Portal vein thrombosis as a complication of laparoscopic sleeve gastrectomy

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Abstract

Laparoscopic sleeve gastrectomy (LSG) is a popular form of weight loss surgery in New Zealand. The current case report describes an incident of portal vein thrombosis (PVT) following this surgery and serves to increase the understanding of the unique risks of this operation.

Case report

A LSG was performed on a 40-year-old woman with a BMI of 46 (kg/m$^2$), weight 131 kg and associated gastro-oesophageal reflux disease, stress urinary incontinence, joint pain, trigeminal neuralgia and depression. She had been taking the oral contraceptive pill (OCP) and omeprazole 20 mg daily but no other medications. She had had no previous surgery and no prior thromboembolic events.

She had a standard LSG over a 36F bougie, and was discharged on the second postoperative day. At 6 weeks she suddenly developed constant epigastric pain which radiated to her hypochondria and back. Laboratory tests revealed mildly elevated AST (62), ALT (98) and CRP (15).

An urgent ultrasound revealed PVT and an in-hospital CT scan confirmed PVT extending into the left liver along with thromboses of the superior mesenteric and splenic veins. There was no identifiable cause such as intra-abdominal sepsis (e.g. from a leaked staple line), malignancy, cirrhosis or pancreatitis.

The patient was anticoagulated with therapeutic subcutaneous enoxaparin and rehydrated with intravenous fluids. Although her pain increased over the next 3 days her condition remained stable so a thrombolysis or thrombectomy was not necessary. By the fifth day her discomfort resolved.

Warfarinisation was then commenced and maintained for 6 months. An ultrasound 3 months later revealed recanalisation of the portal vein and no evidence of portal hypertension. Thrombophilic screen did not reveal any hypercoaguable syndromes.

She has since returned to normal activities with advice to avoid the OCP.
Discussion

The LSG is gaining prominence in the field of bariatric surgery as it is perceived to have a better safety profile than the gastric bypass but with similar results. The first report of PVT as a complication of this operation was in 2009 when Berthet et al\(^1\) described this event in a patient with Factor 2 Leiden deficiency. Since then case series have been presented (seven patients by Kenfield et al,\(^2\) 17 patients by Salinas et al\(^3\)) suggesting that this was not an isolated occurrence and not restricted to those with...
thrombophilic disorders. Furthermore it appears that this complication is not common to all types of weight-loss surgeries. In their case control study comparing 811 LSG with 786 case-matched gastric bypasses, Boza et al describe 17 (1%) patients with PVT following LSG but none following the gastric bypasses.

The unique pathophysiological features of the LSG that leads to PVT are yet to be elucidated. The usual factors associated with other forms of laparoscopy include reverse Trendelenberg positioning, carbon dioxide insufflation, perioperative dehydration, and the prothrombotic status associated with obese patients. However the delayed onset of the current case is similar to others described (Kenfield et al report onset between day 18 and 40) and suggest that factors other than intraoperative splanchnic perfusion changes are responsible.

As intra-abdominal sepsis has been implicated in episodes of spontaneous PVT, the authors strongly recommend that a leaked staple line is considered at the initial presentation as these can often occur in a similar timeframe. Fortunately this current patient (like 75% of patients) responded to anticoagulation and the portal vein recanalised. In those patients that continue to deteriorate invasive options such as percutaneous transjugular catheterisation of occluded veins, and local thrombolytic therapy can be considered.

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References: