World Journal of Laparoscopic Surgery, September-December 2008;1(3):46-48

Two Rare Cases of Intrahepatic Subcapsular Hematoma After Laparoscopic Cholecystectomy

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Abstract

The appearance of subcapsular hematoma liver after a laparoscopic cholecystectomy is a complication few studied and few cases have been described in the literature. Some of them have been connected to administration of ketorolac during and after surgery, because of its anti-platelet activity. But other factors such as hemangioma or lacerations could play an important role as well. In addition, the presence of circulating heparin-like anticoagulant present in hematological diseases like leukemia, multiple myeloma or amyloidosis would increase the risk of bleeding. We present two cases of subcapsular hematoma liver after laparoscopic cholecystectomy, both of them were given ketorolac, and one of them had multiple myeloma.

Keywords: Laparoscopic cholecystectomy; subcapsular hematoma liver; complication; ketorolac.

INTRODUCTION

The appearance of subcapsular liver hematoma after a laparoscopic cholecystectomy (LC) is a complication few frequent and few studied. Some cases have been connected to ketorolac given during surgery and after surgery. Others described causes are: hemangiomas or small iatrogenic lesions that could be aggravated by administration of ketorolac. Coagulation dysfunction like circulating heparin like seen in hematological diseases is cause of bleeding after aggressive procedures.

We describe two cases of subcapsular liver hematoma after LC, both of them have been given intravenous ketorolac and one of them had multiple myeloma. We discuss the causes and treatment of it.

CASE 1

A 69 years old woman with medical history of multiple myeloma and Pott´s disease was admitted for elective laparoscopic cholecystectomy (LC). An ultrasound previous to surgery showed cholelithiasis without signs of cholecystitis. Blood tests were normal (hemoglobin 13.5 g/L and normal coagulation tests).

LC was performed using four trocars: Two 10 mm trocars and two 5 mm trocars. The dissection was accomplished without difficulty. Neither wounds nor lacerations were observed during surgery. The patient was administered 30 mg of intravenous ketorol at the end of the surgery and the three days following surgery, 30 mg each 8 hours. The postoperative period was a bit slow due to pyrexia and few gastrointestinal symptoms.

On the fifth day after surgery, the patient had right upper quadrant pain, nauseas and vomits. Blood test showed a light decrease of hemoglobin: 9.6 g/L. An ultrasound was made and no lesions were revealed.

After 24 hours, the patient showed hemodynamic instability, hypotension and tachycardia, and blood test: hemoglobin of 4.5g/L, and increase of liver enzymes: GOT 5782, GPT 367 and FA 146. A CT (Figs 1 and 2) revealed an intrahepatic subcapsular collection in V, VI and VII hepatic segments (16 × 5 cm). The patient was admitted in the ICU. An arteriography was performed but no signs of active bleeding were observed.

So, an exploratory laparotomy was made due to hemodynamic instability despite blood and plasma support. An important hematoma in the right lobe hepatic was observed; it was drained and packing, a hepatic biopsy was taken. Neither parenchymal injury of the gallbladder bed nor iatrogenic lesions were seen. After 48 hours, the packing was reviewed and no signs of bleeding were seen.

The patient recovered uneventfully. Control CT was performed 20 days after surgery and it revealed avascular areas in V, VI and VII hepatic segments. Rest of liver was normal.

