

Intestinal Occlusion Due To Acute Intramural Hematoma Of The Ascending Colon After Open Cholecystectomy

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Citation

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Abstract

Intestinal obstruction due to acute intramural hematoma of the colon after open cholecystectomy is an exceptional complication. This case possibly constitutes the first case published up to now in world literature. We report a 65-year-old man who presented abdominal pain followed by intestinal obstruction due to a hematoma of the colon after open cholecystectomy. The initial diagnosis was done by computed tomography and proved by colonoscopy. The progressive abdominal pain with clinical deterioration prompted an urgent laparotomy. Right hemicolectomy, ileocolic anastomosis and ileostomy were done and the patient recovered uneventfully. Based on our experience with this patient and founded on the review of the literature, we discuss the different clinical manifestations, difficulties of diagnosis, and different treatment modalities of this disease.

INTRODUCTION

Intestinal obstruction caused by intramural hematoma of the bowel is a very rare complication after abdominal surgical interventions. This is the first report of colonic hematoma after open cholecystectomy. This can be demonstrated after reviewing the literature until the present time.

The first record of a patient surviving such a lesion was in 1914 when Vogel evacuated a suberosal hematoma from the sigmoid colon of a 16-year-old boy who sustained the injury during local anaesthesia for hernioplasty.¹

There are two clinical types of intestinal intramural haematoma:

- One is a chronic stenosing lesion, which usually occurs late following injury, apparently the result of scarring produced by the organization of hematoma and/or interruption of the blood supply to a short segment of the bowel. Otherwise, the aetiology of such strictures following blunt abdominal trauma is likely to be a combination of mural haemorrhage and ischemia.^{2,3,4}
- Acute colonic intramural hematoma is less frequent than the chronic type and not more than 40 cases have been reported in the literature, many

of them are associated to blunt abdominal trauma (70%),^{5,6,7,8,9,10,11,12,13,14} anticoagulation therapy,^{15,16,17} mainly due to the warfarin toxicity (62%),¹⁸ bleeding disorder,^{19,20,21} endometriosis,²² acute hemorrhagic cholecystitis,²³ vascular malformations, pancreatic pseudocyst, peritoneal dialysis and very few to intra-operative inadvertent lesion,¹ as in our patient.

Because we have not found a similar case described in the surgical literature, we have decided to publish this case with the aim to discuss clinical aspects, diagnosis and treatment of this entity.

CASE REPORT

A 65-year-old patient presented with abdominal pain, hiccups, nausea, vomits, and oral intolerance of 12 hours of evolution. The patient had undergone open cholecystectomy 5 days before for cholelithiasis and chronic cholecystitis. We began the surgical intervention by laparoscopic approach, but due to the intense inflammation of the gallbladder we decided to continue the intervention by open surgery.

The patient neither had any disease with increased risk of haemorrhage, nor was he treated with anticoagulants.

Initially, he was in clear consciousness with a pulse rate of 73/min and a blood pressure of 120/78 mmHg. The abdomen was tender with little muscle guarding in the right lower quadrant. The bowel sounds were increased. A rectal digital examination did not show blood on the glove. Laboratory data showed a white blood cell count of 12300/ μ l with 84% of segmental neutrophils, a red blood cell count of 3.63×10^6 / μ l, a hematocrit of 33.5%, a hemoglobin of 11g/dl and a platelet count of 166×10^3 / μ l. The coagulation profile was normal. Glucose was 175 mg/dl, BUN 46 mg/dl, creatinine 0.92 mg/dl, total protein 7 g/dl, chloride 106 mEq/L, potassium 4.7 mEq/L, sodium 141 mEq/L, serum amylase 24 mg%, alanine aminotransferase 16 IU/L, aspartate aminotransferase 50 IU/L, alkaline phosphatase 106 IU/L, and total bilirubin 0.86 mg/dl. The abdominal x-ray showed signs of intestinal sub-occlusion possibly due to postoperative adhesences (Fig. 1), for this reason we decided to begin medical treatment with nasogastric aspiration, intravenous fluids, omeprazole and prokinetic drugs. As the symptoms were persistent and progressive, we carried out an abdominal computed tomography scan (CT) that showed a great obstructive acute intramural hematoma affecting the ascending colon up to the hepatic flexure (Fig. 2). The diagnosis of an obstructive intramural hematoma was then proved by colonoscopy (Fig. 3).

