

## Anomalous Origin of Splenic Artery from Left Gastric Artery: A Case Report

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### Abstract

Normally splenic artery takes origin from the coeliac trunk. Variations in the branches of the coeliac trunk are well established. Here reporting a rare case of coeliac trunk with two main branches hepatic artery and left gastric artery in place of the three classical arteries. In the present study splenic artery arises from the left gastric artery which was a little narrower in its lumen & the spleen was also having a subnormal size. Origin of splenic artery has the clinical significance in laparoscopic surgery as splenectomy also in splenography & operations over pancreas & stomach. Success of surgical operations of the spleen and radiological investigation of related area depends on course of splenic artery.

**Key words:** Coeliac trunk; Anomalous origin; Splenic artery; Left gastric artery.

### Introduction

Coeliac trunk arises from front of the abdominal aorta just below the aortic opening of diaphragm. It is the artery of foregut and develops from one of the vitelline arteries<sup>[1]</sup> and supplies all derivatives of the foregut. It divides into three terminal branches namely the left gastric, hepatic and splenic arteries. So splenic artery is one of the main and largest branch of coeliac trunk. It runs horizontally to the left along the upper border of pancreas behind the lesser sac. In the routine observations, occasionally it may arise from abdominal aorta or still rarely from superior mesenteric artery.

In the present study, splenic artery arises from another branch of the coeliac trunk i.e. left gastric artery. Earlier it is mentioned that

splenic artery may start either from superior mesenteric artery or abdominal aorta<sup>[2]</sup> and as per Gray's Anatomy<sup>[3]</sup> there is no variation of splenic artery being mentioned. Variations of the branches of coeliac trunk and their relationship to surrounding structures are therefore of particular importance from a surgical perspective<sup>[4,5]</sup>.

### Case report

Anomalous origin of splenic artery was observed during the routine abdominal dissection for the first M.B.B.S. medical undergraduates in the department of Anatomy. In approximately 50 year old male cadaver splenic artery was not found, while searching the branches of the coeliac trunk viz- Hepatic artery, Left gastric artery & Splenic artery. Then the related dissected area of the coeliac trunk at the 12th thoracic vertebral level was explored. Also it was confirmed whether the splenic artery has taken aberrant origin from the abdominal aorta or below from the superior mesenteric artery. By tracing splenic artery from hilum of spleen, it was

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found that splenic artery arises from the left gastric artery (Figure 1). Also we confirmed for its branches & the size of the lumen of the artery.

It was found that splenic artery was having small length & small calibre (Lumen). We examined the size & shape of the spleen, which was found to be subnormal in size with normal splenic shape. [Size of spleen : 9cm. Length x 7cm Breadth x 2.5cm Thick And Weight : 61gms]. We also observed the sizes of coeliac trunk & its other branches left gastric & hepatic artery. They were found to be of normal size. Gastro-duodenal artery was found to take origin directly from coeliac trunk.

## Discussion

Splenic artery is the largest branch of coeliac trunk. It runs along the upper border of pancreas. It is tortuous in its course to allow free movements of spleen and passes through the lienorenal ligament to reach the hilum of spleen. It gives rise to numerous pancreatic, 5-7 short gastric & left gastroepiploic arteries and supplies other than spleen to pancreas, stomach & greater omentum.

Studies on arterial variations of the abdomen showed that 87.7% of the coeliac trunk exhibited the classical trifurcation. An incomplete coeliac trunk, namely bifurcation, accounted for 5.8–24.1%. Besides these variations, the coeliac trunk itself may be absent, its branches may arise directly from the aorta<sup>[6,7]</sup>.

With the past experience of dissecting human cadavers during dissection for undergraduates, we have come across this very rare case anomalous origin of splenic artery from left gastric artery. In this case of anomalous origin of the splenic artery both length & caliber of the splenic artery was subnormal in size. The spleen which was getting the blood supply from this artery was also subnormal in size. It is unfortunate that we did not have the case history of the patient, with which all ailments the particular person suffered from during his life time. Hence we cannot correlate his ailments with the anomalous origin, small size of both splenic artery & spleen. No previous similar work is found for comparison.

Knowledge of variations concerning the branches of coeliac trunk is of extreme clinical importance in the areas of the appleby procedure<sup>[8]</sup>, laparoscopic surgery and

**Figure 1: Dissection of abdominal Region showing the anomalous origin of splenic artery from left gastric artery. (CT: Coeliac Trunk, SA: Splenic Artery, LGA: Left Gastric Artery, CHA: Common Hepatic Artery)**



radiological procedures in the upper abdomen, and should be kept in mind by clinicians to avoid complications. Knowledge of anatomical variations of the branches of coeliac trunk is essential to successfully accomplish surgical, oncologic, or interventional procedures including lymphadenectomy around hepato-spleno-mesenteric trunk, aortic replacement with reimplantation of the trunk, or chemoembolization of liver malignancies, all of which can potentially create significant morbidity because of the large visceral territory supplied by a single vessel<sup>[9]</sup>.

Arterial variations should be taken care during the abdominal operative procedures. Vascular anomalies are usually asymptomatic; they may become important in patients undergoing diagnostic angiography for gastrointestinal bleeding, celiac axis compression syndrome, or prior to an operative procedure or transcatheter therapy<sup>[10]</sup>. During the surgical approach over the spleen & extrahepatic biliary apparatus, it is imperative for the surgeon to take the note of such anomalous origin of splenic artery.

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