

Celiac Artery Aneurysm- A Rare Case Report

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Abstract: Aneurysm of the celiac artery is an uncommon clinical problem; fewer than 180 cases have been reported in the world medical literature. Although the rate of rupture was 72% to 87% during the 1st half of the 20th century,¹ advances in diagnostic imaging and early surgical intervention have reduced the rupture rate to 7% in recent years.² Most celiac aneurysms are asymptomatic or present with vague epigastric pain prior to rupture, preoperative diagnosis is infrequent and is usually made incidentally during unrelated surgery or angiography. Early recognition and intervention are crucial, because the operative mortality rate associated with ruptured celiac artery aneurysms is 40% compared with only 5% for non-ruptured aneurysms. We present the case of a 56-year-old woman who had an asymptomatic celiac artery aneurysm detected by ultrasonography and computed tomography angiography.

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I. Case Report

A 56-yr-old woman presented to her primary care physician with a 6 month history of occasional nausea and vague abdominal discomfort, without associated pain, weight loss, or vomiting. Physical examination shows palpable mass in the epigastric region. An ultrasound examination performed at our institution reportedly showed a 4.8 cm cystic mass structure in the epigastric region (fig1). It was highly vascular on color flow (fig2) and on Doppler arterial waveform was noted (fig3). The head, body and tail of pancreas appears normal.

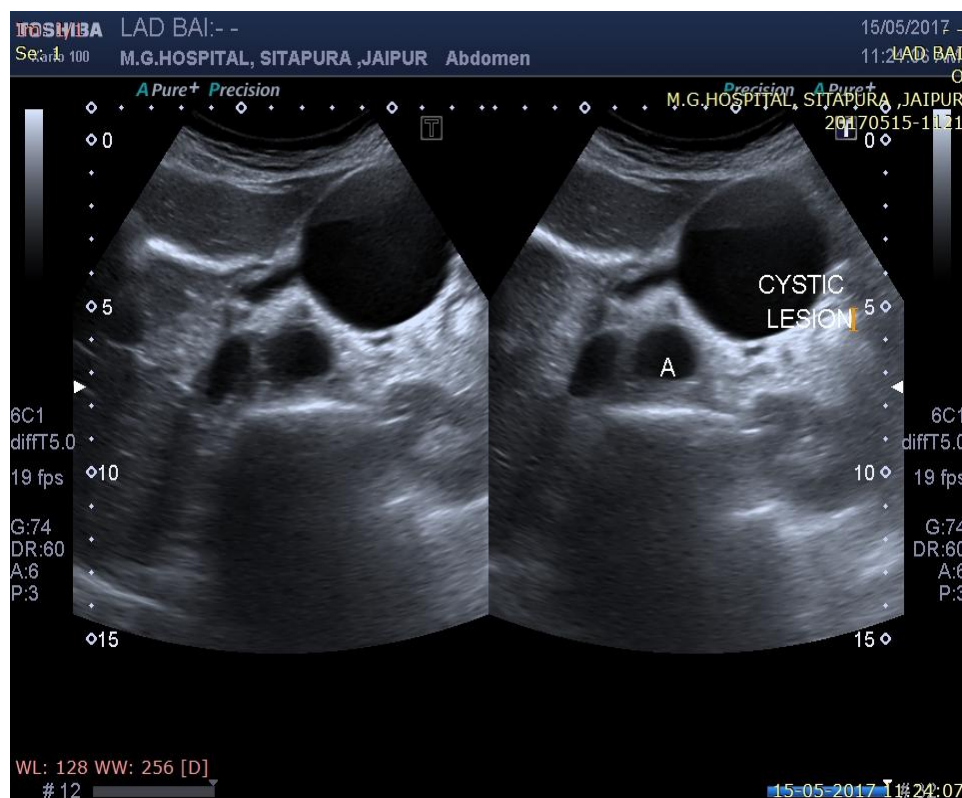


Figure 1. Transverse midline scan shows A cystic lesion in epigastric region. Aorta and neighbouring vessels are seen. The liver and visualised part of pancreas appear normal.

