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Case Report

Spontaneous rupture of Gastroepiploic artery aneurysm in a young female: A case report ☆☆☆

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ABSTRACT

Gastroepiploic artery aneurysms (GEAAs) are rare subtype of Splanchnic artery aneurysms (SAAs) with estimated prevalence of 0.4% out of total SAAs. Most common causes include atherosclerosis, trauma, vasculitis, infections, pancreatitis, biliary diseases etc. GEAAs are more common in male and the rupture occurs usually after 50 years. Spontaneous rupture of GEAAs in females are rare and very less cases have been reported till now. A 35 years old female with no significant past medical history and no history of trauma presented to ED with features suggestive of shock. CECT (axial and coronal plane) revealed a focal outpouching in right gastroepiploic artery with evidence of active contrast extravasation suggestive of spontaneous rupture of Right Gastroepiploic artery aneurysm. Patient was resuscitated and Exploratory Laparotomy along with ligation and aneurysmectomy. Spontaneous rupture of GEAAs in young female is very rare. Urgent treatment is needed in case of unstable patients because of high risk of rupture and higher mortality rates of GEAAs.

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Introduction

Splanchnic artery aneurysms (SAAs) are rare entities accounting for 0.1% of cases according to autopsy studies [1]. The

most common cause is atherosclerosis [2]. The most commonly encountered subtype includes splenic, hepatic and superior mesenteric artery aneurysms, with a distribution of 35%, 23%, and 19% respectively [3]. Gastroepiploic artery aneurysms (GEAAs) are rare subtype of SAAs with estimated

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prevalence of 0.4% out of total SAAs [4]. The rate of rupture of GEAAAs is as high as 90% with mortality rate, as high as 70% [2,3,5]. The imaging modalities required for the diagnosis of SAAs and therefore GEAAAs include US, CT and subtraction angiography [5]. We report a case of a 35 years female with no significant past medical and surgical history and no alleged history of trauma, who presented with features of shock secondary to spontaneous rupture of right gastroepiploic artery aneurysm managed by Exploratory Laparotomy with ligation and aneurysmectomy.

Case presentation

A 35-year-old female with no significant past medical history presented to Emergency Department (ED) with chief complaint of sudden onset abdominal pain. There was no history of trauma, back pain, yellowish discoloration of eyes and urine, fever, abdominal distension, hematemesis, or any chronic disease. There was no history of surgical intervention in the past. Upon arrival to ED, her blood pressure was 90/60 mm of Hg, respiratory rate was 30 breaths per minute, temperature was 36 degree Centigrade and heart rate was 110 beats per minute. She had pallor over palpebral conjunctiva. On abdominal examination, diffuse tenderness without guarding was elicited. Rest of systemic examinations were

normal. Her lab investigations showed anemia (Hemoglobin: 7.4 gm/dL), Leukocytosis (Total leukocyte count: 18600 cells per cubic milliliter), and serum creatinine of 0.85 mg/dL. Other lab parameters were within normal limit. Abdominal Ultrasonography (USG) showed moderate fluid in peritoneum. She was resuscitated with 2 liters of crystalloids and kept under observation in Emergency room. Later the blood pressure was found to be 120/70 mm of Hg and the renal function test came out to be within normal limits. Contrast Enhanced Computed Tomography (CECT) of abdomen (axial and coronal plane) revealed a focal outpouching in right gastroepiploic artery measuring about 13×8 mm with neck measuring 3mm (as shown in Figs. 1 and 2). There was evidence of active contrast extravasation in subsequent phases of imaging with moderate amount of intra-abdominal fluid collection. Based on the clinical history and CECT findings, a diagnosis of “spontaneous rupture of right gastroepiploic artery aneurysm” was made. She was resuscitated with 2 Liters of crystalloids and kept under observation in ICU. Surgery was planned for the next day where Exploratory Laparotomy was done with ligation of transected right gastroepiploic artery and cut at its root (ligation and aneurysmectomy). There were no feeder vessels to aneurysm apart from gastroepiploic artery. Peritoneal lavage was done with 10 liters of warm saline. A pelvic drain of 28 French (F) was placed. The resected specimen was sent for histopathological examination which showed signs of aneurysm without signs of atherosclerosis, pseudoaneurysm

