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ΑΡΧΕΙΑ ΕΛΛΗΝΙΚΗΣ ΙΑΤΡΙΚΗΣ 2023, 40(2):283

Surgery Quiz – Case 48

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A 84-year-old male patient with a history of stage I arterial hypertension and type 2 diabetes mellitus under clopidogrel 75 mg once daily, amlodipine 10 mg once daily and vildagliptin/metformin hydrochloride 50 mg/1,000 mg twice daily, referred to our surgical department for management of a moderate differentiated cT4cN1–2M0 adenocarcinoma of the descending colon. The patient submitted to open left colectomy with high ligation of the inferior mesenteric artery (IMA), splenic flexure mobilization and end-to-end double-stapled colorectal anastomosis at the level of peritoneal reflection using a 33 mm circular stapler. During lymph node dissection at the origin of the IMA, a vascular structure originating from the root of IMA with horizontal course parallel and below the superior mesenteric vein towards the base of the transverse mesentery was observed, as shown in figure 1.

Comments

In general, Riolan's arch refers to a connection between the superior mesenteric artery (SMA) and IMA; this communication can be marginal or central. As there is absence of publications by Jean Riolan (1580–1657), there is no consensus on which anatomical structure the term Riolan's arch refers. Two different interpretations of Riolan's arch can be found in literature: (a) A marginal connection representing the marginal artery also called as marginal artery of Drummond, which is always present connecting the middle colic and left colic artery. A connection between the marginal artery and the ascending branch of the left colic artery is also common with a reported prevalence of 63% to 100%; and (b) a rare central connection called intermesenteric trunk with a reported prevalence of 0% to 18%, discerned in two different types: (a) the direct type representing an extremely rare direct communication between SMA and IMA and (b) the indirect type representing a connection between the middle colic and left colic artery.

In the present patient, a central vascular connection between the SMA and IMA was recognized during lymph node dissection around the origin of IMA. The present communication represented an intermesenteric trunk, which is a rare finding. The truck originated from the root of IMA and had a horizontal course parallel and below the superior mesenteric vein towards the base of the transverse mesentery before insertion to either SMA or middle colic artery. Conclusively, the common marginal or rare central connections between SMA and IMA known as Riolan's arch are important, as they are responsible for collateral perfusion after high ligation of IMA during left colon, sigmoid, rectal, aortic surgery and after atherosclerotic stenosis or occlusion of SMA and IMA. Consequently, preoperative evaluation with computed tomography (CT) angiography of the colonic vascular anatomy is important to help surgeons in planning appropriate resections and reducing postoperative morbidity.

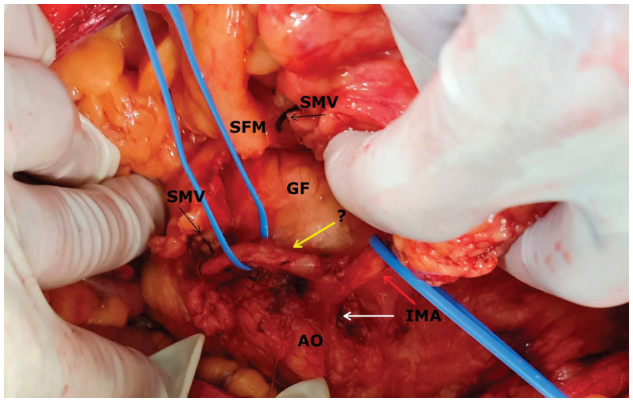

Figure 1. Intraoperative view of the surgical field during lymph node dissection of inferior mesenteric artery (IMA) root (AO: Aorta, white arrow: Root of IMA, red arrow: IMA trunk before the origin of left colic artery, GF: Gerota's fascia, SFM: Splenic flexure mesentery, SMV: Proximally and distally ligated superior mesenteric vein as shown with black arrows, yellow arrow: Which is this central vascular structure?).

References

1. LANGE JF, KOMEN N, AKKERMAN G, NOUT E, HORSTMANSHOFF H, SCHLESINGER F ET AL. Riolan's arch: Confusing, misnomer, and obsolete. A literature survey of the connection(s) between the superior and inferior mesenteric arteries. *Am J Surg* 2007, 193:742–748
2. KARATAY E, EKCI B, JAVADOV M. Should surgeons evaluate the anatomy of Drummond marginal artery and Riolan's arch preoperatively? *Surg Technol Int* 2020, 37:102–106

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Diagnosis: *Intermesenteric trunk*