

VARIATIVE ANATOMY OF THE HUMAN CELIAC TRUNK

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Computed tomography data of 25 people aged 36 to 86 years old was retrospectively studied. The branching variants of the human celiac trunk in three age groups have been established, and the morphometric features of its branches have been identified.

Keywords: *celiac trunk, anatomy, human.*

ВАРИАНТНАЯ АНАТОМИЯ ЧРЕВНОГО СТВОЛА ЧЕЛОВЕКА

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Ретроспективно изучены данные компьютерной томографии 25 людей от 36 до 86 лет. Установлены варианты ветвления чревного ствола человека в трех возрастных группах, а также выявлены морфометрические особенности его ветвей.

Ключевые слова: *чревный ствол, анатомия, человек.*

Introduction. The celiac trunk arises from the abdominal part of the aorta, and in its classical pattern it is possible to verify the existence of three terminal branches: the left gastric artery (which runs through the smaller curvature of the stomach), the splenic artery (which follows tortuous by the posterior superior margin of the pancreas to the spleen) and the common hepatic artery (which is supply the liver) [3].

Knowledge of celiac trunk variations is important for surgeons during hepatic transplantation, laparoscopic surgery, radiological interventions as well as penetrating lesions in the abdomen. In addition, knowledge of unique variations of celiac trunk absence may be useful in planning and performing radiologic interventions such as celiac and chemoembolization of liver tumors. Changes in the celiac artery may increase both the difficulty and the risk of radical gastrectomy [1,4].

Understanding the abdominal vessels is important for the liver transplantations, laparoscopic surgeries, traumatic injury repair, pancreaticoduodenectomy, gastrojejunostomy and other pathology in order to prevent iatrogenic injuries such as ischemia, anastomotic leaks and any other issues [2,3].

Variations in celiac trunk anatomy have been classified by many authors but Uflackers classification [3] is the most commonly used one. Uflacker identified 8 types of celiac trunk anatomical variations, which are includes the 1 “classical”

trifurcation, and 7 “non-classical” divisions (hepatosplenic, gastrosplenic, celiacomesenteric trunk, etc.) [3].

Materials and methods. Retrospectively the dates of the abdominal cavity computed tomography scans of 25 people (18 males and 7 females) from 36 y.o to 86 y.o. was investigated.

All dates were divided into three groups according of patients age: 36-55 y.o. - second adult age period, 56-74 y.o. - elderly age period, 75 and up y.o. - senior age period.

Results and discussion:

In line with Uflacker’s classification, we have found that for each investigated age group, there were classical and non-classical variations of celiac trunk branches.

In all age groups the splenic artery is characterized by largest diameter (longitudinal diameter is 6.3 (5.3-7.1) mm, $p \leq 0.05$) while the smallest one belongs to the left gastric artery (transverse diameter (2.9 (2.3-3.3) mm, $p \leq 0.05$).

The age group 35-55 has 86% classical variations of celiac trunk divisions, and 14% non-classical variations (hepatosplenic trunk). For the age group 35 - 55, the largest diameter belongs to the splenic artery (longitudinal 6.7 (6.2 – 7.5 mm) and transverse 6.3 (5.5 – 7.2) mm, $p \leq 0.05$). The second largest diameter indicator is common hepatic artery (transverse 5.9 (4.1 – 7.2) and longitudinal 5.7 (4.2 – 6.8) mm, $p \leq 0.05$), and the smallest diameter indicator is left gastric artery (longitudinal 3.6 (3.3 – 3.9) and transverse (2.7 – 3.5) mm, $p \leq 0.05$) (Figure 1).

The age group 56-74 has 71.4% classical variations, and 28.6% non-classical variations (hepatosplenic, celiacomesenteric, and gastrosplenic trunk). For this age group, the largest diameter belongs to the splenic artery (longitudinal diameter 6.1 (5.2 – 7.1) mm, transverse diameter 5.6 (4.5 – 6.5) mm, $p \leq 0.05$). The second largest diameter referred to is the common hepatic artery