Figure 1

Figure 1: Plain x-ray of the abdomen revealed signs of intestinal sub-occlusion.



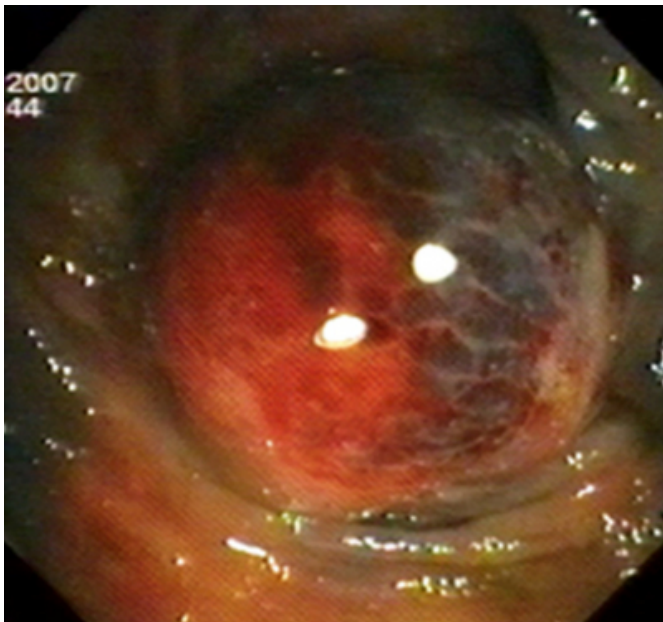
Figure 2

Figure 2: Abdominal computed tomography (CT) scan showed the lumen of the ascending colon filled with a fresh hematoma (hyperdense area in the intestinal lumen).



Figure 3

Figure 3: Colonoscopy showed total occlusion of the colon lumen due to the presence of a large, well-defined intramural hematoma.



During urgent laparotomy, a huge colonic hematoma extending from the lower border of the liver to the cecum was found. As the mass was occupying the whole lumen of the colon, with great dilatation of the small intestine, right

hemicolectomy, ileo-transversostomy and ileostomy of protection were done. The patient was transferred to the intensive care unit for post-operative control. The patient recovered uneventfully in the postoperative period and was discharged twenty days after hospital admission. The histological study of the surgical specimen showed that the hematoma had originated in the submucosal layer of the colon sparing the muscularis and serosa layers.

DISCUSSION

Intestinal occlusion due to hematoma of the colon after open cholecystectomy is an extremely rare postoperative complication. The study of this case allows better understanding of this entity with the purpose to avoid this complication in the future and also is helpful for evaluating the appropriate management of this pathology.

The diagnosis of postoperative obstructive hematoma of the colon is very difficult, as one does not suspect it because adhesions constitute the most frequent cause of postoperative intestinal occlusion.²⁴ The bases of the diagnosis are clinical manifestations and imaging tests.²⁵ Early diagnosis is crucial because most patients are treated nonoperatively with a good outcome.²⁶

Laboratory findings are non-specific, usually characterized by mild leukocytosis, anemia, and abnormal coagulation test when there is a history of anticoagulation therapy.

Clinical manifestations for acute intramural hematoma of the colon are variable. The onset of symptoms is early, usually within one week after the surgical intervention. The symptoms usually are obstructive in nature (abdominal pain, nausea, vomits and oral intolerance), sometimes associated to abdominal distention, palpable mass and hematocrit reduction. They may also include rectal bleeding or shock due to hemoperitoneum following spontaneous evacuation of the hematoma.^{5,9,27,28}

The type of colonic lesion is correlated with the mechanism of injury. Acute hematoma is most commonly found in the transverse and sigmoid colon, because these areas are more likely to be traumatized during dissection of the Morrison space during open cholecystectomy. Tension can cause laceration or rupture of the neighboring organs which will determine the intensity of the bleeding. This type of direct trauma generally has a predilection for the hollow viscera (right colon, left colon and duodenum) near the fixation point, as in our case. The major types of colon injury include

mesenteric laceration with blood loss, vascular injury with or without bowel ischemia, intramural hematoma (as in our case), bowel wall laceration and delayed cicatricial stenosis.^{9,13}

