A rare cause of an abdominal mass

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Abstract A 57-year-old male presented with right upper abdominal lump since 3 months. He was diagnosed to have a hepatic artery aneurysm. He was investigated thoroughly but no cause was found. He was subjected to endovascular embolisation of the aneurysm using endovascular coils. Subsequently the aneurysm was completely occluded. Hepatic artery aneurysms are very rare among all visceral aneurysms. We report this rare case of hepatic artery aneurysm presenting as an abdominal lump. This case highlights the importance of early diagnosis and management of this rare entity as a rupture may be catastrophic.

Keywords Hepatic artery aneurysm · Abdominal lump · Surgical excision · Endovascular embolisation

Introduction

Hepatic artery aneurysm (HAA) is a rare clinical and pathological entity and represents 20% of all visceral aneurysms. [1, 2]. Although the condition is most frequently discovered as an incidental finding at autopsy, awareness of this condition is important as there is a high probability of these aneurysms rupturing and presenting as acute abdomen.

Various clinical presentations have been reported; the classical triad of hemobilia, obstructive jaundice and abdominal pain (Quincke's triad) is reported only in 30% of cases. The review of literature showed little reference regarding HAA presenting as an abdominal lump [3].

Here we present a case of a 57-year-old male with a true HAA presenting as an asymptomatic abdominal lump. A brief overview of the management of the hepatic artery aneurysm is included.

Case report

A 57-year-old previously fit retired Sikh railway employee was admitted with complaints of an asymptomatic incidentally noticed gradually increasing lump in the right upper abdomen since 3 months. On inquiry the patient had no other complaints. He had normal vital parameters and general examination was unremarkable. On abdominal examination a visible lump of $7 \times 6 \text{ cm}^2$ was seen in the right hypochondrium 2 cm below the costal margin, in the mid-clavicular line. The intraabdominal well-demarcated lump, was nontender, not pulsatile and without any movements on respiration (Fig. 1).

Patient underwent an ultrasonography of the abdomen, followed by a Duplex Scan and MR angiography, which revealed a $8.9 \times 7.7 \text{ cm}^2$ fusiform aneurysmal dilatation

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of the common hepatic artery with a luminal thrombus of $5.8 \times 3.0 \text{ cm}^2$. Rest of the abdomen appeared normal on imaging (Fig. 2).

His routine blood examinations were within normal limits including his lipid profile. His ANA, Anti dsDNA and pANCA values were within normal limits.

He underwent a Digital Subtraction Angiography (DSA) along with coil embolisation of the aneurysm. A completion DSA revealed complete occlusion of the aneurysm (Figs. 3–5).

On six months follow up the patient was asymptomatic with minimal reduction in the size of the lump. A CT angiogram revealed complete occlusion of the aneurysm with the coils in place.

Fig. 1 Hepatic artery aneurysm presenting as an abdominal lump

Fig. 2 Fusiform hepatic artery aneurysm on CT Angiography

Fig. 3 HAA seen on DSA

Fig. 4 Coil embolisation of HAA

Fig. 5 Post coil embolisation showing complete occlusion of HAA on DSA

Discussion

HAA was first reported at an autopsy in 1809 [1]. It is the fourth most common site of intraabdominal aneurysm due to any cause following infrarenal aorta, iliac and splenic arteries [1]. True HAA's are rare; 80% are extra hepatic, of which 63% affect the common hepatic artery [4], 5% the left hepatic artery and 4% the left and the right hepatic arteries; lesions being single or multiple [1, 2]. Usually men are affected (65 % cases); the average age of presentation being 38 years.

The commonest cause today is probably atherosclerosis. Other causes include congenital [5], iatrogenic (hepatic artery catheterization, hepatic tumor embolisation, anastomotic complication of orthotopic liver transplantation) [2], arterial medial degeneration, fibromuscular dysplasia, arteritis, collagen vascular disease, infections [6] and periarterial inflammation caused by cholecystitis or pancreatitis and rarely by narcotizing vasculitides [2, 7, 8].

Patients usually present with complaints of abdominal pain and rarely gastrointestinal hemorrhage or obstructive jaundice. On examination abdominal bruit or pulsatile mass may be found. HAA's have a high rupture rate (44%) and a mortality rate as high as 82% [9]. The size of the HAA does not seem to correspond to the likelihood of rupture.

The preoperative diagnosis is often difficult, as most patients have no symptoms till the aneurysm ruptures. However, in cases, which present early, USG Colour Doppler and CT scan studies are useful, but angiography remains the gold standard for diagnosis. MR angiogram would show the aneurysm, but the artery of origin may not be clear.

All HAA's should be considered for treatment but, it was suggested that HAA < 2cm may be observed while > 5cm should be treated definitively [10]. Treatment of an aneurysm depends on its location and the regional vascular anatomy. Embolisation is the accepted line of management for intrahepatic aneurysms [11, 12]. Aneurysms of the common hepatic artery (CHA) distal to the gastroduodenal artery (GDA) require excision and reconstruction with autologous conduit [13]. CHA (pre GDA) aneurysms can be safely treated by ligation and excision, aneurysmectomy without arterial reconstruction or embolisation. The type of aneurysm also has an important role in deciding the management. Saccular aneurysm requires aneurysmorrhaphy or patch angioplasty, whereas true aneurysms may require ligation and/or reconstruction of the hepatic artery [2]. Giant HAA's may be managed either by surgery or embolisation, unless, bilioenteric bypass is to be created to resolve jaundice or to restore blood supply to the ischaemic liver [14].

Conclusion

HAA's are rare but important to bear in mind as they might present as life threatening acute abdomen, on rupture. Therefore, various clinical manifestations including an abdominal lump, as in this case, must be borne in mind and investigated thoroughly and if treated in time can significantly decrease the morbidity and mortality.

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