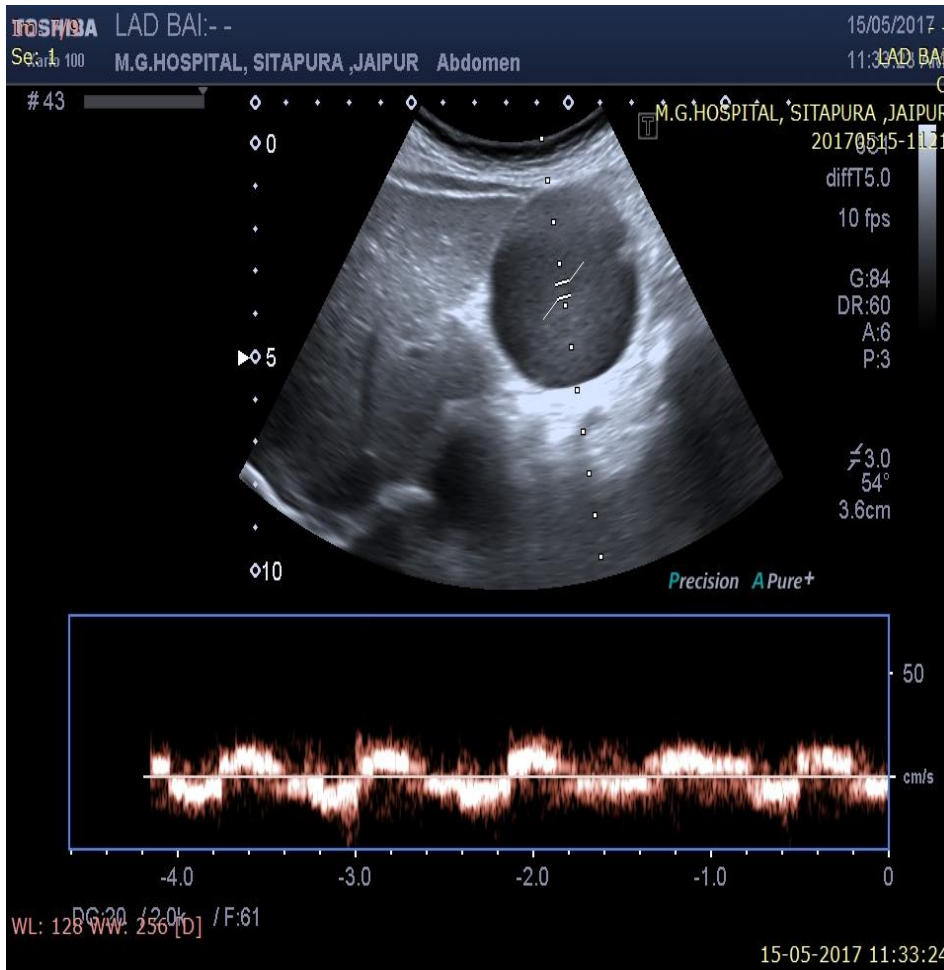
