Portal Vein Thrombosis: an Unusual Complication after Laparoscopic Cholecystectomy

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ABSTRACT

Postoperative portal vein thrombosis is a rare complication which occurs most often after hepatobiliary surgery. To date, few cases following laparoscopic cholecystectomy have been reported. In this paper we present a case of portal vein thrombosis diagnosed with abdominal CT scan on the seventh day following laparoscopic cholecystectomy. The patient was administered therapeutic intravenous heparin with resolution of symptoms.

KEYWORDS

Laparoscopy; Cholecystectomy; Portal vein; Thrombosis

INTRODUCTION

Postoperative portal vein thrombosis is a rare complication which occurs most often after hepatobiliary surgery.

Recently, several cases have been described in combination with such laparoscopic procedures as: sigmoid colectomy,[1] appendectomy,[2] gastric bypass,[3] and splenectomy.[4]

However, to date, few cases following laparoscopic cholecystectomy have been reported.[5,6] This paper presents a case with no other demonstrable hypercoagulable condition, in which portal vein thrombosis was diagnosed on the seventh day following an uneventful laparoscopic cholecystectomy.

CASE REPORT

A healthy 35 year old female presented with a history of intermittent epigastric and right upper quadrant pain of a few months duration. Abdominal physical examination was not significant.

The patient had a normal laboratory work-up and was on oral contraceptives. Abdominal sonography revealed multiple small stones in the gall bladder.

As a result, the patient underwent an elective laparoscopic cholecystectomy.

Elastic bandages were applied on the lower extremities for deep vein thrombosis prophylaxis.

Capnoperitoneum was established and maintained at 12 mm Hg. The patient was placed in the reverse trendelenburge position and electrocautery was used solely to detach the gallbladder from the liver bed.

No bile duct or vascular injuries were seen, and blood loss was negligible. The patient was discharged on the first postoperative day without complaint.

Seven days following surgery, she returned with vague persistent abdominal pain, bloating and nausea. Abdominal examination showed epigastric and right upper quadrant tenderness without

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peritoneal irritation. Liver biochemistry tests were normal with the exception of mildly elevated serum amylase (150 IU/L).

Abdominal sonography revealed thrombosis of the main portal trunk and superior mesenteric vein with sluggish flow in the splenic vein. Hepatic veins and inferior vena cava were normal.

Hepatic artery pulsation was more prominent than expected (Figure 1). CT scan of the abdomen and pelvis with intravenous and oral contrast confirmed sonographic findings (Figure 2).

Fig. 1: Postoperative ultrasound shows portal venous thrombosis.

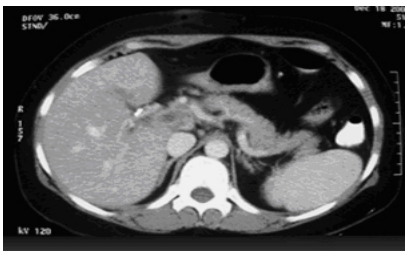


Fig. 2A: Thrombus in the portal venous confluence.

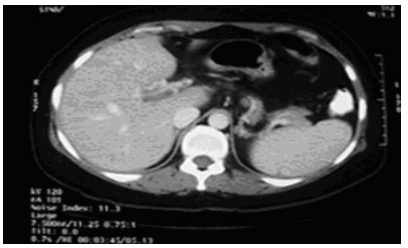


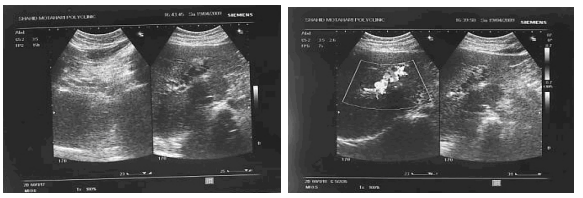
Fig. 2B: Thrombus in right hepatic branch of the portal vein.

Abdominal CT scan with intravenous and oral contrast demonstrated a thrombus in the portal venous confluence (Figure 2A) and thrombus in the right hepatic branch of the portal vein (Figure 2B). Coagulation studies, including prothrombin time, partial thromboplastin time, platelet count, protein C activity, protein S activity, activated protein C resistance, lupus anticoagulant, and antithrombin III were all within normal ranges.

The patient was started on therapeutic intravenous heparin with resolution of her symptoms over the next two days. Anticoagulation therapy was continued with administration of warfarin (5 mg, once daily).

The patient was discharged to home on a regular diet and warfarin. Abdominal Doppler ultrasonography was done six months following surgery which showed a cavernous transformation with partial flow in the main trunk of the portal vein and few peri-portal collaterals.

The splenic vein was normal and the superior mesenteric vein also showed partial resolution of thrombosis. All hepatic veins and inferior vena cava were normal and no ascites were present (Figure 3).



A. B.

Fig. 3: Abdominal color Doppler study six months following surgery showed multiple small venous structures at the hillum of the liver, along the main portal vein (A) and its main hepatic branches (cavernous transformation; B).

DISCUSSION

Laparoscopic cholecystectomy has become the standard management for symptomatic gallbladder disease. Complications following laparoscopic cholecystectomy include: major bile duct injury, major vascular and bowel injury during trocar placement, cardiopulmonary failure, wound infection, and spillage of stones into the peritoneal cavity with subsequent abscess and/or fistula formation.

However isolated portal vein thrombosis is infrequent and has been reported in recent years following abdominal laparoscopic procedures other than laparoscopic cholecystectomy. It may have resulted from the use of oral contraceptives,

unrecognized trauma, changes in coagulation status, splanchnic hemodynamics, of which all could be accentuated by carbon dioxide absorption and increased intra-abdominal pressure.[7-10]

In patients undergoing laparoscopic abdominal surgery, heparin prophylaxis has been advised by a number of surgeons in order to avoid these complications since alteration in coagulation may occur, particularly if the patient presents with a past history of hypercoagulable disorders, or in otherwise healthy females who take oral contraceptives. Our patient was administered therapeutic intravenous heparin with resolution of symptoms.

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CONFLICT OF INTEREST

None declared.

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