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CASE REPORT

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Acute retroperitoneal hemorrhage after oocyte retrieval: a case report

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Abstract

Background: Retroperitoneal hemorrhage is an emergent condition. which can be life threatening without prompt treatment. Here, we report a case of acute retroperitoneal hemorrhage after oocyte retrieval.

Case presentation: A 29-year-old woman with a 5-year history of primary infertility underwent invitro fertilization-embryo transfer (IVF-ET) treatment. Hemorrhagic shock caused by retroperitoneal hematoma after oocyte retrieval was treated promptly by the evaluation of diagnostic laparoscopy and angiography. The patient was recovered and discharged from the hospital 7 days later without any complications. She was later diagnosed with von Willebrand disease by a hematologist.

Conclusions: We present an acute case of retroperitoneal hemorrhage after oocyte retrieval, a rare complication of vaginal ultrasound guided ovum pickup. Early accurate diagnosis, prompt and timely treatment are necessary to rescue patient. Physicians should strengthen the monitoring of postoperative patients especially when the patient is anesthetized under conscious sedation. Any surgery there are risks.

Keywords: *retroperitoneal hemorrhage, oocyte retrieval, IVF-ET, case report*

Abbreviations: *IVF-ET: Invitro fertilization embryo transfer, ECG: Electrocardiogram, HCG: Human choionic gonadotophin, DSA: Digital subtraction angiography, ICU: Intensive care unit, CT: Computed tomography, VWD: Von Willebrand factor, VWF: Von Willebrand factor.*

Background

The first transvaginal ultrasound-guided oocyte retrieval has been performed Since 1983 [1]. It becomes the most common operation in invitro fertilization-embryo transfer (IVF-ET) treatment and gradually replaces the technique of oocyte retrieval by laparoscopy. It is convenient and safe but there are still rare potential complication, such as infection and bleeding sometimes might even be life threatening. Paolo reviewed 23,827 oocyte retrievals and calculated per retrieval, the overall complication rate was 0.4% [2]. Siristatidis found that the incidence of bleeding after vaginal oocyte retrieval is 0.36%-18.08%, mainly including vaginal bleeding (18.08%), intraperitoneal bleeding (0.36%), retroperitoneal bleeding is extremely rare [3]. Here we report an emergency case of acute retroperitoneal hemorrhage after oocyte retrieval.

Case Presentation

A 29-year-old nulligravida woman underwent assisted reproductive technique in our hospital because of 5-year history of infertility. The patient medical history was bilateral obstruction, she had no obstetrics history and had a regular menstruation, normal endocrine profile, no personal and family history, normal semen analysis of her husband. The patient's electrocardiogram (ECG) showed the left ventricular anterior bundle branch block. She underwent a dynamic electrocardiogram and echocardiogram. She began to underwent IVF-ET with the support and guidance of her cardiologist. Other items of preoperative examination including blood coagulation function, urine routine, blood routine and biochemical tests were normal. Her weight is 60kg and height is 160cm, the basic vital signs and the gynecologic showed normal.

She started to ovulate with gonadotropin (Recombinant Human Follitropin Alfa for Injection) from the second day of the menstruation, when the dominate follicle grew to 12mm, antagonist (Cetrorelix Aacetate powder for Injection) was administered for about ten days. a scheduled oocyte retrieval via vaginal ultrasound under the intravenous anesthesia after administration of human choionic gonadotophin (HCG). There is not any medication and treatment before oocyte retrieval. Nine oocytes were obtained, everything went well in the procedure. Ten minutes later, the patient was still in sedation with anesthesia. The ECG monitor showed a rapid increase in heart rate to 120-150 per minute and the blood pressure was dropping from 120/70mmHg to 85/40mmHg. She was appeared to be pale and could be waken up Complaining abdomen pain and vomiting. her abdomen was distended and diffuse tenderness, there was no significant rebound in the lower abdomen, no obvious mobile

dullness. Vaginal examination revealed that there is no bleeding in the puncture point, the posterior fornix of the vagina is full and tender. Transvaginal sonography revealed a 3-4cm free fluid in pelvic. Blood routine examination revealed her hemoglobin concentration was 7.6g/L, platelet count was 130 x 109/L. She was immediately given 1 gram of intravenous tranexamic acid, 1 unit Hemocoagulase Atrox for Injection and 2 unit of packed red blood cell. Preoperative preparation has been completed; the patient was consented with a diagnosis of laparoscopy.

