



Research Article

www.ijrap.net



COELIAC TRUNK AND ITS ANATOMICAL VARIATION: A CASE REPORT

Prasanna S. ^{1*}, Sandeep Kashyap ², Megha Chandarana ², Nirav Patel ² and Siddharth Roy ²

¹Associate Professor, Department of Rachana Sharira, S.D.M College of Ayurveda, Thannirhalla, Hassan, Karnataka, India

²Post Graduate Scholars, Department of Rachana Sharir, Parul Institute of Ayurved, Parul University, Vadodara, Gujarat, India

Received on: 31/12/18 Accepted on: 08/02/19

***Corresponding author**

E-mail: drprasanna.ayu@gmail.com

DOI: 10.7897/2277-4343.100239

ABSTRACT

A unique variation was noted in the Coeliac Trunk of a 65 years old male cadaver, during a routine dissection class for Under Graduate Students. In this case, the Coeliac Trunk was replaced by two separate arterial trunks. The first arterial trunk directly originated from the abdominal aorta, which was the Left Gastric Artery. The second arterial trunk was bifurcated to form the Common Hepatic Artery and the Splenic Artery (Hepatosplenic Trunk). Knowledge of such variations is important for gastroenterological surgeons and interventional radiologists, while performing major surgeries such as the Liver Transplantation. The clinical correlation and differential diagnosis of the above mentioned variation of Coeliac Trunk is discussed.

Keywords: Coeliac Trunk, Cadaver, Abdominal Aorta.

INTRODUCTION

The Coeliac Trunk is a short and wide vessel (approximately, 1.25 cm long), which arises from the ventral aspect of the abdominal aorta, just below the aortic orifice of the diaphragm at the level of T12 and L1 vertebrae¹. It runs forwards and towards right and gets divided into three branches- Left Gastric, Splenic Artery and Common Hepatic Artery². This trifurcation was first described by 'Von Haller' and is considered as the classic presentation of the Coeliac Trunk, which is known as "Tripos Halleri".

About 15 % of the population displays significant variations in the typical branching pattern of the Coeliac Trunk. Identifying variations of the Coeliac Trunk and its branches are important due to the surgical perspective because of the relationship it shares with the surrounding structures. Different reported variations of the Coeliac Trunk include- congenital absence, bifurcation and presence of collateral branches.

In 1928, 'Adachi' classified the branching pattern of the Coeliac Trunk into 6 major types, namely-

Table 1: Classification of Branching Pattern of Coeliac Trunk

Type	Branching Pattern of Coeliac Trunk
1	Normal branching – Trifurcation
2	Hepatosplenic Trunk
3	Hepatosplenomesentric Trunk
4	Hepatogastric Trunk
5	Splenogastric Trunk
6	Coeliacomesentric Trunk

Procedure

Following the Cunningham's Manual of Dissection, the abdomen was opened and the anterior abdominal wall was reflected. The Stomach, Right Gastric and the Right Gastroepiploic Vessels

were cut through and the Peritoneum was removed to reveal the Coeliac Trunk³.

It was noted that the Coeliac Trunk was actually replaced by two separate arterial trunks. The first arterial trunk directly originated from the abdominal aorta, which was the Left Gastric Artery and the second arterial trunk was bifurcated to form the Common Hepatic Artery and the Splenic Artery (Hepatosplenic Trunk). Photograph of the same was taken and documented, and the specimen was preserved in the departmental museum.

Case Report

During a routine practical class for the Under Graduate students, we encountered a variation in the Coeliac Trunk of a 65 years old male cadaver, in the Department of Rachana Sharir (Anatomy), Parul Institute of Ayurved, Parul University, Vadodara (Gujarat).

Abdominal Wall was reflected followed by which the Peritoneum was removed to reveal the Coeliac Trunk. In the present case, a well-defined Coeliac Trunk was absent, and was replaced by two separate arterial trunks. The variation was situated at the ventral aspect of the Coeliac Trunk, at the level of T12 vertebra. The Left Gastric Artery directly originated from the abdominal aorta, forming the first arterial trunk of this variation and the second arterial trunk got bifurcated into the Common Hepatic Artery and the Splenic Artery, forming the Hepatosplenic Trunk. The Left Gastric Artery after taking origin directly from the abdominal aorta runs upwards towards the left; behind the lesser sac, to reach the cardiac end of the stomach². Approximately, a centimetre prior to reaching the cardiac end, it gave a branch to the Liver. We named it as an 'Accessory Hepatic Artery'. The Left Gastric Artery entered into the lesser sac and further ran along the lesser curvature and got terminated by anastomosing with the Right Gastric Artery. The course of the Common Hepatic Artery and the Splenic Artery was traced further, and was found to be normal.

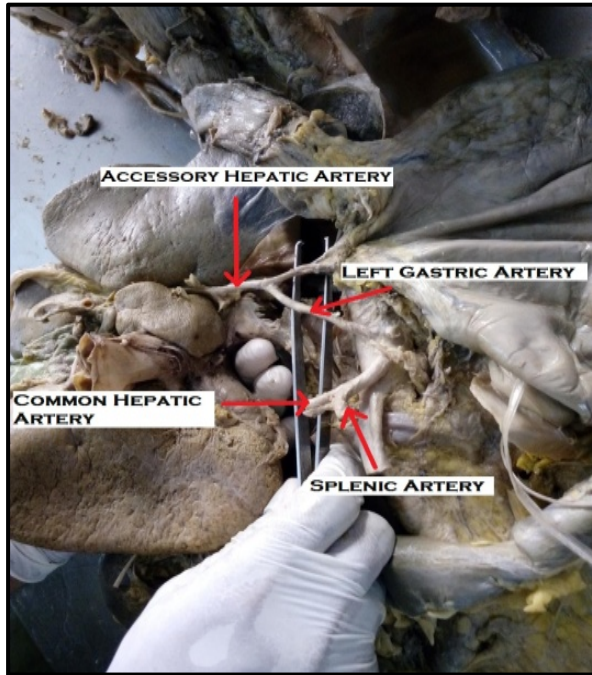


Figure 1: Variation of the Coeliac Trunk

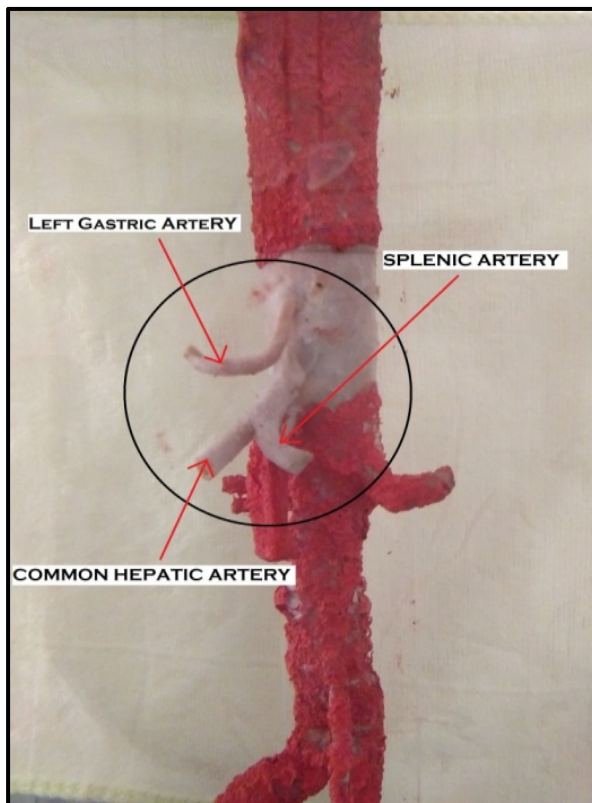


Figure 2: Variation of the Coeliac Trunk

DISCUSSION

The Coeliac Trunk is the first ventral branch of the abdominal aorta. In majority of the cases (50 – 76 %), the Coeliac Trunk presents itself as a trifurcation to form the classical branches, i.e. Left Gastric, Splenic and Common Hepatic arteries. However, in the present case it presented two separate arterial twigs, which is a rare phenomenon. The Left Gastric Artery directly originated from the abdominal aorta, forming the first arterial trunk and the

second arterial trunk got bifurcated into the Common Hepatic Artery and the Splenic Artery, forming the Hepatosplenic Trunk. According to 'Yildirim M', the occurrence of such a variation can only be seen in 0.5 % - 15 % of the cases. The same was photographed and documented⁴.