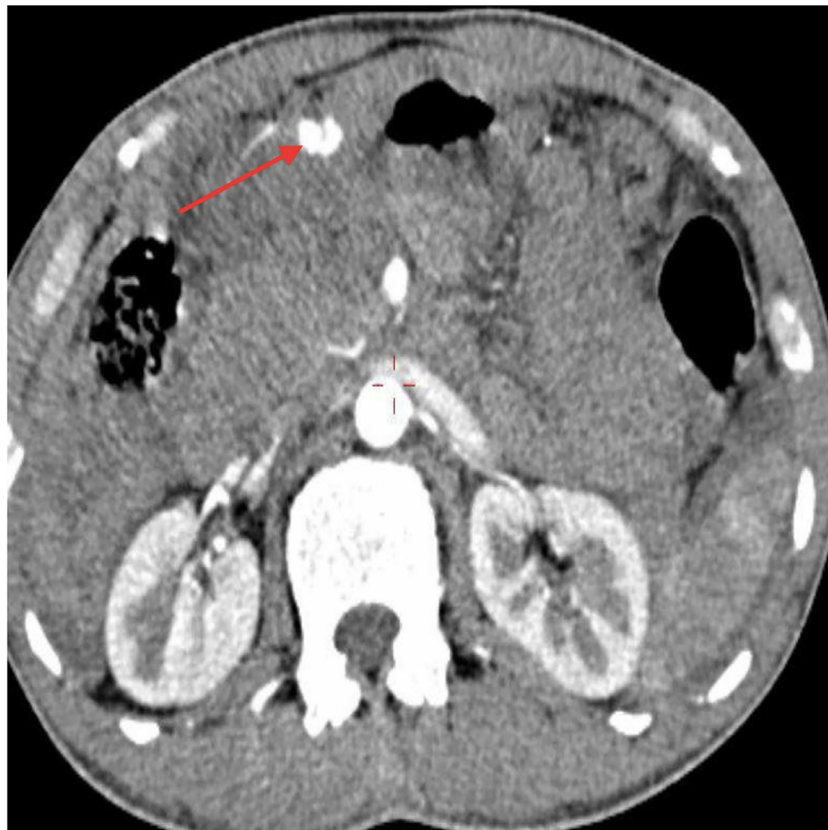


Fig. 1 – Contrast-enhanced CT (arterial phase axial image at the level of renal hilum) showing the contrast-filled focal outpouching of the right gastroduodenal artery (red arrow).



Fig. 2 – Contrast-enhanced CT (arterial phase coronal image) showing the contrast-filled focal outpouching of the right gastroduodenal artery (red arrow) at the gastroduodenal region. Perihepatic collection is also noted (white arrow).

or vasculitis. The patient had uneventful postoperative recovery and was discharged on day 10 after the surgery. At the time of discharge, she was hemodynamically stable and the lab parameters were within normal limits.

Discussion

With an estimated prevalence of 0.4%, GEAAAs are one of the rarest subtypes of SAAs [4]. According to a study done by Stanley et al. splenic artery aneurysms are the most predominant of all SAAs with prevalence of 60% out of all SAAs, followed by hepatic artery aneurysms (20%), superior mesenteric artery aneurysms (5.5%), celiac artery aneurysms (4%) and GEAAAs (0.4%) making it the one of the rarest sub-type of SAAs [4]. The most common cause of SAAs is atherosclerosis (62%) [2,4,6]. Apart from this, it is associated with other conditions which are trauma, aortic dissection, vasculitis, local inflammation such as pancreatitis or anastomotic leakage, medial dysplasia or agenesis, mycotic emboli, congenital vascular anomalies, infections, medial necrosis, pregnancy, portal hypertension,

biliary disease, connective tissue diseases and segmental arterial mediolysis [2,4,7,8]. Ours was a case of right gastroepiploic artery aneurysm in a patient with no past medical illness, trauma or surgical interventions making it a rare case report presentation. The mechanism for the formation of SAAs is still unknown, but the most accepted theory is the weakening of vascular media associated with an increase in intravenous pressure which may also serve as the predisposing factor for the rupture of SAAs [9]. GEAAAs are more common in men with male to female prevalence rate of 3:1, with majority of them identified at the age greater than 50 years [10]. Our study shows a 35 years female with no comorbidities making it a rare case not following the usual mode of age and gender presentation. GEAAAs don't have any characteristics symptoms and are often diagnosed incidentally [5]. However, the patients with ruptured GEAAAs typically present with abdominal pain, unconsciousness and shock secondary to intraabdominal hemorrhage [11]. In our case, the patient presented with features of sudden onset abdominal pain and shock secondary to intraabdominal hemorrhage. Various imaging modalities are essential in diagnosis, management and monitoring of SAAs. Many patients used to be diagnosed as SAAs by angiography previ-

ously, but recently the trend of using contrast enhanced computed tomography (CECT) for diagnosis is increasing. Because of its superior imaging resolution and less invasiveness, CT is a useful modality for diagnosing GEAA [11]. Angiography is the best tool for detecting the bleeding site, and dynamic CT has often proven useful for localizing the site of the aneurysm [12]. Abdominal USG was also done in our case, but the findings were not significant except for moderate amount of fluid in peritoneum. CECT was done by which the diagnosis of Ruptured Gastroepiploic artery aneurysm was made. Angiography was not done in our case due to its unavailability in our setup. It is essential to determine the optional treatment strategy for patients with SAAs, taking into consideration whether or not the patient is symptomatic, and whether or not the aneurysm has ruptured.

Treatment depends on the location, size, and type of the aneurysms, and the age, condition and comorbidities of the patients [3,4,13]. The treatment options for SAAs, including GEAA, are divided into surgical therapy (the open or laparoscopic approach) and Transcatheter Arterial Embolization (TAE) [3,13]. The surgical techniques include ligation, aneurysmectomy and gastrectomy [4]. In patients with stable vital signs, laparoscopic surgery may be an acceptable treatment choice. However, in patients with unstable vital signs due to rupture of the GEAA, open surgery should be performed to control bleeding promptly [3,13]. Our patient presented with features of shock with unstable vital signs secondary to intraabdominal hemorrhage. She was resuscitated with crystalloids and clinically optimized. But an open surgery (exploratory laparotomy with ligation and aneurysmectomy) was done according to the surgeon's choice. It is very important to initiate treatment as early as possible because the rate of rupture of GEAA is as high as 90% with mortality rate, as high as 70% [2–5]. No complications were encountered before and after the surgery in our patient and was discharged on day 10 after the surgery.

Conclusion

CECT is the useful modality for diagnosis of SAAs. In patients with rupture of GEAA, presenting with unstable vital signs, supportive therapy with volume replacement (crystalloids) may be used. Exploratory laparotomy with ligation and aneurysmectomy can be used for definite management in emergency cases for unstable patients. Urgent treatment is needed because of high chance of rupture and mortality of GEAA.

Patient consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Ethical approval

The study is exempt from ethical approval in our institution.

Provenance and peer review

Not commissioned, externally peer-reviewed.

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