Timely diagnosis and intervention in a case of portal vein thrombosis: A life saved!

Dear Editor,

A 51-year female patient with ca sigmoid colon and liver metastasis who underwent synchronous sigmoid colectomy with right hepatectomy. Preoperative CT scan revealed aberrant arterial anatomy (right anterior and posterior sectoral artery originating separately from common hepatic artery).

During the course of right hepatectomy, after portal dissection, vascular inflow, and outflow was taken. Liver was examined for demarcation line but only posterior sectionectomy plane was demarcated. A separate branch (anterior sectoral/middle vein) originating very close to left portal vein (LPV) supplying segments V and VIII was intact which was then ligated [Figure 1].

Three hours into colonic surgery, patient became haemodynamically unstable, with a rising trend of serum lactate and congestion of small bowel. The surgeons assessed liver inflow and ligature of anterior sectoral branch was released and an intraoperative ultrasound Doppler (UD) was performed which revealed a non-occluding thrombus in the Main Portal vein (MPV) with good flow across the LPV. Injection heparin followed by thrombectomy through a transverse venotomy was performed. Free flow from proximal and distal end was visualized clinically and confirmed using UD. After restoration of vascular inflow, small bowel started decongesting, vasopressor support and lactates levels showed a decreasing trend. Patient was shifted to intensive care unit for for further management. First, postoperative day(POD) patient remained haemodynamically stable but with abnormal thromboelastography, coagulation studies, lactates, and liver enzymes. Serial targeted UD were performed to monitor good blood flow in the main and left portal vein. Patient was extubated and shifted to ward on POD5.

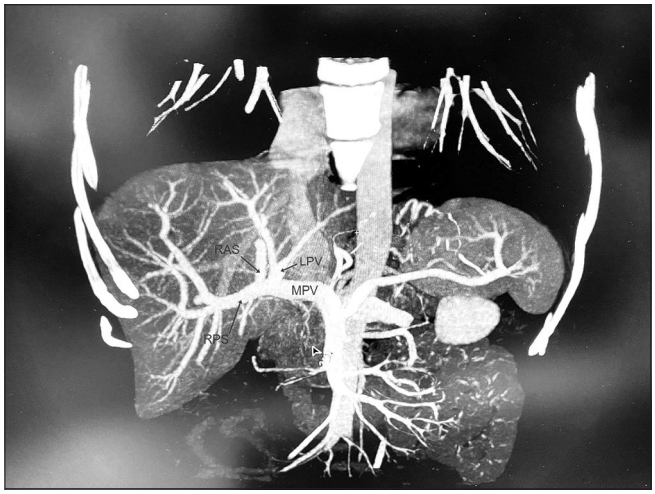

Figure 1: CT imaging of Portal vein anatomical anomaly. MPV, main portal vein; LPV, left portal vein; RAS, right anterior sectoral branch; RPS, right posterior sectoral branch

Acute portal vein thrombosis (PVT) related to hepatobiliary surgery is an uncommon but dreaded complication with most incidences reported being post transplant surgery (2-13%).[1] In our patient, the thrombosis in MPV developed due to parking of small bowel in upper quadrant resulting in partial twisting and low blood flow state in superior mesenteric vein, causing a thrombus.

A preoperative CT imaging and 3-D reconstruction of vascular anatomy of liver should be a ritual in hepatobiliary surgeries as in 25-30%[2] of cases there is variation described by Cheng and Nakamura. In our patient, Cheng *et al*. type IV/Nakamura *et al*. type D portal vein anomaly existed. In addition, awareness that with extrahepatic trifurcation of artery, the anomaly is replicated in portal vein with right, left, and middle portal veins.

In our patient, haemodynamic instability with sharp rise in serum lactates in addition to small bowel congestion alarmed the operating room team. In the current circumstances, UD (sensitivity 89% to 93%) was the choice of imaging, to arrive to a diagnosis and carry out portal vein thrombectomy.

Literature report's, a case series of portal vein thrombectomy following liver transplant with success rate of >80%[3] and concurrent admission of thrombolytic agents more effective by preventing re-thrombosis.[4] Site directed thrombolysis and systemic anticoagulation are other alternatives for treating acute onset PVT.[5]

In conclusion, preoperative imaging and 3-D reconstruction of vascular anatomy of liver and high degree of vigilance should be a ritual during hepatobiliary surgeries. The timely diagnosis, intervention and availability of resources helped us to avert a disastrous complication and save a precious life.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and othe r clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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