

Anatomical Variation of Celiac Trunk - Haller's Tripod

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Abstract: **Introduction:** Celiac trunk is a short, wide unpaired artery of the Fore gut and arises from the Aorta opposite the lower border of 12th thoracic vertebra. The trunk proceeds forwards and to the right and divides into 3 branches. Left gastric, Common hepatic and Splenic arteries. They supply the gut tube from the lower oesophagus to the descending part of the Duodenum, Liver, Pancreas and Spleen. It is of great importance for the Surgeons and Radiologists to be aware of the variation of the Celiac trunk during surgical and radiological procedures in upper abdomen. Main objective of the present study is to know the level of origin and variation in the branches of the Celiac trunk. **Methods:** The present study was undertaken on 22 embalmed adult human cadavers irrespective of age, sex used for undergraduate dissection from the Department of Anatomy, Osmania Medical College over a period of 2 years. **Results:** In this present study, this normal anatomical pattern was the most prevalent in most studies 81.9%. normal anatomical variant of celiac trunk i.e. Haller's tripod was found in 4 specimens accounting for 18.1%. **Conclusion:** From this study we conclude that variation in the branches of Celiac trunk is very common. Knowledge about these variations is important for Surgeons during Liver transplantation, cholecystectomy, gastrectomy and pancreatic resection. Also important for Radiologists during selective arteriography.

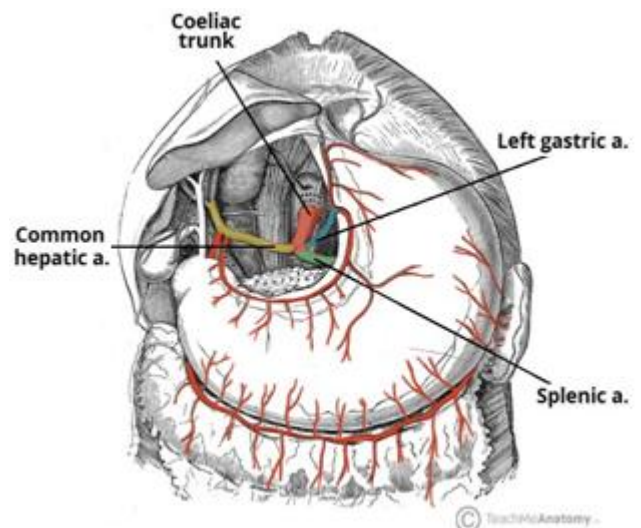
Keywords: Abdominal aorta(AA),Celiac trunk(CT),Left gastric artery(LGA), Splenic artery(SA)and Common hepatic artery(CHA)

1. Introduction

The coeliac trunk (coeliac axis, coeliac artery) is one of the unpaired visceral branches of the abdominal aorta. Superior and inferior mesenteric arteries are other two unpaired visceral branches. The coeliac trunk (Truncus coeliacus) is the first collateral visceral branch of the abdominal aorta. First described by Haller in 1756 and known as Haller's coeliac tripod. The coeliac trunk gives rise to its terminal branches: the left gastric artery, the common hepatic artery and the splenic artery. The coeliac trunk supplies blood to the oesophagus, stomach, spleen, liver, biliary tract and part of the duodeno-pancreatic complex and epiploons.

During development, Celiac Trunk is the first ventral branch of the abdominal aorta, emerging at the T12 level. This trunk is divided into three terminal branches that, through a series of anastomoses, participate in the irrigation of abdominal viscera^[1]

Trifurcation of the coeliac trunk into the common hepatic artery, the left gastric artery and the splenic artery ("true tripod" or "tripusHalleri") was found in 7.1% of dissections. The coeliac trunk was divided in two vessels, while the third branch originated earlier in the course of the coeliac trunk ("false tripod") in 36.4% . The three arteries trifurcated at the same height, forming the Haller's tripod^[2]. This trifurcation absence is rare, affecting 0.2% of the individuals^[3]



2. Materials and Methods

The study was undertaken on 22 embalmed adult human cadavers irrespective of age and sex used for undergraduate dissection from the Department of Anatomy, Osmania Medical College over a period of 2 years. Photographs and details of the anatomical variation were taken.

3. Results

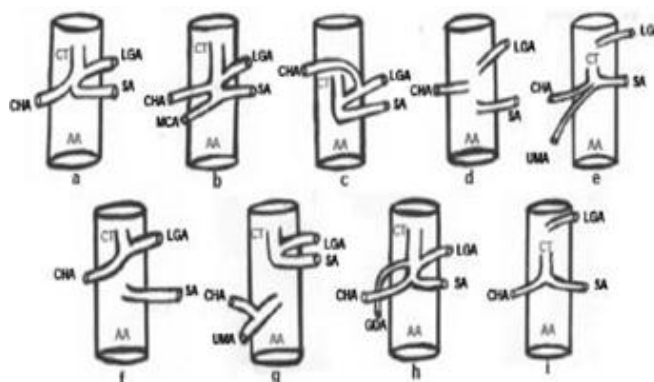
The following variation was encountered during routine dissection of the abdomen for undergraduate students. The normal anatomical pattern was the most prevalent in most studies 81.9%. normal anatomical variant of coeliac trunk i. e. Haller's tripod was found in 4 specimens accounting for 18.1%. Michels .et al study showed Haller's tripod where all three normal classic branches arise from a single point (trifurcation) was found in 12%

Cadavers^[4]. Prakash et al^[5] observed 10% for this pattern. Petrella S et al^[2] study on 89 cadavers showed 22.22% forming the Haller tripod

4. Discussion

Haller’s tripod — division of celiac trunk into three branches: left gastric, splenic and common hepatic arteries described by scientist Albrecht von Haller (1708–1777) made a major contribution to anatomy, physiology, embryology, botany, poetry and scientific bibliography. He is considered as the “father of experimental physiology”^[6].

