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Acute Myeloid Leukaemia Presenting as Ruptured Haemorrhagic Corpus Luteum

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Abstract

Rupture of haemorrhagic corpus luteum is a common cause of hemoperitoneum in women of reproductive age. In rare cases, it can represent the first manifestation of a haemato-oncologic disease. Here we present the case of a 24-year-old woman with acute abdomen due to haemorrhagic corpus luteum hemoperitoneum as the first manifestation of acute myeloid leukaemia. Active bleeding from the ovary was successfully treated by laparoscopic surgery, and haemostasis was achieved with a haemostatic sealant, allowing for the preservation of healthy ovarian tissue. At the same time, supportive therapy with antibiotics and blood components was administered and diagnostic investigation was carried out. Using minimally invasive surgery, the patient could be safely moved to receive adequate care as soon as the diagnosis of acute leukaemia had been obtained.

Introduction

Hemoperitoneum of ovarian origin, mainly due to rupture of the corpus luteum, is a common condition in gynaecological practice, and an expected diagnosis in women of reproductive age who present with abdominal pain and acute abdominal signs in the luteal phase of the menstrual cycle. Surgical treatment may be necessary for massive hemoperitoneum with signs and symptoms of hypovolemic shock. In extremely rare cases, hemoperitoneum of ovarian origin may be the initial presentation of a hemato-oncologic disease. We present a case of hemoperitoneum due to haemorrhagic corpus luteum as the first presentation of acute promyelocytic leukaemia.

Case report

A 24-year-old woman was admitted to the Emergency Room for acute abdomen. Her medical history was silent. During the previous weeks she had noticed bruises on her body, some that occurred spontaneously, and she felt weak and exhausted. Over the past three days she had experienced worsening abdominal pain, nausea and vomiting.

At admission, blood pressure was 140/80 mm Hg, heart rate 140/min, body temperature 38,5°C. On physical examination the abdomen was tense, with signs of peritoneal irritation. She was suspected of acute appendicitis.

A gynecological examination was requested, which showed uterine tenderness and an enlarged, painful left adnexal mass. Transvaginal ultrasound revealed free fluid in the pelvis and enlarged left ovary with cystic formation suggestive of haemorrhagic corpus luteum. The pregnancy test was negative and laboratory results revealed severe anaemia (Hb 4.8 g/dl), thrombocytopenia (PLT 21.000/mm 3) and leukopenia (WBC 1.300/mm3). Vital signs monitoring continued to show normal blood pressure with severe tachycardia.

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The presence of hemoperitoneum from haemorrhagic corpus luteum was therefore suspected, crossmatch was immediately required for the blood components and exploratory laparoscopy was performed. An underlying haematological disease was also suspected.

Laparoscopy found 600 cc of hemoperitoneum with a ruptured corpus luteum of the left ovary with active bleeding in progress. Haemostasis was performed on the bleeding ovarian parenchyma with bipolar forceps and a haemostatic sealant was applied on the bleeding surface of left ovary. Finally, a continuous 4/0 monofilament compression suture was performed. A peritoneal drain was placed. Total surgical time was 75 minutes.

Intraoperatively she received two units of packed red blood cells and two units of frozen plasma; two more units of packed red blood cells and a pool of platelets were subsequently transfused. On the same day, haematological and infectious disease consultation was requested for suspected underlying hemato-oncological disease with pancytopenia. Broad-spectrum antibiotic was initiated due to persistent leukopenia and fever; blood cultures were negative. Bone marrow aspiration was performed and approximately 80% blasts were observed and acute myeloid promyelocytic leukaemia was diagnosed. The postoperative course was otherwise uncomplicated and she was then referred to the haemato-oncology service for appropriate treatment.

Discussion

In blood cancer patients, acute abdomen is rare, but may occur at diagnosis, relapse, or during chemotherapy. Both chronic myeloid leukaemia and acute leukaemia can rarely present with a spontaneous hemoperitoneum [1-4].

Acute abdomen due to bleeding that requires surgery is extremely rare. The most common surgical technique for intra-abdominal complications is laparotomy, which is associated with high morbidity and mortality [4,5]. The choice to perform acute abdominal surgery in patients with concomitant hemato-oncologic disease should balance the morbidity and mortality associated with emergency surgery, with the expected benefits of conservative treatment alone [6]. If the general condition of the patient allows for surgical management, the procedure should be as complete as possible, associated with the administration of blood products, if necessary, and broad-spectrum antibiotics [7]. There are several causes of hemoperitoneum from ovarian disease in acute and chronic leukaemia, such as ovarian infiltration of leukemic cells and haemorrhage from the corpus luteum or rupture of ovarian endometrial cysts [3,4].

