CASE REPORT

Dangerous Course and Atypical Termination of the Splenic Vein in Relation to Pancreas – A Case Report

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ABSTRACT

Context Knowledge of variations of the vessels closely related to the pancreas adds greatly to the success of pancreatic surgery. Splenic vein is one of the vessels that are closely related to the pancreas. Its variations might not only change the haemodynamics in the vein but also cause unexpected bleeding during pancreatic surgery. **Case report** During our dissection classes, we noted the variations in the course and termination of the splenic vein. After emerging from the spleen, it coursed upward and to the right, embedded in a groove on the anterior surface of body of pancreas. After reaching the upper border, it turned downwards and entered the body of the pancreas. After having a downward course in the body of pancreas, it emerged out and united with the superior mesenteric vein at an angle of about 160 degrees to form the portal vein. **Conclusion** This peculiar course of the vein might predispose it for thrombosis in case of pancreatitis. It can also lead to iatrogenic injuries during pancreatic or splenic surgeries.

INTRODUCTION

Splenic vein is one among the close relations of the pancreas. It emerges from the hilum of the spleen and runs in the lieno-renal ligament in intimate relation to the tail of the pancreas and the splenic artery. In most of its course, it is related to the posterior surface of the pancreas, frequently lodged in a groove. Unlike the splenic artery, it has a straight course till its termination. It terminates by joining the superior mesenteric vein to form the portal vein behind the neck of the pancreas. Variations of the splenic vein are very rare. In extremely rare cases splenic vein may be congenitally absent [1]. It may run on the anterior surface of the pancreas till its termination and joins the superior mesenteric vein in front of the neck of the pancreas [2, 3]. In case of congenital absence of portal vein, the splenic vein may join superior mesenteric vein and the common vein thus formed might join the right internal iliac vein or inferior vena cava [4, 5]. Here, we present a case of unusual course of splenic vein in relation to the pancreas and discuss its functional and clinical significance.

CASE REPORT

During regular dissection classes, we observed a variant course and unusual mode of termination of the splenic vein. The splenic vein, after emerging from the hilum of the spleen, coursed upwards and to the right, embedded in a groove on the anterior surface of the body of the pancreas (Figure 1). After a course of 5 cm, it suddenly turned downward and entered the body of the pancreas and coursed downward and to the right within the body of the pancreas (Figure 2). It emerged out of the body of the pancreas just before its union with the superior mesenteric vein to form the portal vein. Its union with the portal vein had a wide angle of about 160 degrees (Figure 3). The splenic vein received its normal tributaries such as short gastric veins, left gastroepiploic vein and pancreatic veins. The left gastric vein drained directly into the portal vein. The splenic artery passed behind the upper border of the pancreas till the midpoint of pancreas and there upon it accompanied the splenic vein in the groove on the anterior surface of the pancreas.

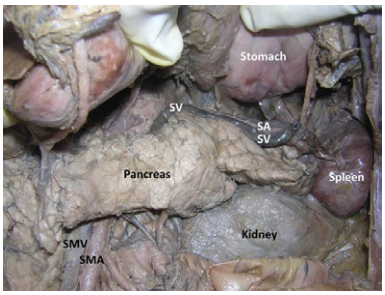

Figure 1. Dissection of the upper abdomen showing variant relation of the splenic vein with the pancreas. Stomach has been reflected upwards. (SA: splenic artery; SMA: superior mesenteric artery; SMV: superior mesenteric vein; SV: splenic vein)

DISCUSSION

Splenic vein is very constant in its course and relations. Hence, when it shows variation, there are higher chances for its iatrogenic injuries. In the current case, the vein ran in a groove on the anterior surface of the pancreas along with the splenic artery for a significant distance. Thereafter, it turned down and entered the pancreas. After

Received August 28th, 2014 – Accepted October 25th, 2014
Key words Mesenteric Veins; Pancreas; Portal Vein; Spleen; Splenic Vein

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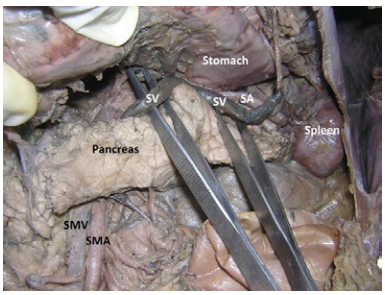

Figure 2. Dissection of the upper abdomen showing variant relation of the splenic vein with the pancreas. Splenic vein has been pulled out from its groove on the anterior surface of the body of the pancreas.
(SA: splenic artery; SMA: superior mesenteric artery; SMV: superior mesenteric vein; SV: splenic vein)

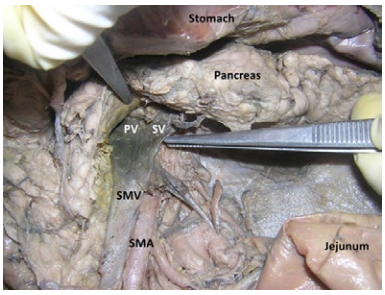

Figure 3. Dissection of the upper abdomen showing downward course of the splenic vein before joining the superior mesenteric vein.
(PV: portal vein; SMA: superior mesenteric artery; SMV: superior mesenteric vein; SV: splenic vein)

coming out from the substance of pancreas, it joined the superior mesenteric vein at an angle of 160 degrees. This type of confluence might result in venous stagnation in either splenic vein or superior mesenteric vein because of the head on collision between the blood flowing in these two vessels. In the clinical perspective, this course might confuse the radiologists while interpreting the radiological findings. Till date, there is no report of such a course and mode of termination of splenic vein.

Knowledge of possible variations of splenic vein is very important to general surgeons, radiologists and gastroenterologists. In the surgical treatment for cancer of head of the pancreas, resection of the junction of splenic, superior mesenteric and portal veins is usually performed [6]. A sound knowledge of splenic vein variation is required in this procedure. In the current case the confluence of these three veins was not of usual pattern. Intrapancreatic course of the terminal part of the splenic vein and its downward direction before termination might lead to confusions. In the traumatic avulsions of superior mesenteric vein, splenic vein turndown is performed. It is a difficult procedure and one of the studies reports that only 4 out of 6 patients survived after this procedure [7]. Even in total pancreatico-duodenectomy, the confluence of splenic, superior mesenteric and portal vein has to be resected [8]. The current case may prove it to be very dangerous due to the varied course and termination of the splenic vein. One of the popular procedures in pancreatic surgery is laparoscopic splenic vessel preserving distal pancreatectomy. Splenic vein thrombosis or stenosis is one of the post-operative complications of this procedure. In the current case that risk may be higher due to the variation in the course of the vein [9]. The knowledge of current variation is also important in portal vein reconstruction with splenic vein autograft [10]. Currently, the multidetector computed tomography (MDCT) is extensively being used to know the variations in the course of the blood vessels and to know the extent of the tumour [11]. This technology may be very useful in knowing the variant course of the splenic vein in the current case.

CONCLUSION

Vascular complication is very common in pancreatitis since many vessels are closely related to it. In the current case, the unusual course of the splenic vein makes it vulnerable in pancreatitis and pancreatic surgeries. It might also lead to misinterpretations during radiological procedures. Hence the case is of interest to surgeons, gastroenterologists and radiologists. Preoperative MTDC procedure might contribute greatly to the success of the surgery in this case.

Conflicting Interest

Authors declare to have no conflict of interest.

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