Currently, the gold standard in radiological evaluation of intra-abdominal injury is CT with iodinated contrast material. CT characteristics of intramural hematoma of the colon include circumferential wall thickening, intramural hyperdensity, luminal narrowing and intestinal obstruction,¹⁸ as in our case (Fig. 2). CT also plays a great role in the follow-up evaluation of the size of the hematoma, with a sensitivity of the 82%, specificity of the 99%, positive predictive value of the 64% and negative predictive value of the 99%. Abdominal CT is also adequate for depiction of bowel and mesenteric injuries that require surgical repair or medical treatment.^{29,30}

With renal failure or a previous anaphylactic reaction to contrast material, CT evaluation of the intra-abdominal haematoma may prove difficult. Without contrast material, the sensitivity of CT is diminished. In these cases magnetic resonance imaging (MRI) is the imaging test of choice.³¹

Plain abdominal radiography can reveal a paucity of gas in proximal obstructions, gastric dilatation, an air-fluid level and thickening of the intestinal wall and of the valvulae conniventes. Conventional radiology is also useful to discard other causes of acute abdominal pain after open abdominal surgery.²⁸

Barium enema can be of utility for evaluating the level of the obstruction caused by the acute intramural hematoma²⁸ or the level of the colonic stricture secondary to chronic intramural hematoma.⁴

Ultrasound (US) is also a useful tool for early diagnosis, for evaluation of the hematoma evolution and it provides information for planning further management. The following US findings are characteristic: Clean and defined double or multilayered thickening of the bowel wall, undulated mucous membrane, narrowed lumen with corpusculate fluid content and gas spots, decreased peristalsis with fixity of the images, and fluid between the loops.^{26, 28}

Colonoscopy can be of utility in the cases that become manifest with rectal bleeding or positive occult blood test for stool.^{17,32} Our patient did not have signs of digestive bleeding; however, colonoscopy confirmed the diagnosis.

The lesion may be located between the serosa and the muscular coat of the bowel or between the muscular coat and the mucosa. The larger hematomas are usually found in the submucosal layer because there are more vascular structures in this layer.⁹ The finding in our case is also compatible with this hypothesis.

Surgical treatment constitutes the treatment of choice of intramural hematoma of the colon, although expectant therapy may be successful in some cases, especially in young patients with spontaneous resolution of the hematoma demonstrated by CT scan.^{12,17,33} Clinical observation is also indicated for haematomas of other gastrointestinal sites, such as the oesophagus and duodenum where the growth of the lesion is limited by adjacent structures, which seldom causes haemorrhage into the mediastinum or peritoneal cavity.¹⁰ Cases with acute symptoms, which do not resolve with initial conservative treatment, are candidates for operative treatment, due to the great possibility of causing an intestinal obstruction or spontaneous rupture with intraperitoneal or intraluminal bleeding.^{7,34}

Surgical intervention consists in the choice between intestinal resection or evacuation of the intramural hematoma. We do not believe, that is easy to evacuate all of the blood clots without risk of bleeding, perforation, or bowel ischemia. Resection and primary anastomosis is a safe method, especially for unperforated right colonic lesions. If the patient's condition is stable and intra-operative colonic irrigation is used, we believe that resection and primary anastomosis will be more suitable for left-sided lesions, but in some cases exteriorization or Hartman's procedure can be indicated.⁹

In conclusion, we present here the case of a 65-year-old male with abdominal pain and vomiting on the fifth postoperative day after open cholecystectomy. As the symptoms were persistent and progressive, urgent laparotomy was considered. He was diagnosed pre-operatively by CT and the diagnosis was proved by colonoscopy as an intestinal obstruction due an intramural hematoma of the ascending colon, and he was treated by right hemicolectomy and ileostomy. His convalescence was uneventful and he was discharged on the twentieth postoperative day. This is the first report of obstructive haematoma of the right colon after open cholecystectomy.

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