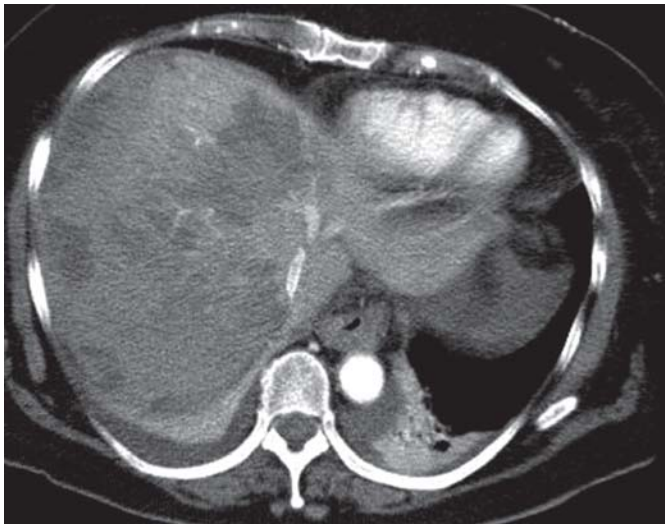

Fig. 1: Intrahepatic subcapsular collection in V, VI and VII hepatic segments

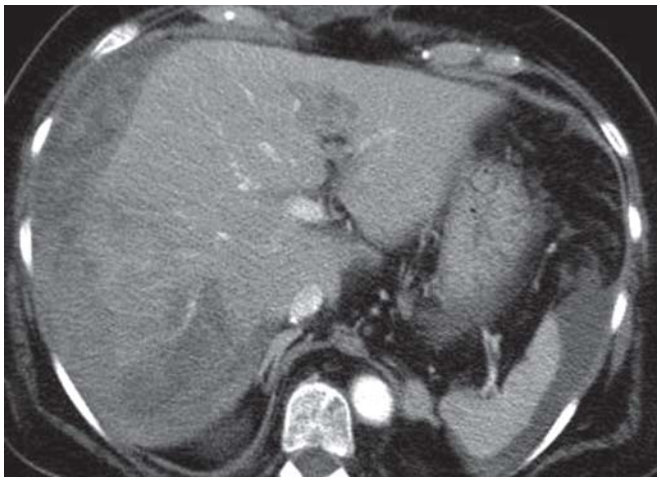

Fig. 2: Intrahepatic subcapsular collection in V, VI and VII hepatic segments (16 × 5 cm)

Fig. 3: Subcapsular hematoma in right lobe liver

She was also followed up by Hematology Department, and they suggested that the heparin like anticoagulant factor associated to hematology diseases (in this case multiple myeloma) could have triggered the bleeding and so, the subcapsular hematoma liver.

The patient was discharged 37 days after the elective LC.

The biopsy revealed ischemia and necrosis.

A new control CT was made after 5 months: Small hypocaptant areas in zone highest of right lobe liver, better than previous.

CASE 2

A 29 years old woman was admitted for elective LC because of cholelithiasis. Medical history was insignificant. Ultrasound previous to surgery revealed cholelithiasis without signs of cholecystitis. Blood tests were normal.

She underwent LC using four trocars: Two 10 mm trocars and two 5 mm trocars. The dissection of the gallbladder from the liver bed was accomplished easily. There were no incidents during surgery. She was administered ketorol 30 mg intravenous at the end of the surgery and each 8 hours after.

After 24 hours, the patient had an episode of perspiration and hypotension which did not improve with support measures. Blood test showed hemoglobin of 6 g/L and liver dysfunction. A CT was made and showed a subcapsular hematoma of the right lobe of liver (Fig. 3). So, she underwent exploratory laparotomy and we found a massive subcapsular hematoma of the right liver lobe. No iatrogenic lesions were found. The bed gallbladder did not present lesions. The hematoma was drained and we perfomed a packing. After 24 hours, we reviewed the patient and did not find signs of bleeding. A liver biopsy was taken and reported like hematic material.

After surgery the patient had pleural spillage, auricular fibrillation and polyneuropathy.

She was discharged after 30 days and is well and asymptomatic nowadays.

