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(CASE REPORT)

Incidental saccular aneurysm of the celiac trunk: A rare cause of abdominal pain

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Abstract

Celiac artery aneurysms (CAAs) are rare vascular anomalies, often discovered incidentally or during the evaluation of non-specific abdominal symptoms. Despite their rarity, they are clinically significant due to the risk of rupture, which can be life-threatening. We report the case of a 58-year-old woman who presented with progressive abdominal pain. Contrast-enhanced computed tomography (CT) of the abdomen revealed a well-defined saccular aneurysm involving the celiac trunk. The aneurysm demonstrated contrast opacification and was clearly delineated from adjacent structures. No signs of rupture or surrounding inflammation were identified. This case illustrates the key role of cross-sectional imaging—particularly CT angiography—in the detection, characterization, and assessment of visceral artery aneurysms. It also reinforces the need for radiologists and clinicians to include vascular etiologies in the differential diagnosis of abdominal pain, especially in patients without clear gastrointestinal or gynecologic causes.

Keywords: Celiac trunk aneurysm; Visceral artery aneurysm; Abdominal pain; Computed tomography; Endovascular treatment

1. Introduction

Visceral artery aneurysms (VAAs) are uncommon, with an estimated incidence of 0.01–0.2% in the general population [1]. Among them, celiac artery aneurysms (CAAs) represent a small subset, accounting for approximately 4–30% of VAAs [2,3]. Although often asymptomatic and incidentally discovered, CAAs are clinically relevant due to their risk of rupture, particularly in lesions exceeding 2 cm [4]. The increasing availability of high-resolution cross-sectional imaging has contributed to a rise in incidental detection. However, given their rarity, the natural history and optimal management strategies remain poorly defined. We report the case of a partially thrombosed, calcified saccular aneurysm of the celiac trunk incidentally discovered in a symptomatic patient, and we review the relevant literature.

2. Case Presentation

A 58-year-old woman with no significant past medical history presented to the emergency department with vague epigastric and left upper quadrant abdominal pain persisting for several days. She denied any history of trauma, gastrointestinal bleeding, or weight loss. Physical examination was unremarkable, and vital signs were stable.

Laboratory investigations, including complete blood count, liver function tests, and inflammatory markers, were within normal limits.

An abdominopelvic contrast-enhanced computed tomography (CT) scan was performed to evaluate the cause of her symptoms. Imaging revealed a well-defined saccular aneurysm arising from the origin of the celiac trunk. The aneurysmal sac was partially opacified by contrast, with evidence of mural thrombus and peripheral wall calcifications.

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No signs of rupture, perivascular hematoma, or surrounding inflammatory changes were noted. The hepatic, splenic, and left gastric arteries originated normally from the celiac trunk and showed no signs of dissection or distal stenosis. No additional vascular anomalies or abdominal organ abnormalities were identified. These findings led to the diagnosis of an isolated saccular aneurysm of the celiac trunk.

Given the aneurysm's size and morphology, a vascular surgery consultation was obtained.

