A rare case of distal one-third of the transverse colon supplied by a branch from splenic artery

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ABSTRACT

We observed a rare variation of splenic artery during the routine dissection in the Laboratory of the Anatomy Department. It arose from the splenic artery toward the distal part of transverse colon which typically supplied by the inferior mesenteric artery. Embryologically distal part of the transverse colon is a segment of hindgut. In this case, splenic artery which an artery of foregut supplies an area of hindgut. The knowledge of splenic artery variations has significant importance during surgery of the organs of the upper abdominal region. In this study, we discussed clinical significance and embryological aspects of this anomalous artery.

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The splenic artery is the largest branch of the coeliac axis. It runs to the left in a way course along the upper border of the pancreas and behind the stomach. On reaching the left kidney, the artery enters the lienorenal ligament and runs to the hilum of the spleen. Nearing the spleen it divides into 5 or more segmental branches which enter its hilum. There are pancreatic, short gastric and omental branches as well as the left gastroepiploic artery, which commonly arises from the ventral surface of the splenic artery.

Knowledge of the variation of the branching patterns of the splenic artery is important for the surgeons, radiologist and other clinicians in planning surgical procedure. The literature contains many variational course and branching patterns of the splenic artery; however, reports on the branch of the artery to the colon are rare. The aim of this study was to describe a case of distal transverse colon supplied by a branch from splenic artery.

Case Report. In a 78-year-old, Turkish male cadaver, a variation of a branch of the splenic artery was observed during the routine dissection in the Laboratory of Anatomy Department of Medical Faculty of Kocaeli University. Along the course of the splenic artery, an artery was given off from distal segment of the splenic artery. It ran inferiorly in front of cauda of pancreas and renal vein to the area of the distal transverse colon (Figures 1 & 2). This artery was accompanied by the inferior mesenteric vein. The splenic artery continued to the hilum of the spleen after giving this branch.

Discussion. Surgery of the organs of the supracolic part of the abdomen requires a thorough knowledge of the vascular anatomy of this region. It is important to know the existing aberrations in planning surgical procedure. The vascular anomalies are resulting from the aberration in the embryological development. The vitelline arteries, initially some paired vessels supplying the yolk sac, gradually fuse and form the arteries located in the dorsal mesentery of the gut. In the adult, they are represented by the coeliac, superior mesenteric and inferior mesenteric
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arteries. These vessels supply the derivatives of the foregut, midgut and hindgut. Embryologically, the splenic artery is one of the branches of the artery of foregut, namely, coeliac trunk. It supplies the spleen, pancreas, stomach and greater omentum. The superior mesenteric artery is the artery of the midgut and supplies the gastrointestinal tract from the middle of the second part of the duodenum as far as the distal one-third of the transverse colon. The inferior mesenteric artery is the artery of the hindgut and supplies the large intestine from the distal one-third of the transverse colon to halfway down the anal canal. Greater part of the transverse colon is supplied by middle colic artery, a branch of the superior mesenteric artery. The distal part of the transverse colon is supplied by left colic artery, a branch of inferior mesenteric artery. In the current case, an artery of foregut supplies an area of the hindgut. One possible embryologic explanation for the variable positions of the lienal artery could be as follows. The sites of origins of hindgut and foregut arteries on the aorta are different and far from each other during development. The variation in the branching of the splenic artery might be due to the abnormal migration of these arteries or abnormal fusion among these primitive arteries. The variations in the branching of splenic artery are well documented. In their 27 case study, Amonoo-Kuofi et al found an anomalous middle colic artery from the proximal segment of the splenic artery. Liu reported a branch from splenic artery to the left colic flexura. However, none of these variations were similar to the present case. This is a rare and interesting variation which an artery of foregut supplies an area of hindgut. Awareness of variations of splenic artery during surgery would help minimize vascular complications. Inadvertent transection of the splenic artery during splenectomy or pancreatectomy may cause postoperative bleeding or necrosis of the transverse colon. On the other hand, the numerous and uncertain nature of the vascular supply makes splenic vessel preservation technically challenging in pancreatic surgery. The existence of anatomical variation of the splenic artery should be kept in mind of clinicians to avoid complications during surgical intervention of the pancreas, spleen or colon.

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References

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