Laparoscopic treatment of a subfascial haematoma following a Pfannenstiel laparotomy

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ABSTRACT

Objective To report the laparoscopic treatment of abdominal wall haematomas and to review the literature spanning 1976–99.

Design Case report and Medline search using Winspirrs as search engine.

Report A 50-year-old patient, with a large abdominal wall haematoma following an abdominal hysterectomy by Pfannenstiel incision, was treated by laparoscopy. Following CO_2 insufflation and trocar insertion at the umbilicus, the diagnosis of a haematoma was confirmed by the bulging parietal peritoneum. Using an operative laparoscope, the peritoneum was entered close to the umbilicus and a haematoma of 750 ml was aspirated. Thorough examination did not reveal any remaining active bleeding. Clinical recuperation was spectacular and the patient was discharged 2 days later.

Review Abdominal wall haematoma following Pfannenstiel incision is a rare complication, with reported incidences of 5%. The clinical diagnosis can be confirmed by ultrasound and computed tomographic (CT) scan, with sensitivities of 71% and 100%, respectively. Surgical treatment is limited to large haematomas because of secondary wound healing problems.

Conclusion Since the laparoscopic treatment of wall haematomas is so easy and straightforward, we suggest that broadening the indications for surgery can be considered. This could moreover lead to a revision of the diagnostic accuracy of ultrasound and CT scan for smaller haematomas.

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INTRODUCTION

Abdominal wall haematomas have been reported to occur in 6.1% of patients undergoing a Pfannenstiel incision.[1] They result from disruption of the inferior epigastric vessels or their branches between the transversalis and umbilicovesical fasciae, with or without rupture of the muscle.[2–4]

Predisposing factors are vigorous retraction, inadequate haemostasis, needle laceration, slipped ligatures, impaired mobility of the epigastric vessels, postoperative continuous oozing, sawing of the abdominal wall sutures and anticoagulant therapy.[3,5]

The symptoms are related to the size and location of the haematoma and to the accompanying peritoneal irritation.[2] In a patient with a mass in the area of the rectus muscle during the postoperative period, the diagnosis of haematoma should be considered.[3] If the haematoma is significant, weakness, tachycardia, tachypnoea and fever are not uncommon.[5]

On clinical examination, one finds exquisite tenderness, spasm and a mass in the involved rectus muscle.[3] When the rectus sheath is torn, it is not unusual to see at an early stage a bluish discoloration of the abdomen.[5] The Fothergill sign, upon tension of the abdominal muscles, will show a fixed and readily palpable mass in the abdominal wall.[6]

The diagnosis can be confirmed by ultrasound, with

a sensitivity of 71% only.[7,8] Findings of round fluid collections in either the subfascial or bladder flap regions are most likely to be haematomas.[9,10] If ultrasound is not conclusive, computed tomographic (CT) evaluation should be performed, since CT has been reported to reveal the presence, nature, location, size and extent of the abdominal mass with a sensitivity of 100%.[7,11,12] The findings are those of enlargement of the rectus abdominus muscles, presence of fluid within the sheath and presence of fluid levels thought to represent sedimentation or layering of fresh haemorrhage and clotted blood.[6] The density of the haematoma on CT scan depends on its age, an acute haematoma having a density equal to or greater than soft tissues.[13]

Treatment can be expectant management or surgery with evacuation of the haematoma. If expectant management is considered, ultrasound can be used to follow the haematoma to maturation and resolution after diagnosis.[8] If the haematoma is significant, expectant management is rarely adequate and surgery should be considered.[3]

A 50-year-old white woman underwent an abdominal hysterectomy through Pfannenstiel incision for a uterus weighing 860 g with several myomas. The procedure was uneventful. No transfusion was given, since total intraoperative blood loss was clinically estimated at around 250 ml. Initially the postoperative recovery was uncomplicated, although the preoperative haemoglobin level of 15.7 mg% had dropped to 10.3 mg% on day 2 postoperatively.

On day 5 after surgery, the patient complained of abdominal pain, weakness and dizziness. On clinical examination, the arterial blood pressure was 120/70 mmHg, and the heart rate was 100 beats per minute. The lower abdominal region was slightly tender with a palpable mass and a slight bluish discoloration at the scar region. There were no signs of peritonitis. The full blood count showed a haemoglobin of 6.9 mg% and a haematocrit of 21%.

