Endovascular Salvage for Contained Rupture of Gastroduodenal Artery Aneurysm Presented with Obstructive Jaundice

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Gastroduodenal artery (GDA) aneurysms are rare but lethal conditions when ruptures develop. Most common clinical presentation are gastrointestinal hemorrhage and abdominal pain. Obstructive jaundice is unusual. Computed tomography and angiography are useful tools for diagnosis and treatment plan. Any GDA aneurysm should be considered for definitive treatment. Recently, endovascular intervention has gained popularity for its safety and efficacy. Here, we described a patient of GDA pseudoaneurysm presented with generalized jaundice and was treated successfully with endovascular intervention.

CASE REPORT

A 43-year-old man presented to Gastrointestinal department after experiencing weight loss of 7 kg within 1 year, showing diffuse yellowish discoloration and skin pruritus for 1 month. He was a heavy smoker, drinker and had been taking medications for hypertension and type II diabetes mellitus.

Physical examination showed a fair-looking man with generalized jaundice, icteric conjunctivae, and a palpable nontender mass over left periumbilical region. Blood tests showed a white blood cell count of 12,600/μL, hemoglobin concentration of 12.3 g/dL, and slightly elevated C-reactive protein concentration of 1.47 mg/dL. The liver function profiles were abnormal with elevated glutamic oxaloacetic transaminase and glutamic pyruvic transaminase (174 U/L and 340 U/L), increased total and direct bilirubin (6.1 mg/dL and 5.2 mg/dL), and elevated alkaline phosphatase (1,478 U/L) and gamma-glutamyl transferase (2,106 U/L). Abdominal sonography confirmed a 7 × 12-cm mass at upper abdomen. It looked similar to twisted bowel loops, but arterial pulse Doppler signals within the mass was confirmed. Smooth liver surface and texture were noted without space occupying lesions, but dilated common bile duct (1.8 cm) and dilated bilateral intrahepatic ducts were visualized. He was admitted to a medical ward under impression of pancreatic tumor with obstructive jaundice and vessel encasement.

Abdominal computed tomography (CT) demonstrated a large heterogeneous mass, lobulated with hemorrhage, located at lesser sac with dilated gastroduodenal artery (GDA) embedded within a dilated main pancreatic duct and intrahepatic ducts (Fig. 1). Tumor markers CEA and CA-199 were markedly elevated, 1580 U/mL and 11.12 U/mL, respectively. Endoscopic retrograde cholangiopancreatography revealed low common bile duct stenosis with upstream biliary tract dilations. Common hepatic duct was stented, and jaundice and liver function profile returned to normal limits gradually. Tumor biopsy was considered, and general surgeon suggested prebiopsy angiography to evaluate tumor vascularity. GDA aneurysm with partial thrombosis, hepatic artery aneurysm, splenic artery aneurysm, and fusiform dilatation of left renal artery were visualized (Fig. 1). A 22-mm

Conflicts of Interest: None.

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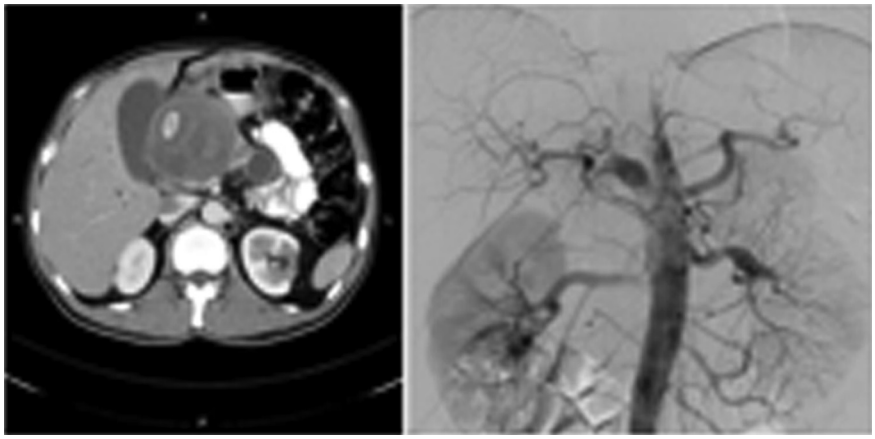

Fig. 1. *Left*: Abdominal computed tomography showed heterogeneous mass lesion with vascular lumen and contained hematoma. *Right*: Angiogram revealed common hepatic artery and gastroduodenal artery aneurysms.

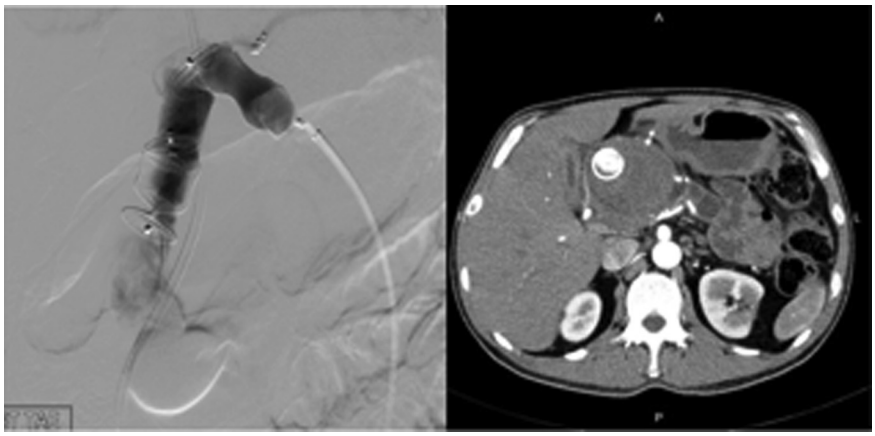

Fig. 2. *Left*: Intraoperative angiogram, vascular plugs embolization of common hepatic artery and gastroduodenal artery aneurysms. *Right*: Postoperative CT showed vascular plugs in place and complete thrombosis of aneurysm sac with no endoleak.

Amplatzer vascular occluder (AGA Medical Corp, Golden Valley, MN) was deployed at proximal GDA via 90-cm 7F Flexor sheath (Cook, Bloomington, IN) from right femoral artery. Two 4-mm coils (Cook) were placed at a collateral artery between left gastric artery and common hepatic artery. Another 22-mm Amplatzer vascular occluder was deployed at proximal common hepatic artery (Fig. 2).

The procedure was successful, and he was discharged 4 days after procedure. Abdominal CT followed up 2 weeks later showed complete thrombosis of aneurysm without endoleak (Fig. 2). Blood tests showed normalization of tumor markers. The abdominal sonography done 16 weeks after discharge revealed that the biliary stent had expelled spontaneously. The interval follow-up abdominal CT confirmed progressive regression of aneurysm sac with marked decrease in size at 1 year (Fig. 3). The patient had been doing well for 2 years up to the present.

DISCUSSION

Visceral artery aneurysms (VAAs) are uncommon conditions with various clinical presentations and outcomes. They are potentially life threatening, with 22% presenting with rupture and overall mortality rate of 8.5%. They are further classified to true aneurysm and pseudoaneurysm depending on etiology. True aneurysms involve actual vascular wall abnormalities or degeneration, whereas pseudoaneurysms are results of vascular injury or erosion, such as trauma, previous surgery, or inflammation. The most commonly involved vessel is splenic artery (46–60%), followed by renal artery (22%) and hepatic artery (16–20%). GDA aneurysm is rather rare, about 1.5% of total VAAs. Pancreatitis is the most commonly associated condition with GDA