Laparoscopy revealed about 200ml pelvic free fluid, there was no evidence of active bleeder from pelvic vessels, slow active bleeding at the puncture point could be seen on the surface of bilateral ovaries. a retroperitoneal hematoma 6-7cm in diameter up to the left iliac fossae down to 5cm above the uterine rectal fossae. The sigmoid colon and its mesenteric membrane are closely adhered to the left lower abdominal wall (Figure 1A). The uterus is anterior full in shape and normal in size, the posterior wall of the uterus partly adhered to the rectum. The left fallopian tube is thick and expanded with hydrops and the right fallopian tube is hydrosalpinx. Multiple brown endometriosis lesions were seen in the posterior of the uterus, the surface of the rectal and the right sacral ligament.

The retroperitoneal hematoma appeared stable and no expanding, also no increase in tension. The blood routine hemoglobin concentration reexamination showed no significant change. Considering the bleeding has stopped, the trauma surgeon recommended no further incision for the retroperitoneal hematoma after consultation. Digital subtraction angiography (DSA) was done after operation to further confirm no more artery bleeding. DSA revealed the inferior mesenteric artery and the iliac artery were intact (Figures1B,1C). The patient was placed in the intensive care unit (ICU) with a angiographic catheter retained for emergency use.

They estimated the total blood loss 1500-2000ml, 200ml of fresh frozen plasma and 4 units of packed red blood cells were transfused during operation. The patient's vital signs remained stable later. She was discharged from hospital after seven days without any complication, Follow-up Computed Tomography (CT) reexamination demonstrated a retroperitoneal hematoma 5cm in diameter. The patient recovered well and the retroperitoneal hematoma disappeared within one month. She was referred to a hematologist who later diagnosed with von Willebrand disease.

Figure 1. A) Laparoscopic view of the retroperitoneum hematoma. **B)** CT scan of the retroperitoneum hematoma. **C)** The left iliac artery and inferior mesenteric artery was intact by fluorescence angiography.

Discussion and Conclusion

To our knowledge this is the first emergent case of hemorrhagic shock with retroperitoneum hemorrhage after oocyte retrieval, a case had been managed conservatively with retroperitoneal hematoma during laparoscopy. Two previously reported cases of retroperitoneal hemorrhage occurred after oocyte retrieval. Foad Azem reported a 42-year-old woman with retroperitoneal hematoma 7 cm in diameter 6 hours after oocyte retrieval. Laparoscopy revealed the injury of the mid sacral vein. The hematoma was removed and a mental clip was used to control the active bleeding [4]. Mata reported Another 36-year-old woman with a vaginal septum resected developed vaginal hemorrhage and retroperitoneal hematoma about 1500-2000ml blood loss after oocyte retrieval [5]. The retroperitoneal hematoma tracked from the lacerated posterior fornix to the back of the uterus (because of the vaginal laceration extended to the back of the uterus). when the vaginal laceration was repaired, the bleeding was controlled.

Von Willebrand disease (VWD) is a disorder that makes it hard for blood to clot because there is not enough of a clotting protein called von Willebrand factor (VWF) and blood coagulation factor VIII. The coagulation function of the patient we reported was normal before oocyte retrieval three weeks before and subsequent review is normal too. The patient progressed rapidly with the increase of heart rate and blood pressure dropping after 10 minutes of oocyte retrieval. The vaginal ultrasound revealed no significant free fluid in the pelvic, we identified with the tachycardia caused by her history of left cardiac bundle of block immediately. Rapid diagnosis and rehydration is very important to the hemorrhagic shock patient. The patient was quickly opened two veins with Rapid rehydration. Blood transfusion and blood pressure elevation drug also saved precious time for the patients. With the amount of bleeding, the retroperitoneal tension continues to increase, the bleeding is beginning to decrease and ceased. Laparoscopy revealed retroperitoneum had been stable and no further explore after the consultation of the trauma surgeon. CT and angiography also confirmed the intact of pelvic vascular.

