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ABSTRACT

Introduction: Variations of branching pattern of the celiac trunk are well documented. Left gastric artery takes origin directly from the aorta in 0.5–15% of cases. Bleeding from such artery is rarely reported in literature. This type of rare variation has significant importance in surgical and radiological procedures. Herein, we describe a case of bleeding from a variant left gastric artery.

Case Report: A 56-year-old male was admitted to our hospital with weight loss for endoscopic fine-needle aspiration of splenic abscess. Following fine-needle aspiration the patient had gastric bleed which was diagnosed by contrast-enhanced computed tomography (CECT) scan and abdominal angiography. The CECT scan of abdomen also revealed the variant left gastric artery which was source of bleeding. Upper gastrointestinal endoscopic was done and hemostasis was achieved by applying endoclip.

Conclusion: Anatomical knowledge of variation is important for management of bleeding from such aberrant artery.

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INTRODUCTION

Left gastric artery is the largest artery supplying the stomach. It takes origin from celiac trunk as trifurcation with common hepatic and splenic artery. It may have a direct origin from the aorta [1]. This variation is significantly important in angiographic treatment of gastrointestinal hemorrhage. Angiographic embolization of such aberrant vessel is easier than normal anatomical one.

CASE REPORT

A 56-year-old male was referred from gastrointestinal centre for endoscopic ultrasound (EUS) and fine needle aspiration (FNA) of splenic abscess for evaluation of weight loss. The patient was hemodynamically stable and no evidence of hematemesis or melena.

Endoscopic ultrasound guided FNA was done from splenic abscess along the greater curvature of stomach and no other intervention was done. During observation period, patient had tachycardia and pain abdomen and one episode of hematemesis. Computed tomography (CT) angiography was done which showed intragastric bleeding from left gastric artery (Figure 1). Endoscopy

was repeated and a spurting vessel in lesser curve was found and three endo-clips were applied, bleeding was stopped. In this particular case left gastric artery was arising from aorta directly (Figures 2–4). Patient was admitted with future plan of endovascular intervention but with no evidence of bleeding after 48 hours he was discharged home.

Computed tomography angiography finding: Left gastric artery was found directly arising from anterior surface of abdominal aorta cranial to hepatolienal trunk. Hepatolienal trunk (Figure 1) was arising from anterior aspect of aorta just caudal to the origin of left gastric artery (Figures 2–4). Diameter of left gastric artery is 2.9 mm and of hepatolienal trunk was 6.3 mm. High attenuation (50–70 HU) material was seen in the stomach which was suggestive of hemorrhagic content (Figure 1). In addition, endoclips were seen along lesser curvature of stomach.

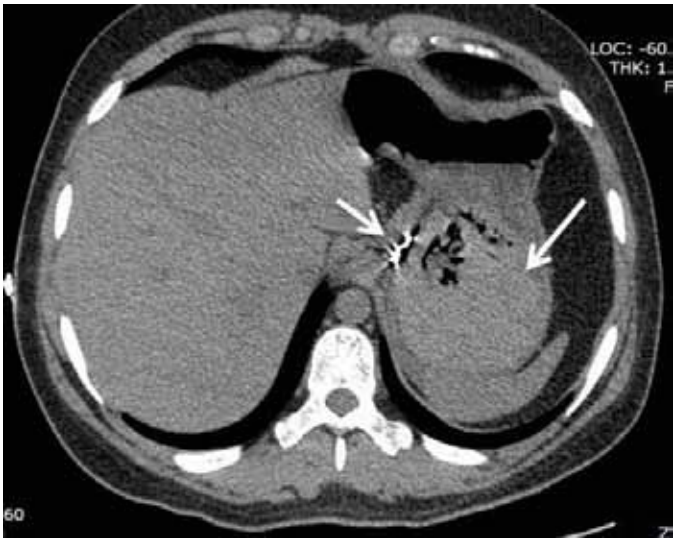

Figure 1: Contrast-enhanced computed tomography scan in cross section of same patient shows extravasation (longer arrow) of contrast and endoclip (shorter arrow).

DISCUSSION

The classic description of normal celiac trunk anatomy is that the main trunk trifurcates into the left gastric, splenic and common hepatic arteries, which was found in 86%[1]. Reported cases of left gastric artery origin directly from aorta widely vary from 0.5–5% [1].

In 1928, Adachi first classified anatomical variations of the coeliac trunk. Adachi and Michels have classified the coeliac trunk into the following six different types [2, 3]:

- Type-1: normal branching
- Type-2: hepatosplenic trunk and left gastric artery from aorta
- Type 3: hepato-spleno-mesentric trunk and left gastric from aorta

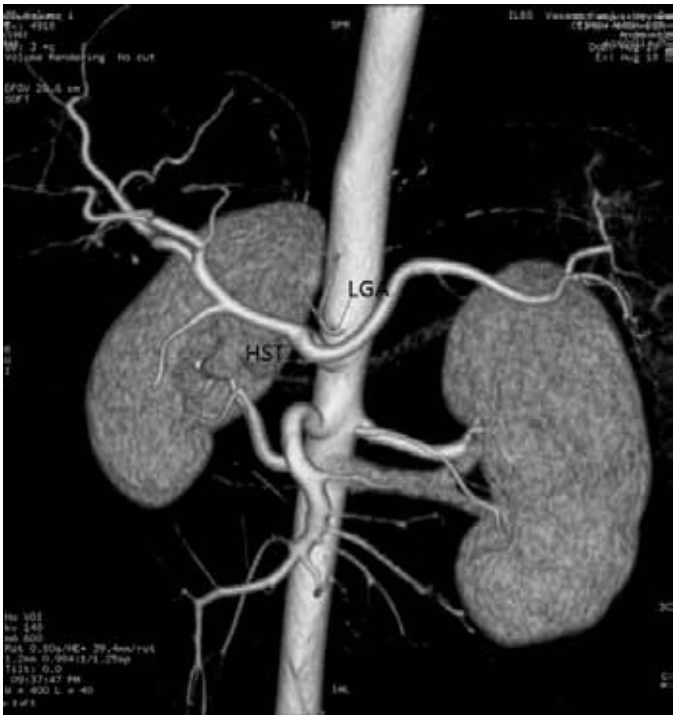

Figure 2: Contrast-enhanced computer tomography scan of abdomen in sagittal section in maximum intensity projected showing left gastric artery arises from abdominal aorta.
Abbreviation: HST: hepatospenic trunk, LGA: left gastric artery.