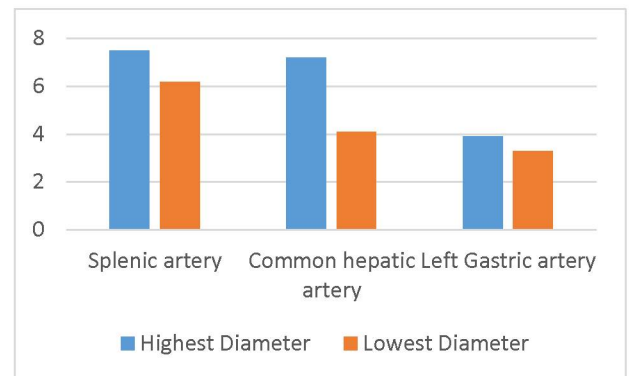


Figure 1 - Diameter morphometry for Age group 35-55

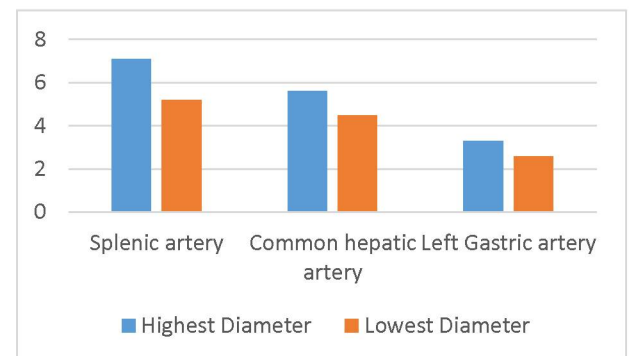


Figure 2 - Diameter morphometry for Age group 56-74

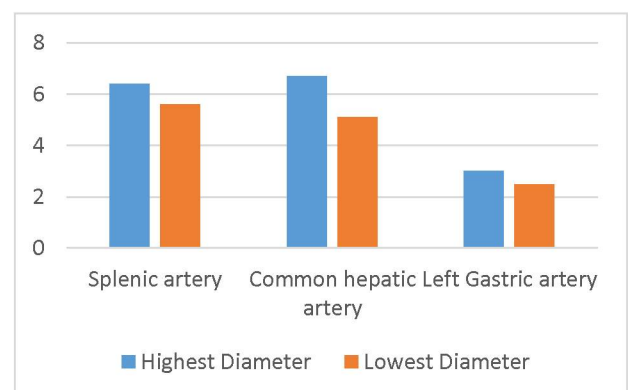


Figure 3 - Diameter morphometry for Age group 75>

(transverse 5.2 (4.5 – 5.6), longitudinal 5.0 (4.6 – 5.2) mm, $p \leq 0.05$) and the smallest diameter belongs to left gastric artery (longitudinal 3.2 (2.6 – 3.3) and transverse 2.9 (2.3 – 3.3) mm, $p \leq 0.05$) (Figure 2).

In the age group 75>, there were 75% of classical variations and 25% were non-classical variation (hepatosplenic trunk). The common hepatic artery is characterized by largest diameter (longitudinal diameter 6.2 (5.1 – 6.7) mm, transverse diameter 5.1 (4.3 – 5.8) mm, $p \leq 0.05$). The second largest diameter belongs to the splenic artery (longitudinal diameter 5.6 (5.2 - 6.4) mm, transverse diameter 5.4 (4.9-6.0) mm, $p \leq 0.05$). and the smallest diameter indicator belonged to the left gastric artery (longitudinal 2.6 (2.5 – 3.0), transverse diameter 2.4 (2.2 – 2.6) mm, $p \leq 0.05$ (Figure 3).

Conclusion. Analysis of dates showed that a human ages 36 - 86 years old has 68.4% of classical and 31.6% of non-classical variations of celiac trunk branches and the splenic artery is characterized by largest diameter (longitudinal diameter is 6.3 (5.3-7.1) mm, $p \leq 0.05$) while the smallest one belongs to the left gastric artery (transverse diameter (2.9 (2.3-3.3) mm, $p \leq 0.05$).

86% of a people in age group 35 – 55 have classical variations of celiac trunk division, and 14% have non-classical variations of celiac trunk division. The largest diameter of artery from all types of divisions of celiac trunk being the splenic artery (longitudinal diameter 6.7 (6.2 – 7.5 mm), $p \leq 0.05$).

71.4% of a people in age group 56 – 75 have classical division of celiac trunk, and 28.6% of them have non-classical variations of celiac trunk division.

For people in age group of 75>, 75% of them have classical variations of celiac trunk division, and 25% have non-classical variations of celiac trunk division, with the largest artery being the common hepatic artery (longitudinal diameter 6.2 (5.1 – 6.7) mm, $p \leq 0.05$).

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