Ovarian cystic haemorrhage in hemato-oncologic diseases was first described in 1951 and has been reported very rarely since then [8]. Cepicky and Feyereislova described a case of a 23-year-old woman with a ruptured endometriotic ovarian cyst as the first symptom of acute myeloid leukaemia, who died in the postoperative period[1]. Also Taguchi et al. reported a case of acute abdomen due to rupture of endometriotic ovarian cysts, as the first symptom of acute leukaemia, successfully treated with minimally invasive laparoscopic surgery [4]. Nishimoto et al. described a case of hemoperitoneum as the first symptom of acute myeloid leukaemia, complicated by the infiltration of leukema cells into the ovary [3] Also, Habek et al. reported a case of acute abdomen caused by rupture of the corpus luteum as the first symptom of acute lymphatic leukaemia [2].

To date, there have been no reported cases where the bleeding has been treated in laparoscopic surgery and with additional haemostatic sealing agents, in order to reduce intraoperative complications and surgical time, avoid excessive electrocoagulation and preserve ovarian reserve. The use of an effective haemostatic agent ensures control of haemostasis in richly vascularized parenchymatous organs without damaging surrounding healthy tissue, and atraumatic haemostasis allows for rapid, residue-free healing in the wound area [9].

This report describes a case of hemoperitoneum due to rupture of the corpus luteum as the very rare initial presentation of acute myeloid leukaemia. The possibility of hemato-oncologic disease should always be considered in these patients, especially when severe blood tests anomalies, such as pancytopenia, are present, and diagnostic investigations should be performed promptly. When surgery is required, the procedure should be as complete and least traumatic as possible, and should always be associated with supportive management, such as administration of blood products and antibiotics [10,11].

In our case, the timely minimally invasive surgical management allowed full control of bleeding and rapid post-operative recovery, which made it possible to transfer the patient, in good general conditions, to the oncology service where diagnostic tests and an adequate treatment could be carried out only eight hours after surgery.

Conclusion

This report describes a rare case of hemoperitoneum due to rupture of corpus luteum as the very rare initial presentation of acute myeloid leukaemia. Active bleeding from the ovary was successfully treated by laparoscopic surgery, and haemostasis was achieved with a haemostatic sealant, allowing for the preservation of healthy ovarian tissue. To date, there have been no reported cases where bleeding has been treated in this way. Timely minimally invasive surgical management allowed full control of bleeding and rapid post-operative recovery, and at the same time, supportive therapy with antibiotics and blood components was administered and diagnostic investigation was carried out. This made it possible to promptly obtain a diagnosis of acute leukaemia and to transfer the patient, in good general conditions, to the oncology service only eight hours after surgery.

Declarations

Authors' contributions

Made substantial contributions to conception and design of the study and performed data analysis and interpretation: Alfieri N, Simonetti SC;

Performed data acquisition, as well as provided administrative, technical, and material support: Marconi AM, Gaia G

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References

1. Cepicky P, Feyereislova A. Haemoperitoneum due to rupture of an ovarian endometrioid cyst as a first symptom of acute leukaemia. Acta Clin Belg. 1991; 46: 28-29.
2. Habek D, Cerkez Habek J, Galić J, Goll-Barić S. Acute abdomen as first symptom of acute leukemia. Arch Gynecol Obstet. 2004; 270: 122-123.
3. Nishimoto F, Okuno K, Kuragaki C, Miyanishi K, Boku K, et al. Hemoperitoneum as the first manifestation of acute leukemia. Gynecol Obstet Invest. 2008; 66: 12-13.
4. Taguchi A, Koga K, Osuga Y, Fujimoto A, Miyasaka A, et al. Successful management of a ruptured endometrial cyst in acute leukemia. Fertil Steril. 2011; 95: 292.e1-3.
5. Koretz MJ, Neifeld JP. Emergency surgical treatment for patients with acute leukemia. Surg Gynecol Obstet. 1985; 161: 149-151.
6. Chung JPW, Law TSM, Mak JSM, Sahota DS, Li TC. Ovarian reserve and recurrence 1 year post-operatively after using haemostatic sealant and bipolar diathermy for haemostasis during laparoscopic ovarian cystectomy. Reprod Biomed Online. 2021; 43: 310-318.
7. Ramirez EC, Bastidas MA, Santiago NC, Machorro RD, Del Mazo Ruiz P, et al. Hemoperitoneum: an unusual presentation of chronic granulocytic leukemia in a pediatric patient. Pediatr Emerg Care. 2014; 30: 418-420.
8. Baby AK, Chandran S, Latha SM, Scott JX. Chronic myeloid leukemia presenting as spontaneous hemoperitoneum at diagnosis in an adolescent girl: A case report with review of literature. J Appl Hematol. 2016; 7: 38-40.
9. Samokhvalov IM, Golovko KP, Reva VA, Zhabin AV, Denisov AV, et al. [The use of local hemostatic agent "Celox" in experimental model of grade IV liver injury]. Voen Med Zh. 2013; 334: 24-30.
10. Chirletti P, Barillari P, Sammartino P, Cardi M, Caronna R, Arcese W, et al. The surgical choice in neutropenic patients with hematological disorders and acute abdominal complications. Leuk Lymphoma. 1993; 9: 237-241.
11. Hoffman R, Brenner B. Corpus luteum hemorrhage in women with bleeding disorders. Womens Health (Lond). 2009; 5: 91-95.