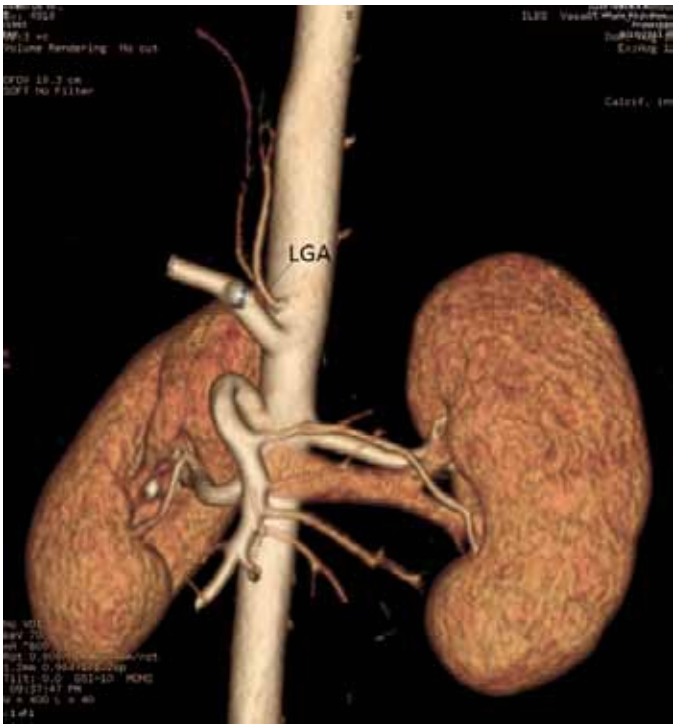

Figure 3: Contrast enhanced computed tomography scan in sagittal section in volume rendering images shows left gastric artery arises from abdominal aorta.
Abbreviation: LGA: left gastric artery.

Figure 4: Contrast-enhanced computed tomography scan in sagittal section showing left gastric artery arises from abdominal aorta and artery can be delineate up to stomach.

- Type-4: hepatogastric trunk and splenic artery from superior mesenteric artery
- Type-5: splenogastric type- splenic and left gastric from the coeliac trunk and common hepatic artery from superior mesenteric artery; and
- Type-6: Celiacomesenteric trunk- splenic, left gastric, common hepatic and superior mesenteric arteries arise from a common trunk.

Variable fusion of right and left primitive yolk arteries when they localize in the dorsalis meso root give rise to these anatomical variations. Probably the hepatogastric trunk originates from right yolk artery, and the splenomesenteric trunk from the left one [4].

Sound knowledge of anatomical variation of celiac trunk is important for liver transplant surgeon and laparoscopic surgeon. With technical improvement, application of radiological intervention increases in gastroenteric diseases and penetrating abdominal trauma. Radiological anatomy of celiac axis and variation is basic requirement for such intervention [5].

It is worth mentioning that the reported findings are interesting given that this variation is quite rare and is not responsible for any hemodynamic problems [6].

There are level I evidences in favor of early endoscopy (within the first 24 hours of an acute upper gastrointestinal bleeding (UGIB) episode) in upper g*astrointestinal* bleeding. Early endoscopy significantly reduces rates of recurrent bleeding, the need for emergent surgery, and mortality in patients with acute non-variceal upper gastrointestinal bleeding [7]. Early endoscopy is appropriate for most patients and reduces mortality by 50% [8].

Hemostatic clips and endoclips: Clip immediately closes the defect in the vessel wall and stops the bleeding. Modification of the delivery system has made clip placement much easier. Four models of hemoclips are available: QuickClip, Resolution Clip; TriClip and InScope Clip. Out of all these, Resolution Clip is the clip of choice. Present best evidence shows the efficacy of hemoclips is similar to that of thermal coagulation in regards to control of initial bleeding, rebleeding rates and procedure duration [9, 10].

Endoclips may be preferred over other hemostatic methods in treatment of ulcers with coagulopathy or who require ongoing anticoagulation. Endoclips may also be preferable in the retreatment of lesions that rebleed after initial thermal hemostasis and active bleeding from larger vessel [10].

Over the Scope Clip Device (OTSC) is a shape-memory Nitinol alloy clip. As it is made of Nitinol, when the open clip released from the applicator it returns to its initial closed shape and close the defect in the vessel wall. Application is similar to the band ligator device. An endoscopy is performed before application of clip. The OTSC provides a safe alternative to endoclip in management of bleeding [11].

CONCLUSION

Bleeding from aberrant artery may be diagnostic problem. Knowledge of anatomical variation and endovascular procedure makes management of such bleeding much easier.

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Author Contributions

Mahibul Islam – Conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Critical revision of the article, Final approval of the version to be published

Sonia Sandip – Analysis and interpretation of data, Drafting the article, Final approval of the version to be published

Md. Abu Masud Ansari – Acquisition of data, Critical revision of the article, Final approval of the version to be published

Raj Kapur – Conception and design, Acquisition of data, Drafting the article, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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