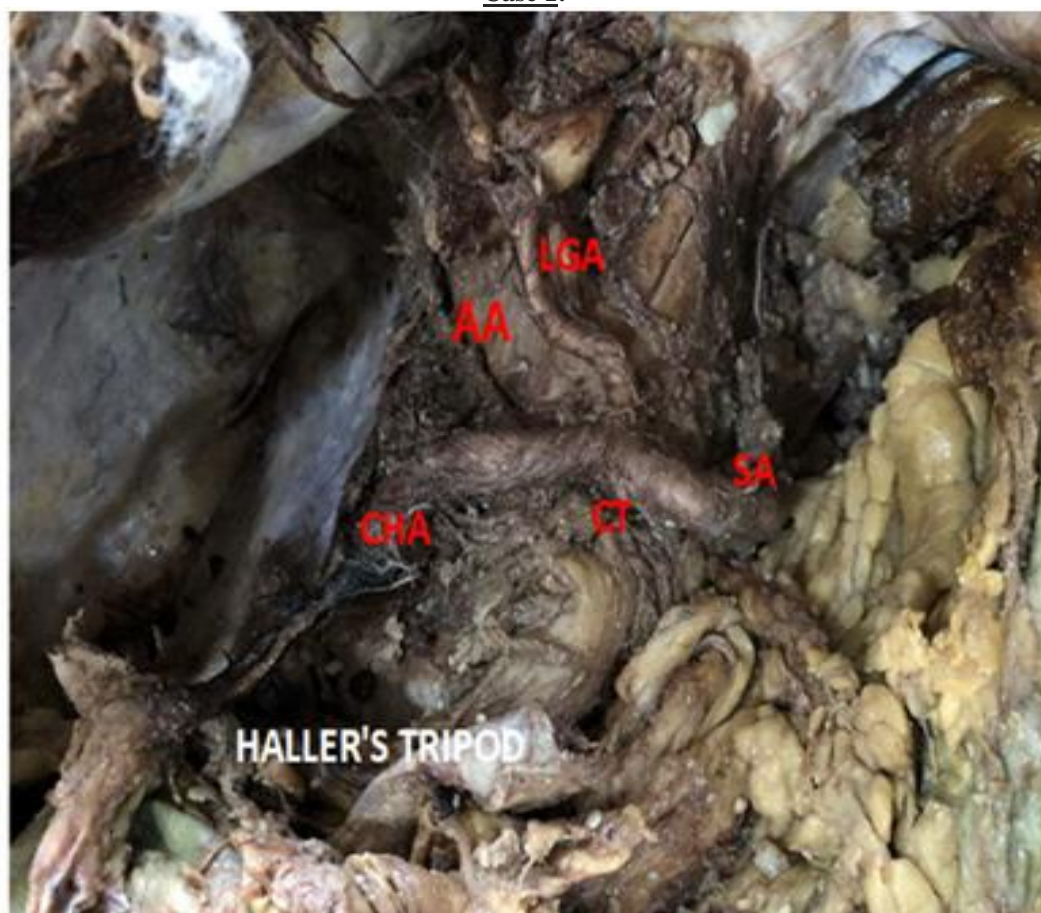
While Operating, exposure of all visceral vessel injuries is considered very difficult and celiac axis exposure is time consuming. It is essential that the surgeons learn critical manoeuvres associated with each vessel and understand the anatomy that allow adequate exposure^[7]. Knowledge of the celiac trunk anatomic patterns and variations-is clinically relevant for image studies interpretation and image guided interventional procedures, as well as for oesophageal, gastroduodenal, hepatic, biliary, pancreatic, splenic and colonic surgical procedures^[8]



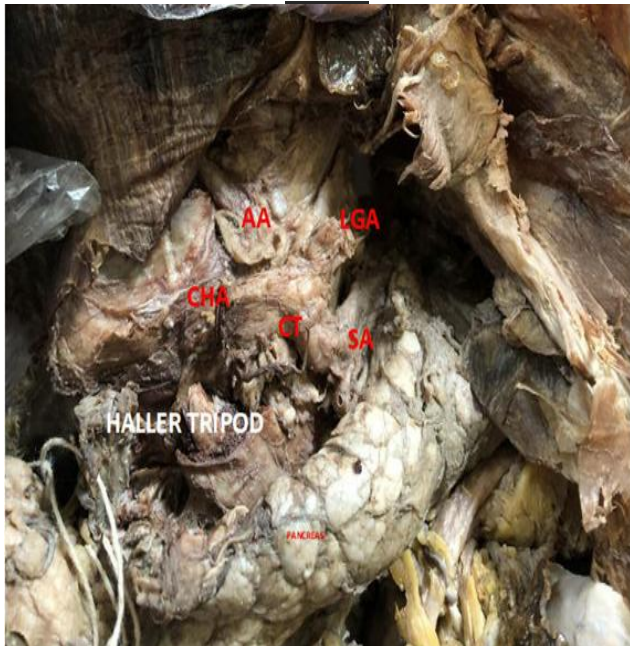
5. Conclusion

The rate of variations observed ,in conclusion, Knowledge of variations of trifurcation of the celiac trunk is of extreme clinical importance in laparoscopic surgery , Orthotopic Liver transplantation and also in selective arteriography.

Haller’s Tripod
Case 1:



Case 2:



Case 4



Case 3



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