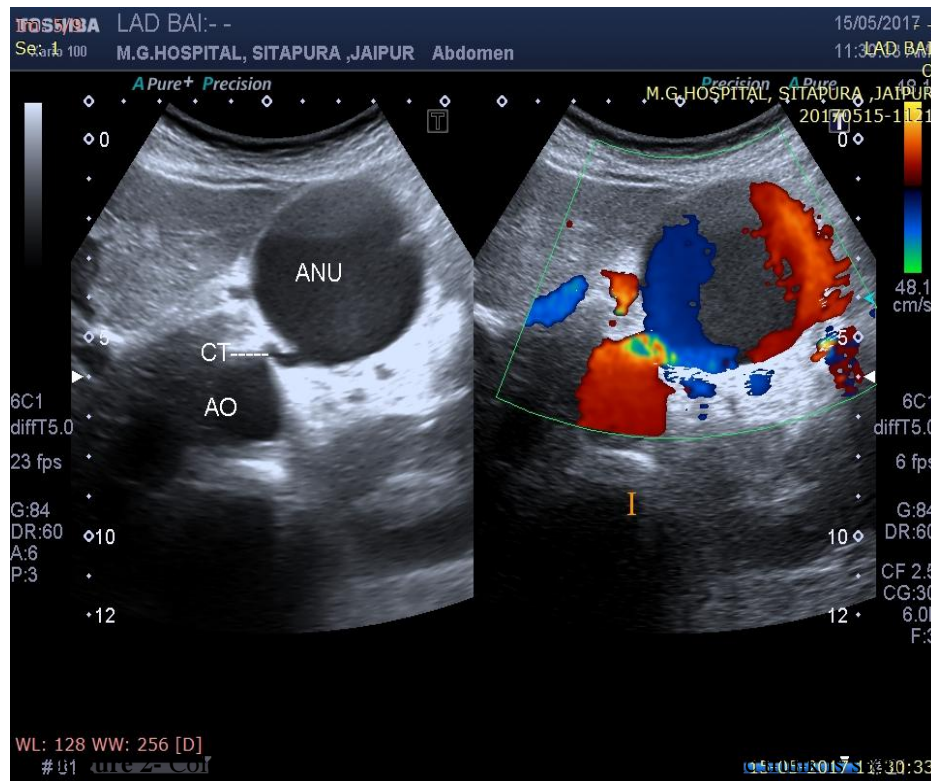


Figure 3- on color Doppler arterial waveform is noted in the lesion.

Following this patient was referred for computed tomography angiography abdomen and it showed a large saccular aneurysm of 50x49x42 mm is seen at the trifurcation of celiac artery, 14mm distal to the origin of celiac artery(fig4-6). The lesion shows intraluminal thrombus. No peritoneal spillage of contrast is seen. The common hepatic artery, splenic artery and left gastric artery appears normal.

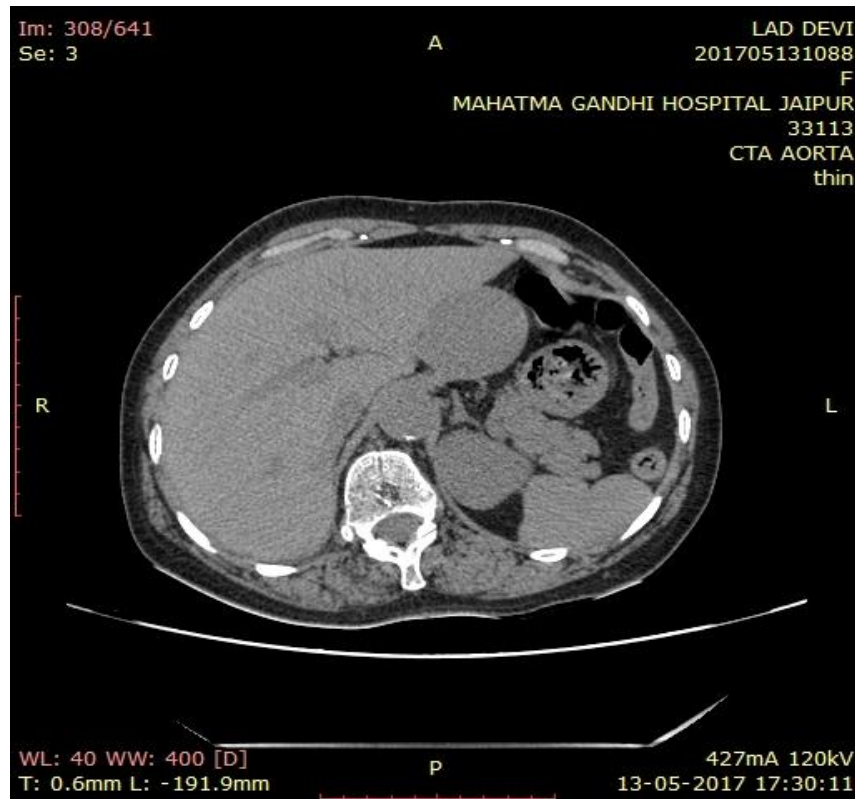
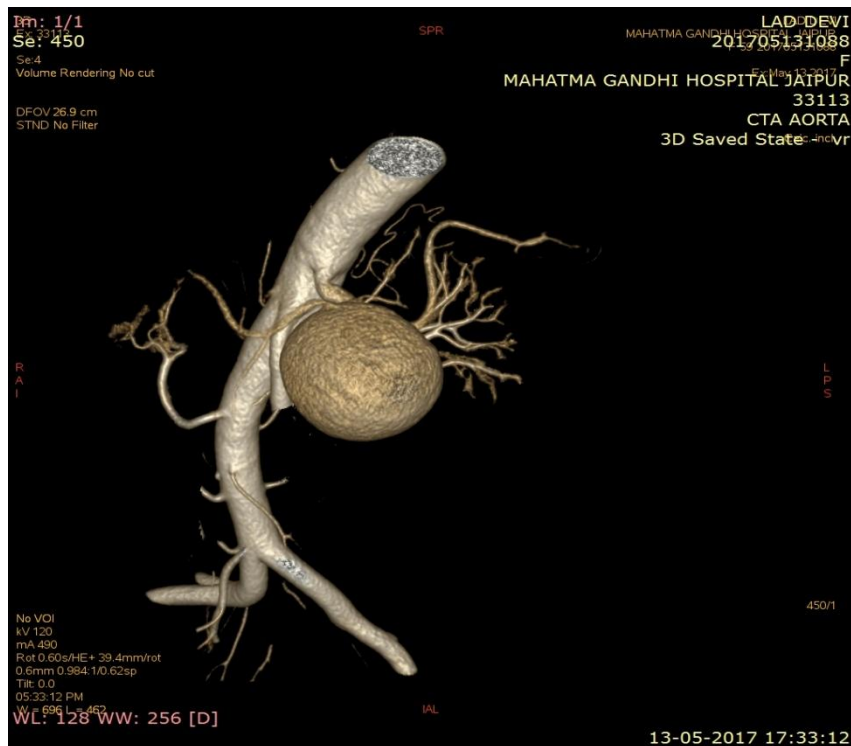


Figure 4-On plain CT a large hypodense lesion is seen seems to be arising from aorta or one of its branches.