The management of retroperitoneal hematoma is quite challenging. It is not recommended except the organic injury, the increase tension Or with a pulse of the hematoma [6]. Otherwise

it is difficult to find the bleeding site and not easy to control the bleeding and the chance of infection is greatly increased. The patient we reported with stable and no increase in expand and tension. She was treated conservatively after CT and angiography, she recovered and discharged with 7 days.

Aragona reported 7098 patients with oocyte retrieval in a retrospective study showed that clinical factors related the bleeding complication maybe the factor IX deficiency, ovarian necrotizing vasculitis and anticoagulant treatment. Surgical experience is also an important factor [7]. The patient we reported has a normal coagulation profile, she mentioned that it has taken 20 minutes of pressure to stop the bleeding after every blood drawing in her later supplemental medical history. Laparoscopy revealed the left ovary partly adhered to the rectum and multiple endometriosis, the abnormal pelvic anatomy and the junior operator may led to the abnormal puncture path and pelvic retroperitoneal blood vessel lesions.

In conclusion, although transvaginal ultrasound oocyte retrieval is a general technology in assisted reproductive technology, It is necessary to monitor patients closely after oocyte retrieval for physician. Any changes in vital signs and complaints of abdominal discomfort should be taken seriously, Even there is no significant pelvic free fluid, retroperitoneum bleeding should also be considered especially to those people with abnormal coagulation.

Authors' contributions

All the authors were involved in rescuing the patient, YY Xu took part in the first draft and preparation of the manuscript, XQ Liu Collected information and pictures, ZZ Yang and XH Sun were involved in critical discussions, CF Hao contributed to the concept, design and preparation of the manuscript. All authors read and approved the final manuscript.

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Availability of data and materials

All data generated or analyzed during this study are included in this published article.

Ethics approval and consent to participate

Written informed consent was obtained from the patient, and this study was approved by the ethical board of Qingdao Women and Children's Hospital. (approval number:0568).

Consent for publication

Written informed consent was obtained from the patient for the procedure, publication of this case report and accompanying images.

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References

1. Schulman JD, Dorfmann A, Jones S, Joyce B, Hanser J. Outpatient in vitro fertilization using transvaginal oocyte retrieval and local anesthesia. N Engl J Med. 1985; 312: 16392.
2. Levi-Setti PE, Cirillo F, Scolaro V, Morenghi E, Heilbron F, et al. Appraisal of clinical complications after 23,827 oocyte retrievals in a large assisted reproductive technology program. Fertil Steril. 2018;109: 1038-1043.e1.
3. Siristatidis C, Chrelias C, Alexiou A, Kassanos D. Clinical complications after transvaginal oocyte retrieval: a retrospective analysis. J Obstet Gynaecol. 2013; 33: 64-66.
4. Azem F, Wolf Y, Botchan A, Amit A, Lessing J.B, et al. Massive retroperitoneal bleeding: a complication of transvaginal ultrasonography–guided oocyte retrieval for in vitro fertilization–embryo transfer. Fertil Steril. 2000; 74: 405-406.
5. Wais M, Chan C. Massive Vaginal Hematoma - A Complication of In Vitro Fertilization. J Obstet Gynaecol Can. 2018; 40: 72-74.
6. Bageacu S, Kaczmarek D, Porcheron J. Management of traumatic retroperitoneal hematoma. J Journal De Chirurgie, 2004; 141: 243-249.
7. Aragona C, Mohamed MA, Espinola MB, Linari A, Pecorini A, et al. Clinical complications after transvaginal oocyte retrieval in 7,098 IVF cycles. Fertil Steril. 2011; 95: 0-294.

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