On ultrasound however, no significant abnormalities were found and the decision was made to treat the patient conservatively with a transfusion of two units of packed cells. The same day the patient became pyrexial with a temperature up to 38.8 °C. In the absence of a clear diagnosis, we prudently started her with intravenous antibiotics. Despite this treatment, the pyrexia persisted and the abdominal pain increased. On day 7 after surgery the diagnosis of a significant subfascial haematoma was made by ultrasound (Fig. 1). Clinically the skin and the incision were distended, shiny, slightly bluish and a wound dehiscence was anticipated. Therefore a laparoscopy was performed with CO_2 insufflation through a trocar insertion (12 mm) at the umbilicus. At inspection some peritoneal fluid was found in the abdominal cavity. The parietal peritoneum was bulging into the abdominal cavity, confirming the diagnosis of a subfascial haematoma. The haematoma was entered close to the umbilicus, using an operative laparoscope (Storz, Hamburg, Germany). The diagnosis of haematoma was confirmed and through the operative channel clots were progressively aspirated, some 700 ml in total. Following aspiration the location below the fascia was clearly visible with a wide diastasis of musculi recti and the side of the haematoma expanding widely above and below the muscles. Thorough examination to identify any remaining active bleeding was negative and surgery was terminated. A Redivac drain was left between the rectus muscles and the rectus sheath. The whole procedure was performed under an intra-abdominal pressure of 20 mmHg without any anaesthetic problems, as minimal CO_2 resorption occurred.

Within 24 hours the patient became asymptomatic and apyrexial. The Redivac drain was removed and the patient was discharged on the second day after re-intervention.

REVIEW OF THE LITERATURE

The literature in english concerning the diagnosis or treatment of abdominal wall haematomas between 1976 and 1999 was reviewed, using the Medline database and Winspirrs as a search engine. In addition specific references listed in the articles were incorporated.

Only 13 articles, mostly case reports or small series, the largest of which described 36 patients, were found. In total 157 cases were reported.

DISCUSSION

To the best of our knowledge, this is the first case report of laparoscopic treatment of an important abdominal wall haematoma. This surgery proved to be technically easy and straightforward, with immediate relief of the symptoms and discharge of the patient after 2 days. This prompted us to review the diagnosis and treatment of abdominal wall haematomas.

Until now, surgical treatment of rectus sheath haematomas has only been performed when considered necessary, either to stop bleeding, or because of

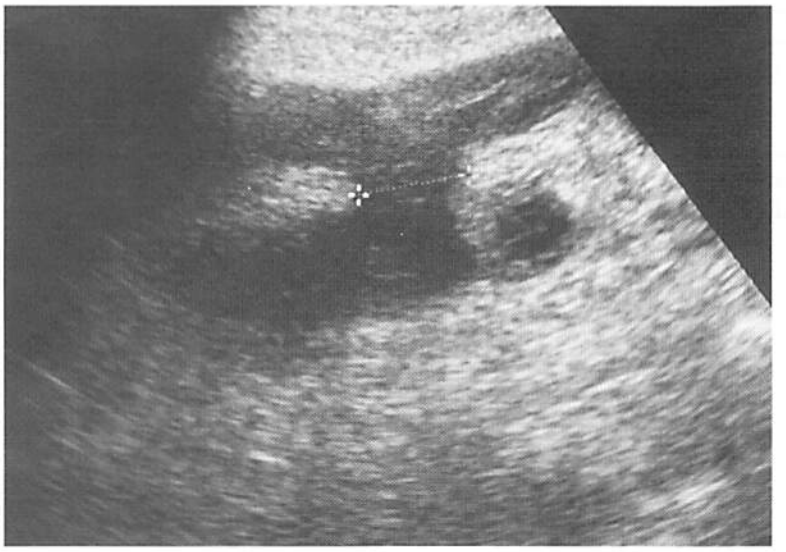

Figure 1 Ultrasonography clearly defined the subfascial haematoma extending between rectus muscles.

threatening wound dehiscence, pyrexia or because the patient is in excessive pain. Surgery is not performed if it is avoidable, because of the need to reopen and drain the incision, with secondary wound healing problems and aesthetically poor scar results. Since the laparoscopic procedure is so easy and straightforward, a broadening of the indications for surgery, to all haematomas causing considerable pain and/or longer hospitalization, could be considered. In addition the laparoscopic approach has the advantage that any blood present in the peritoneal cavity can be aspirated, which leads to a more rapid recovery of the patient.

The reported data concerning diagnosis and treatment should be considered with care, since diagnosis has not always been confirmed by surgery and since the investigations have not always been performed before surgery, especially in the case of very big haematomas. For large haematomas, clinical suspicion was confirmed in only 71% by ultrasound. CT scan was reported to have a sensitivity of 100%, but the series are rather small. For small haematomas the accuracy of ultrasound and CT scan is not known, since the diagnoses were not confirmed subsequently. Broadening the indication for surgery, as laparoscopy is easy and straightforward, could therefore lead to a better understanding of the diagnostic accuracy of ultrasound and CT scan in smaller abdominal wall haematomas. This is needed in order to delineate for what diameter of haematoma surgery would be indicated.

In conclusion we suggest that a laparoscopic approach to treating wall haematomas is so easy and straightforward that broadening the indications for surgery should be considered. Simultaneously, the diagnostic accuracy of ultrasound and CT scan for smaller haematomas should be re-evaluated, in order to clearly define the indications for surgery.

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