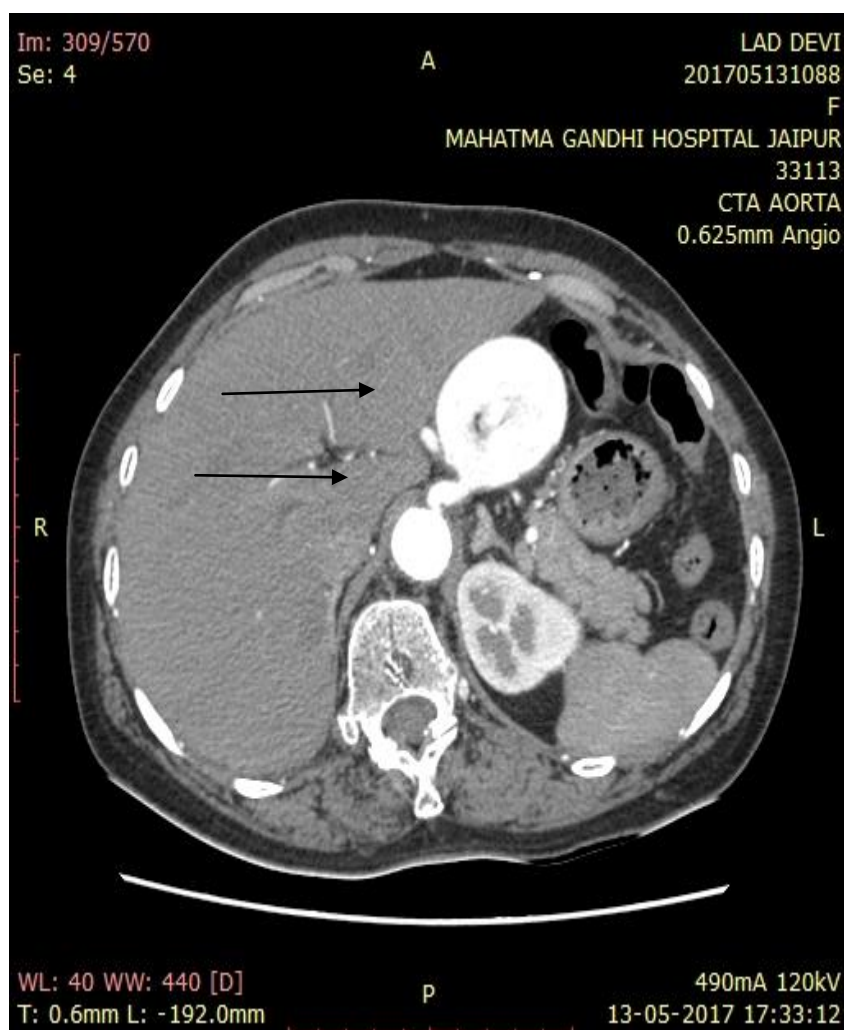


Figure6-on CT ABDOMEN angiography - A large aneurysm arising from the celiac trunk is seen. The lesion shows intraluminal thrombus. Aorta appears normal. The common hepatic artery, splenic artery and left gastric artery appears normal.

II. Discussion

Celiac artery aneurysms account for 4%¹⁰ of splanchnic aneurysmal disease,^{3,4} and a total of 180 cases has been reported in the world literature. The estimated incidence of celiac artery aneurysms ranges from 0.005% to 0.01%.^{5,6} The anomaly was first described in 1745⁷. Before 1950, 92% of patients presented with epigastric pain, and 72% to 87% died of aneurysmal rupture. The diagnosis was most frequently made at autopsy. Between 1950 and 1984, 22% of patients were asymptomatic at the time of diagnosis. Only 13% experienced aneurysmal rupture; approximately half of these patients died. The operative mortality was 9.3% in those patients who underwent surgery (90%). During this period, celiac artery aneurysm was most frequently diagnosed by arteriography (65%).¹ More recently (1985–1995), 69% of patients presented with abdominal pain, just 7% presented with rupture, and 14% were asymptomatic. The overall mortality rate was 14%. Surgical or endovascular intervention was performed in 90% of patients. Eighty-six percent of aneurysms were detected by angiography, whereas only 7% were diagnosed at autopsy.² During the 1st half of the century, the mean age at diagnosis was 39.7 years, men outnumbered women 9:1, and syphilis was the apparent cause in 31% of cases.¹ Since that time, the mean age at diagnosis has increased to 53.7 years and women constitute 44% of those affected, perhaps reflecting a paucity in luetic infections.^{1,2}

Rupture of celiac artery aneurysms is associated with significant clinical morbidity and mortality rates. On the basis of abdominal aortic aneurysm data, Rokke and colleagues found that the risk of celiac artery aneurysm rupture can range from 5% for aneurysms that are from 15 to 22 mm in diameter to 50% to 70% for aneurysms with a diameter of more than 32 mm.⁸ Early recognition and accurate characterization of this vascular anomaly is essential, because the operative mortality rate increases from approximately 5% to 40% when the aneurysm has ruptured at the time of surgical intervention.^{1,4}

