

## Hepatogastric and splenomesenteric arterial trunks: anatomical variations report

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According to 1756 Haller description, coeliac trunk presents usually his typical trifurcation in left gastric, splenic and common hepatic arteries [1]. In 1928 Adachi first classified anatomical variations of the coeliac trunk<sup>2</sup>. Then Adachi and Michels classified the coeliac trunk into six different types [2,3]. The types are: 1, normal branching; 2, hepatosplenic trunk and left gastric artery from aorta; 3, hepatosplenomesenteric trunk and left gastric artery from aorta; 4, hepatogastric trunk and splenic artery from superior mesenteric artery; 5, splenogastric type (splenic and left gastric from the coeliac trunk and common hepatic artery from superior mesenteric artery); 6, coeliacomesenteric trunk (splenic, left gastric, common hepatic and superior mesenteric arteries arise from a common trunk). It appears that only 87.6% of the coeliac trunk shows the classical trifurcation, while an incomplete coeliac trunk can be observed in 12.4% of cases [4]. In our Department, during a routine gross anatomy dissection of a 98-year-old Caucasian male cadaver for undergraduate, postgraduated students and residents, it was noted that the coeliac trunk divided just into two vessels (left gastric and common hepatic arteries). The length of this trunk was 3.0 cm and it had diameter of 0.6 cm. A second trunk, divided into two branches (superior mesenteric and splenic arteries), arose from abdominal aorta 0.7 cm below the coeliac trunk. This anatomical variation corresponds to type 4 according to Michels. In the reported variation, because of this low origin, splenic artery resulted very long and particularly tortuous, and was located below and anteriorly to both body and tail of the pancreas. This is highlighted by the fact that dorsal pancreatic artery originates from splenic artery inferiorly to pancreatic body, with an ascending course. The presence of variations of coeliac and superior mesenteric arteries is due to variable ways of fusion of right and left primitive yolk arteries when they localize in the dorsalis meso root. Probably the hepatogastric trunk originates from right yolk artery, and the splenomesenteric trunk from the left one. The small distance between the two origins (0.7 cm versus 2.5 cm, i.e. the common distance) supports this organogenetic explanation. It is worthwhile mentioning that the reported findings are interesting given that this variation is quite rare [5] and is not responsible for any hemodynamic problems, as reported by clinical history of the patient.

### References

- [1] Haller VA (1765). *Icones anatomicae in quibus aliquae partes corporis humani delineate proponuntur et arteriarum potissimum historia continetur.*
- [2] Adachi B (1928). *Das Arteriensystem der Japaner*, Vol 2.
- [3] Michels NA (1955). *Blood supply and anatomy of the upper abdominal organs with descriptive atlas.*
- [4] Shuang-Qin Yi et al. (2008). *Absence of the Celiac Trunk: Case Report and Review of the Literature.* *Clinical Anatomy.*
- [5] Chitra R (2010). *Clinically relevant variations of the coeliac trunk.* *Singapore Med J.*

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