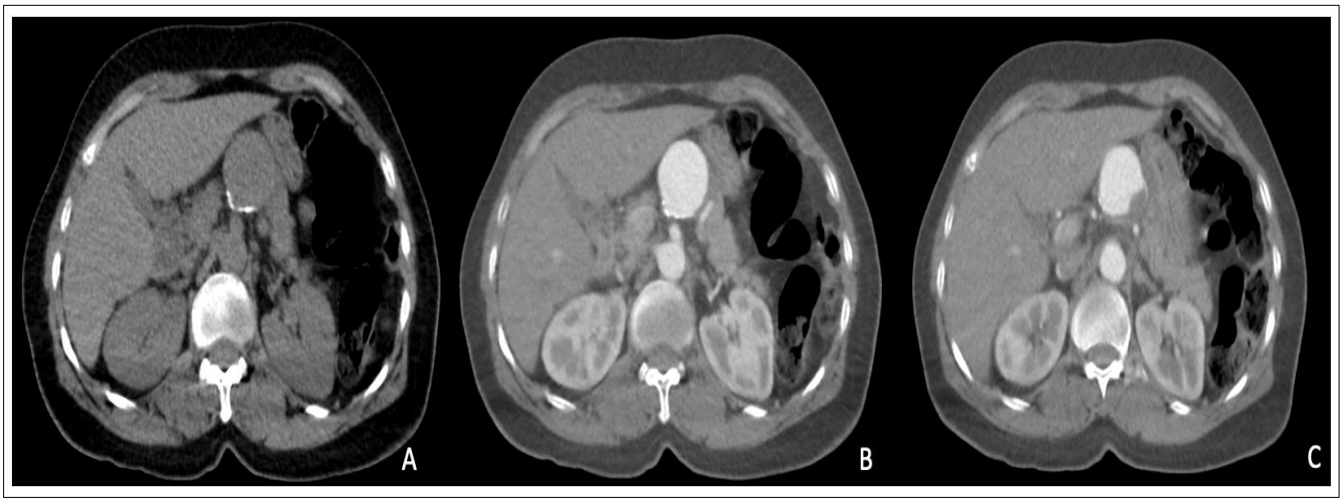

Figure 1 Axial abdominal CT images illustrating a saccular aneurysm of the celiac trunk.
(A) Non-contrast axial image showing peripheral wall calcifications of the aneurysmal sac.
(B, C) Arterial-phase contrast-enhanced axial images demonstrating partial opacification of the aneurysm, with visualization of a marginal mural thrombus

Figure 2 Sagittal contrast-enhanced CT images (B : MIP reconstruction) showing a saccular aneurysm of the celiac trunk. The aneurysm exhibits peripheral wall calcifications. The MIP reconstruction (B) enhances the visualization of the aneurysmal morphology and its relationship to the caeliac trunk (arrow)

3. Discussion

Celiac artery aneurysms are rare but potentially fatal lesions, with rupture rates reaching up to 40% in some reports [2,5]. They are more frequently diagnosed today due to the routine use of CT and MR angiography. Most CAAs remain asymptomatic and are found incidentally during imaging performed for unrelated complaints [6].

When symptoms do occur, they are usually vague and nonspecific, such as upper abdominal pain, nausea, or postprandial discomfort [7]. In our case, the patient presented with mild persistent pain, prompting imaging and eventual diagnosis. The imaging features—including saccular morphology, mural thrombus, and wall calcifications—are typical of degenerative aneurysms, most commonly attributed to atherosclerosis [3,8]. Other causes include trauma, vasculitis, fibromuscular dysplasia, and genetic connective tissue disorders like Marfan or Ehlers-Danlos syndromes [9].

The risk of rupture correlates with the size and morphology of the aneurysm. Although early surgical literature suggested treatment at a threshold of 2 cm, current recommendations favor a more individualized approach, balancing the aneurysm's characteristics with patient-specific factors [4,10]. Symptomatic aneurysms, or those exceeding 25 mm in diameter, generally warrant close follow-up or intervention [1].

Cross-sectional imaging plays an essential role not only in diagnosis but also in monitoring the aneurysm's evolution and detecting complications such as expansion, thrombosis, or leak [11].

While treatment options such as open surgical repair or endovascular management (e.g., coiling, stent-grafts) are available and have shown favorable outcomes in selected cases [12], not all aneurysms require immediate intervention. The decision must be guided by multidisciplinary evaluation, availability of expertise, and patient preference

4. Conclusion

This case illustrates the importance of including vascular causes—such as celiac trunk aneurysms—in the differential diagnosis of abdominal pain. Though rare, CAAs can pose significant clinical risks if not recognized early. Cross-sectional imaging is fundamental for diagnosis, characterization, and follow-up. In asymptomatic or stable cases, conservative management with regular imaging may be appropriate, while selected cases may benefit from endovascular or surgical intervention depending on the clinical context.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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