Because celiac artery aneurysms can be asymptomatic or, more frequently, produce only vague abdominal discomfort, some patients may not present until the occurrence of aneurysmal rupture. The aneurysm may rupture into the peritoneal cavity, retroperitoneum, or thorax.⁹ Intraabdominal rupture may initially be contained within the lesser sac, with subsequent free rupture into the peritoneal cavity, which produces the classic “double rupture” phenomenon. There have also been reports of celiac artery aneurysm dissection with resulting end-organ infarction.^{12,13} Unusual presentations of celiac artery aneurysms include extrinsic compression of the pancreatic duct, palpable mass,¹³ bleeding gastric varices as a result of splenic vein compression, and hepatic and portal obstruction as a result of extrinsic compression.

The 1st successful resection of a visceral artery aneurysm was reported by Cooley and DeBakey in 1953,¹⁴ and the 1st successful surgical treatment of a celiac aneurysm was reported by Shumacker in 1958.¹⁵ Since that time, surgery has been performed in most cases. A variety of techniques have been successful, including aneurysmorrhaphy,^{16,17} aneurysmectomy alone or in combination with aortoceliac anastomosis,¹ hepatic– celiac anastomosis,¹⁸ hepatic/splenic–thoracoabdominal aorta graft bypass,¹ hepatic/splenic–celiac interposition graft, hepatic–superior mesenteric artery bypass, aortoceliac bypass,¹ and aortohepatic bypass, using a saphenous vein or prosthetic graft. Proposed indications for surgery include all symptomatic aneurysms, aneurysms that are increasing in size, aneurysms more than 3 to 4 times the normal vessel diameter (8 mm), and calcified aneurysms larger than 3 cm.¹⁹

Advances in endovascular techniques have led to successful endoluminal exclusion of aortic aneurysms as well as selective exclusion of smaller vessels. Endoluminal exclusion may be a viable therapeutic option for patients with celiac artery aneurysms. Some investigators have reported successful transluminal embolization and branch graft exclusion of pseudoaneurysms involving the celiac trunk and its branches. Terrinoni and coworkers reported the 1st successful embolization of a true aneurysm of the celiac artery with immediate occlusion of all afferent vessels of the celiac axis and suggested that this is a safe alternative to surgical intervention in high-risk patients. Celiac artery aneurysms are associated with abdominal aortic aneurysms in 18% of cases and with splanchnic artery aneurysms in as many as 50% of cases.¹ The present case underscores the importance of evaluating the entire abdominal aorta and its branch vessels when aneurysmal disease is suspected. The most common clinical manifestation has been epigastric, abdominal, and back discomfort. Hemorrhage as a complication has been distinctly unusual in recent cases. As demonstrated by our case, specific diagnosis of celiac artery aneurysm is possible if characteristic sonographic features and CT angiography are recognized (Fig 1). The aneurysm appeared as a midline, spherical, cystic mass anterior to the aorta, just cephalad to the body of the pancreas, which was normal and separate from the aneurysm. Demonstration of continuity between the mass and splanchnic vessels, such as the Demonstration of continuity between the mass and splanchnic vessels, such as the proximal celiac trunk, left gastric, and splenic or hepatic arteries, establishes the correct diagnosis, as in this case. This requires meticulous scanning technique, including multiple sections obtained using various scanning angles and obliquities. High-resolution real-time scanning provides a valuable adjunctive, dynamic method for evaluating these lesions. The pulsatile nature of the mass and continuity with splanchnic vessels can be quickly established.

III. Conclusion

Since a celiac aneurysm will usually be discovered incidentally as a cystic, peripancreatic mass, awareness of the typical radiological appearance permits correct differentiation from intrinsic pancreatic masses, such as congenital cysts or pseudocysts. In addition, knowledge of the clinical and radiological features of celiac aneurysms should lead to increased recognition of this entity. It is possible that the prevalence of splanchnic aneurysmal disease, including celiac aneurysms, is greater than currently clinically recognized.

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