Past researches have shown that anatomy of Coeliac Trunk is not identical for all human beings, and about 15 % of the population displays significant variations from the typical branching pattern. The left gastric artery, the smallest of the entire coeliac branches may originate directly from the abdominal aorta in about 1.9 % - 15 % of the cases⁵.

There are certain disorders that are specifically related to the Coeliac Trunk, such as- 'Coeliac Trunk Compression Syndrome' which is a rare disorder characterised by compression of the Coeliac Trunk by the Median Arcuate Ligament and Coeliac Ganglion, and the symptoms include chronic, recurrent abdominal pain and weight loss and obstruction of the Hepatic Artery proper may lead to necrosis of the liver depending on the site of the block⁶.

In the present case, other than the two arterial twigs mentioned above, an Accessory Hepatic Artery was also noted originating from the Left Gastric Artery (first arterial trunk), which itself is a very rare sighting, with approximately 3 % of the population living with this variation.

CONCLUSION

A comprehensive knowledge of the Coeliac Trunk and its variations will prove beneficial in planning various abdominal surgeries and image guided interventions. The success of the procedures such as the Liver Transplantation, Intestinal Anastomosis and Intra Arterial Chemotherapy etc, requires detailed knowledge of the Coeliac Trunk and its anatomical variations. The Coeliac Trunk is given so much importance since; it is the sole artery which supplies the upper abdominal viscera. There are specific disorders which are only related to Coeliac Trunk, such as- 'Coeliac Trunk Compression Syndrome' in which, the obstruction of Hepatic Artery proper may lead to necrosis of the liver. This particular condition can also prove fatal if not treated in time.

Hence, to counter such ailments; detailed knowledge of Coeliac Trunk and its variations is required.

ACKNOWLEDGEMENT

The variation in the Coeliac Trunk was noted by me, while conducting a routine dissection for Post Graduate Scholars in Parul Institute of Ayurved, Vadodara (Gujarat). I would like to pay my sincere gratitude to Dr. Hemant Toshikhane, Dean and Principal, Parul Institute of Ayurved, Vadodara for his valuable support.

REFERENCES

1. Vishram Singh. Posterior Abdominal Wall and Associated Structures, Textbook of Anatomy: Abdomen and Lower limb, Vol. 2, Reed Elsevier India Private Limited, Second Edition; 2014. p. 189.
2. BD Chaurasia. Large Blood Vessels of the Gut, Human Anatomy, Vol. 2, CBS Publishers, Seventh Edition; 2016. p. 302.
3. GJ Romanes. The Abdominal Cavity, Cunningham's Manual of Practical Anatomy, Vol. 2 Oxford Medical Publications, Fifteenth Edition; 2014. p. 127.

4. Yildirim M, Ozan H, Kutoglu T. Left gastric artery originating directly from the Aorta, Surgical and Radiologic Anatomy 1998; 20(4): 303–305.
5. Suhani Sumalatha, Mamtha Hosapatna. Multiple Variations in the Branches of the Coeliac Trunk, Anatomy and cell biology 2015; 48(2): 147-150.
6. Mercy Navis. Abdominal Part of Esophagus, Stomach, Coeliac Trunk and Spleen, Dissection Manual with Regions and Applied Anatomy, Vol. 2, Jaypee Brothers Medical Publishers, First Edition; 2018. p. 117.

Cite this article as:

Prasanna S. *et al.* Coeliac trunk and its anatomical variation: A Case Report. *Int. J. Res. Ayurveda Pharm.* 2019; 10(2):73-75
<http://dx.doi.org/10.7897/2277-4343.100239>

Source of support: Nil, Conflict of interest: None Declared

Disclaimer: IJRAP is solely owned by Moksha Publishing House - A non-profit publishing house, dedicated to publish quality research, while every effort has been taken to verify the accuracy of the content published in our Journal. IJRAP cannot accept any responsibility or liability for the site content and articles published. The views expressed in articles by our contributing authors are not necessarily those of IJRAP editor or editorial board members.