



### **Case Report:**

## **A Rare Case of Vascularization of the Body and Tail of the Pancreas**

### **Authors:**

**Serghei Covantev, Natalia Mazuruc, Olga Belic,**  
State University of Medicine and Pharmacy «Nicolae Testemitanu» .

### **Address for Correspondence**

**Serghei Covantev,**  
165, Stefan cel Mare si Sfant,  
Bd. MD-2004, Chisinau,  
Republic of Moldova.  
**E-mail:** Kovantsev.s.d@gmail.com.

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**Abstract:** In the past decade there was an increase in the frequency of operations on the pancreas. This is largely due to the decrease in postoperative mortality and complications of these procedures. Knowledge of variant anatomy of this organ can help to avoid blood loss and irreversible necrotic changes of the abdominal cavity as a result of surgery. During macro and microscopical anatomical dissection of a 72 years old male organ complex we discovered a rare variant of arterial blood supply to the tail and body of the pancreas.

**Key Words:** Great pancreatic artery, Pancreas, Vascularization, Anatomy, Dissection

### **Introduction:**

Pancreas throughout history has been little studied organ. From the depths of the abdominal cavity, it attracted little attention of scientists for centuries. Until the XX century surgery on the pancreas is rarely done, because of the high mortality and the number of complications in case of damage of the body.(1)

In the past decade there was an increase in the number of operations on the pancreas. This is largely due to the decrease in postoperative mortality and complications of these procedures. However, despite the advances in modern surgery, the problem of post-operative complications during interventions on the pancreas is still relevant.(2)

The abundant blood supply, the presence of rare variations of arterial supply of the pancreas makes it all important factors that should be considered in the course of surgical procedures on the pancreas and spleen. Knowledge of variant anatomy of the body can help to avoid blood loss and irreversible necrotic changes of the abdominal cavity as a result of surgery.(3)

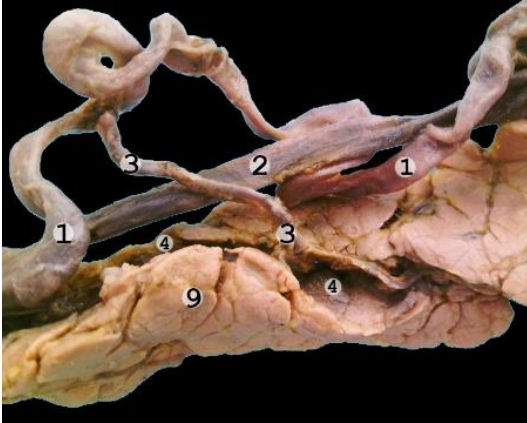
### **Case Report**

During macro and microscopical anatomical dissection organ complexes, including the pancreas and spleen (male, 72 years), we discovered a rare variant of arterial blood supply of the pancreas. The body and tail of the pancreas was vascularized by a great pancreatic artery, which had a length of 7.5 cm till the entrance of the pancreatic parenchyma and a diameter of 0.6 cm. The vessel branched off at a distance of 6.7 cm from the beginning of the splenic artery, and entered its own groove

on the surface of the pancreas that had a depth of 1.1 cm (Fig. 2). In the parenchyma of the pancreas the artery divided into two branches. The upper branch of the great pancreatic arteries supplied the pancreatic parenchyma in its upper part of the body and the tail. The lower branch of the artery significantly surpassed the length and diameter of the upper branch. It further divided in the body and over the entire length of the tail of the pancreas (Fig. 3).



**Figure 1: The splenic artery in its groove on the upper part of the pancreas. Macrospecimen (male, 72 years old)[1- splenic artery, 2 - splenic vein, 3 - pancreas, 4 – spleen]**



**Figure 2: The great pancreatic artery located in its groove in the pancreas parenchyma. Macro specimen (male, 72 years old).[1 – splenic artery, 2 – splenic vein, 3 – great pancreatic artery, 4 – the groove for the great pancreatic artery, 9 – the body of the pancreas]**



**Fig 3: The branches of the great pancreatic artery (the anterior part of the tail is turned up). Macrospecimen (male 72 years old).[1 - Splenic artery, 2- splenic vein. 3 – great pancreatic artery, 4 – inferior branch of the great pancreatic artery, 5 – superior branch of the great pancreatic artery, 6 – tail of the pancreas, 7 – branches to the tail of the pancreas, 8 – main pancreatic duct, 9 – body of the pancreas, 10 - spleen]**

### Discussion

The great pancreatic artery (also known as *arteria corporis pancreatis*) is a branch of the splenic artery, which enters into the parenchyma of the pancreas in the middle or at the distal third of the gland (4, 5). The earliest mention of this artery can be found in Quain's Elements of Anatomy (1848), where the vessel is described as an artery, which enters the parenchyma of the gland and branches to the right and left, located along the main pancreatic duct (5). Despite its name, it is much smaller in size than the posterior and transverse pancreatic artery.(6)

According to angiography the great pancreatic artery is found in 82% of cases, of which it originates in 77% - from the middle third, 20% - from the proximal third, in 3% of cases - from the distal third of the splenic artery.(6) Number of arteries as variable and in 26-60% one artery is present, in 20-33% - two, in a 2-6% - three and 2-48% - four arteries (depending on the author and the study method used). (4, 6) During anatomical dissection the artery can be found in 64.7-98% of cases.(5) However, according to other authors, it is found much less frequently – 5.21-10% of the cases.(3,7) According to the literature, its diameter is 0.2-0.4 cm.(7) Based on the results of digital subtraction angiography, the great pancreatic artery in 21.6% of cases, supplies the body and tail of the gland together with the posterior pancreatic artery and in 15.7% of cases - on its own (8). In 80% of cases,

it anastomoses with the transverse pancreatic artery and 2% of cases with the posterior pancreatic artery.(6)

Disruption of the integrity of the great pancreatic artery during chronic pancreatitis and pseudocysts can cause bleeding that may require emergency surgical intervention.(5) The presence of such long branches pancreatic artery should be taken into account during surgical procedures and pathological conditions.

### Conclusion

Surgical manipulations on the pancreas are complex procedures of abdominal surgery, which requires the surgeon not only to have manual dexterity, but also a good knowledge of the anatomy of the region. Information on the blood supply of the pancreas can help minimize intraoperative and postoperative complications.

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