DISCUSSION

The LC is the choice for the treatment of symptomatic uncomplicated cholelithiasis.[9] The mortality rate is around 0.66%[9] and morbidity of 7%.[4] The appearance of postoperative hemorrhage is rare (0.08-0-2% of all cases),[2] and the places where more often occur are: Gallbladder bed, abdominal wall , cystic artery and falciform ligament.[2]

Ketorolac is the first injectable nonsteroidal anti-inflammatory drug used as an analgesic in the perioperative period,[1,3] it is also used by anestesists like part of the standardized, evidence-based regime.[11] Between all of the NSAIDs, ketorolac is associated with the highest risk estimate of bleeding.[10]

It has an antiplatelet activity and its activity could last as long as 24 hours after its administration.[3] Ketorolac could cause bleeding and hematoma, or aggravate any small hepatic injury during surgery.[1]

The presence of circulating heparin like anticoagulant is observed in hematological diseases such as multiple myeloma, T- prolymphocytic leukemia, so it has been described that these patients could bleed after small aggressive procedures[12] such as brown bone aspiration, cutaneous bleeding,[14] epistaxis[13] or deep site hematoma.[13]

So, there are several theories about the cause of subcapsular liver hematoma in these patients.

Traction of the lower hepatic surface made for irrigating and draining the subhepatic space would produce bleeding and hematoma , in addition to, hepatic hemangiomas were found in some cases, so the traction over the liver could break these hemangiomas, so this with administration of ketorolac would cause a liver subcapsular hematoma.[2] Some surgeons support the study of the hepatic parenchymal previous to surgery.

Three clear causes have been described like cause of liver hematoma: Small tears of the hepatic capsule after traction on the gallbladder, puncture of the liver with the trocar when introducing the trocar and parenchymal injury while excision of the gallbladder.[15]

Others back up that this kind of complication is inherent to the method of surgery itself.[5]

The diagnostic can be difficult till symptoms appear: Pain, fever, vomits or shock hypovolemic.

About the management: If the patient is stable, asymptomatic and the hematoma is small, a conservative therapy is the choice. But if the hematoma has an important size so it is likely that it can be reabsorbed, a percutaneous drain can be performed using under ultrasound guidance.[7] If the patient is unstable, a laparotomy is mandatory.[6]

We report about two cases:

The first one was a woman with multiple myeloma (IgA), who was given 30 mg intravenous ketorolac during and after surgery . There were no incidents during surgery and no lesions were seen. The postoperative recovery was slow with non-specific symptoms. She went under laparotomy because of hemodynamic instability. We did not find iatrogenic lesions, just an important hematoma in the right hepatic lobe. It was drained and a packing made.

The cause about this intrahepatic hematoma is not clear. We think that ketorolac could have had a role, or have aggravated some small lesions caused during surgery and not seen. In addition to, the patient had a multiple myeloma; the role of this is not clear because it was studied by hematologists and till now they have not been able to demonstrated alteration in coagulation tests. We think that more studies about this condition are needed because of some cases, in the literature, about bleeding in this patients. We cannot discard the breaking of some hemangioma during surgery though no hemangioma were seen in ultrasound previous to surgery.

In the second case, ketorolac was also administrated during and after surgery, 30 mg each 8 hours, intravenous. There were no incidents during surgery. Laparotomy was needed because of hemodynamic instability. But in this case, the cause seems to be a few more clear image of 2 cm of size compatible with a hemangioma was found in an ultrasound during the follow-up. We think that the hemangioma could have been broken fortuitously during surgery and not seen, and the ketorolac given would have aggravated the lesion, like Pietra et al. supports in his work.[2]

We conclude, the LC is a safe method and the choice for symptomatic uncomplicated cholelithiasis, with low mortality and morbidity. The presence of a subcapsular liver hematoma after a LC is a rare complication few studied. Till now only 10 cases have been reported. It has been connected to administration of ketorolac, which would aggravate small iatrogenic lesions occurring during surgery and that would go unnoticed. But other factors could have an important role, like the presence of hemangiomas that would be ruptured by chance during surgery or causes that would produce bleeding such as circulating heparin like associated to hematological disease such multiple myeloma or leukaemia. About the management: If the patient is stable the hematoma can be observed or drained percutanously with ultrasound guidance, and if instable laparotomy is mandatory.

More studies are needed to clear this causes and determinate is some kind of study should be accomplished in patient with risk of bleeding, as though the role of the ketorolac.

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