrahepatic collection had completely cleared, showed resolution of the microaneurysms, which would favour an autoimmune or vasculitic process.

In conclusion, it is worth emphasizing that without the inadvertent puncture during the liver biopsy, the patient would have remained unaware of the presence of the microaneurysms and the likely underlying diagnosis of autoimmune disease or vasculitis, probably PAN, considering the association between PAN and HCV infection. Although not very common, PAN, GPA and SLE may present with haemorrhage secondary to the presence of hepatic microaneurysms. Additionally, one should consider that the presence of microaneurysms in the liver may be a risk factor for bleeding following liver biopsy. Lastly, it appears reasonable to treat patients with hepatic vasculitis, that present with haemorrhage post liver biopsy, with conventional angiography and embolization.

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CONFLICT OF INTEREST STATEMENT

Dr Apostolos Koffas, Professor John Karani and Professor Roger Williams OBE declare none. The study was reviewed and approved by the Institutional Review Board of the Institute of Hepatology, Foundation for Liver Research and of The London Clinic. Case report participants provided informed consent to publish this case report prior to their inclusion in the report. The authors, to be stated in the manuscript, accept full responsibility for the work, had access to the data, and controlled the decision to publish.

REFERENCES

1. Youssef WI, Tavill AS. Connective tissue diseases and the liver. *J Clin Gastroenterol* 2002;**35**:345–9.
2. Bonsib SM. Polyarteritis nodosa. *Semin Diagn Pathol* 2001;**18**: 14–23.
3. Stanson AW, Friese JL, Johnson CM, McKusick MA, Breen JF, Sabater EA, *et al.* Polyarteritis nodosa: spectrum of angiographic findings. *Radiographics* 2001;**21**:151–9.
4. Yazici Z, Savci G, Parlak M, Tuncel E. Polyarteritis nodosa presenting with hemobilia and intestinal hemorrhage. *Eur Radiol* 1997;**7**:1059–61.
5. Saadoun D, Terrier B, Semoun O, Sene D, Maisonobe T, Musset L, *et al.* Virus–associated polyarteritis nodosa. *Arthritis Care Res* 2011;**63**:427–35.
6. Paronetto F, Deppisch L, Tuchman LR. Lupus erythematosus with fatal hemorrhage into the liver and lesions resembling those of periarteritis nodosa and malignant hypertension. *Am J Med* 1964;**36**:948–55.
7. Arlet JB, Le Thi Huong D, Marinho A, Cluzel P, Wechsler B, Piette JC. A rterial aneurysms in Wegener's granulomatosis: case report and literature review. *Semin Arthritis Rheum* 2008; **37**:265–8.
8. Ha HK, Lee SH, Rha SE, Kim JH, Byun JY, Lim HK, *et al.* Radiologic features of vasculitis involving the gastrointestinal tract. *Radiographics* 2000;**20**:779–94.
9. Hernández-Rodríguez J, Alba MA, Prieto-González S, Cid MC. Diagnosis and classification of polyarteritis nodosa. *J Autoimmun* 2014;**48–49**:84–9.