

CASE REPORT

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A common hepatic artery aneurysm at the extremes of size

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ABSTRACT

Introduction: Visceral artery aneurysms are rare, but are associated with significant morbidity and mortality, especially in the case of rupture. Diagnosis is often incidental on abdominal imaging; however, uncertainty may exist about appropriate management and referral due to their relative infrequency. There are a number of operative approaches for repair that should be considered individually for each patient. **Case Report:** We present the case of an 87-year-old man with an extremely large, symptomatic common hepatic artery aneurysm, found as part of an admission for unrelated cervical discitis. The aneurysm had previously been discovered on abdominal imaging, but referral to a vascular service was not made. Active medical conditions and poor renal function prevented open surgical repair or endovascular coiling, and the patient was managed conservatively, without further treatment. **Conclusion:** Prompt referral to a vascular service is important in patients found to have visceral artery aneurysms, especially at the extremes of size. Visceral artery aneurysms can grow to be very large, and present significant risk for rupture, with associated morbidity and mortality.

Keywords: Aneurysm, Common hepatic artery aneurysm, Visceral artery aneurysm

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INTRODUCTION

Visceral artery aneurysms are a rare cause for abdominal pain and require prompt referral to a vascular surgeon for review, as rupture is associated with significant morbidity and mortality [1]. We present a case of an 87-year-old man with an extremely large aneurysmal dilation of the common hepatic artery, which was missed on prior radiologic examination, and discuss the various management options for common hepatic artery aneurysms.

CASE REPORT

An 87-year-old male was transferred to our tertiary center for management of sepsis secondary to cervical discitis with intravenous antibiotics. He was an ex-smoker, with type two diabetes, heart failure with cardiomyopathy, chronic obstructive pulmonary disease, and stage 4 chronic kidney disease. On arrival he had a short episode of acute abdominal pain without radiation and was hemodynamically stable. He had a diffusely tender abdomen with no other remarkable clinical findings. Laboratory investigations revealed an elevated white cell count of 19.9×10^9 g/L, a macrocytic anemia with a hemoglobin of 121 mg/dL, and a creatinine of 323 μ mol/L in keeping with an acute on chronic kidney injury.

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The patient was sent for abdominal computed tomography (CT), which revealed a 62 × 54 mm aneurysm originating at the common hepatic artery (CHA) bifurcation, with involvement of the gastroduodenal artery (Figures 1 and 2), which was felt to be the cause of the patient's abdominal pain. There was no evidence of aneurysm rupture or features of an inflammatory or infective process. Retrospective review of abdominal imaging 2-years prior to presentation revealed that the aneurysm had grown significantly from 42 × 37 mm. He had not previously been referred to a vascular unit for opinion.

Extensive discussion was regarding management of the aneurysm, with consideration for both open repair

and endovascular coiling. The patient was not fit for open surgery due to advanced age and multiple active medical problems, and was not a candidate for dialysis, precluding an endovascular approach.

The patient was discharged to a high-level care nursing home and managed expectantly, without further vascular follow-up.

DISCUSSION

Visceral artery aneurysms are an uncommon but potentially fatal condition and require urgent diagnostic evaluation and vascular surgery consultation. When rupture occurs mortality rate can be between 25% and 70%, hence timely referral to a vascular unit for evaluation and management is essential [1]. Common hepatic artery aneurysms are responsible for approximately 20% of visceral artery aneurysms [2].

Risk factors for CHA aneurysms include atherosclerosis, hypertension, coeliac axis stenosis, and a multitude of connective tissue disorders [3]. Pseudoaneurysm formation is most commonly caused by inflammation or trauma, such as in pancreatitis, prior vascular intervention, or hepatobiliary surgery [4]. Specific risk factors for CHA aneurysm rupture are yet to be established, and there is no clear association between size and rupture risk [5].

Diagnosis prior to rupture of CHA aneurysms is often incidental through abdominal imaging. Ruptured aneurysms commonly present with abdominal pain, accompanied by nonspecific gastrointestinal symptoms, such as vomiting, diarrhea, hematemesis, and melena [3]. Diagnosis can be confirmed with visceral angiography, CT, magnetic resonance imaging angiography, and ultrasonography [6, 7]. Visceral angiography is the gold-standard for diagnosis offers, the potential for therapeutic intervention, however CT is often the initial mode of investigation, as it is noninvasive and gives 3D representation of the aneurysm and its relationship to surrounding structures.

Common hepatic artery aneurysms can be managed surgically, endovascularly, or conservatively. Intervention is indicated for symptomatic aneurysm, pseudoaneurysm, and aneurysms greater than 2 cm in size [3]. Open surgical access is commonly through midline laparotomy, with aneurysm repair with or without patch angioplasty or ligation of the aneurysm with or without bypass. Limited case series have shown endovascular repair to be a safe alternative to open surgery, especially in patients unfit for open repair [8].

CONCLUSION

This case report describes a CHA aneurysm at the extremes of size. Common hepatic artery aneurysms are rare, with description limited to case reports and small

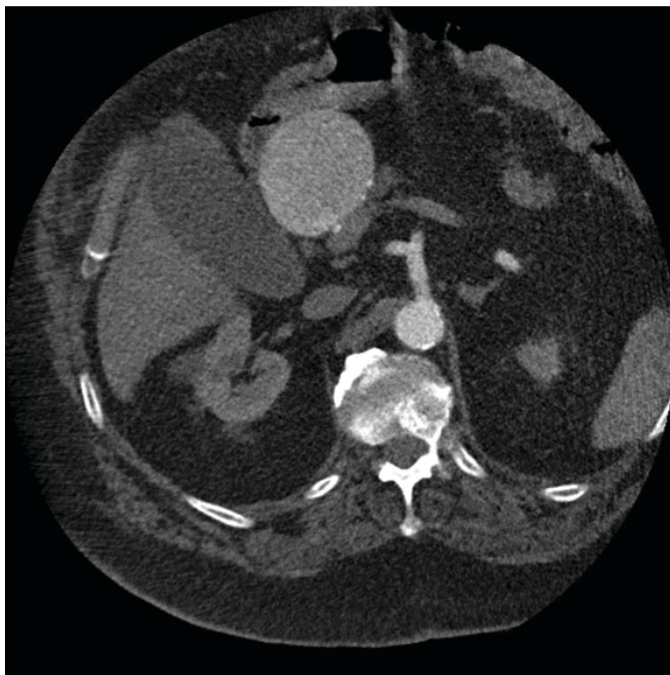


Figure 1: Axial abdominal CT at the level of the origin of the coeliac artery and large common hepatic artery aneurysm.

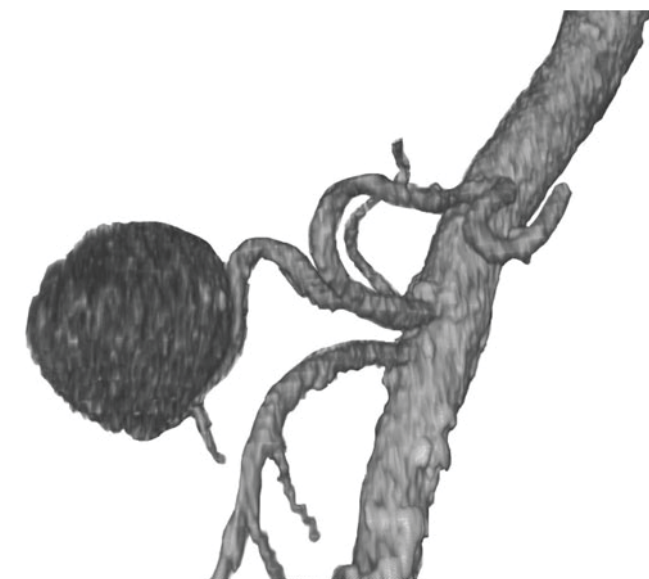


Figure 2: 3D reconstruction demonstrating the common hepatic artery aneurysm and the abdominal aorta.

retrospective cohort studies. It is important for clinicians to realize the significance of visceral artery aneurysms and the potential for timely lifesaving intervention. Due to the relative rarity of visceral artery aneurysms, under-recognition may result in delay to diagnosis, surgical referral, and management.

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Author Contributions

Daniel Thompson – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Riteesh Bookun – Acquisition of data, Analysis of data, Revising the work critically for important intellectual content, Final approval of the version to be published,

Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Sophie Cerutti – Design of the work, Interpretation of data, Drafting the work, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

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Conflict of Interest

Authors declare no conflict of interest.

Data Availability

All relevant data are within the paper and its Supporting Information files.

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