



Corpus Luteal Cyst Rupture – Case Report and Review of Literature

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Authors' contributions

This work was carried out in collaboration among all authors. Author AMM wrote the case history and devised the article. Authors CR and Sindhya helped in reviewing the literature. All three of them were a part of a team which managed this case. All authors read and approved the final manuscript.

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ABSTRACT

Background: Corpus luteal cyst rupture is one of the common cause of spontaneous hemoperitoneum. Here in we describe a case of hemoperitoneum from a ruptured hemorrhagic corpus luteum in a woman who had come for subfertility work up in our hospital. USG is the first imaging modality due to its high sensitivity and easy availability. Serum β hCG-levels is necessary to differentiate ruptured corpus luteal cyst from ruptured ectopic pregnancy, which has a similar presentation. When the patient is hemodynamically stable without undue fall of hemoglobin values conservative management can be taken up. If diagnosis is doubtful and patients condition is deteriorating, laparotomy /laparoscopy may be undertaken for confirmation and treating the cause immediately.

Case Summary: Here in we describe a case of hemoperitoneum from a ruptured hemorrhagic corpus luteum in a woman who had come for subfertility work up in our hospital.

Conclusion: Though corpus luteal cyst and its rupture are common differential in literature for hemoperitoneum, case reports or protocols for corpus luteal cyst management is lacking. The treating physician is always confused whether to definitely open up the patient for surgery or not.

This case report also reviews the available literature on corpus luteal cyst rupture.

Keywords: Corpus luteal cyst; hemoperitoneum; computer tomography; ultrasonography; diagnosis.

1. INTRODUCTION

Acute pelvic pain and hemodynamic instability due to internal bleeding are the most common manifestation of any gynaecological emergency. Ruptured ectopic pregnancy and ruptured corpus luteal cysts are the commonest causes of spontaneous hemoperitoneum, leading to hemodynamic instability in women of reproductive age. Acute pelvic pain may be mostly due to ovarian cyst torsion or rupture. Early diagnosis is necessary to preserve the reproductive systems and the life of the patient in severe cases. Ultrasonography (USG) and computer tomography (CT) are the preferred imaging investigations in such conditions. If diagnosis is doubtful and patient's condition is deteriorating, laparotomy / laparoscopy may be undertaken for confirmation and treating the cause immediately. Here in we describe a case of hemoperitoneum from a ruptured hemorrhagic corpus luteum in a woman who had come for subfertility work up in our hospital. Though corpus luteal cyst and its rupture are common differential in literature for hemoperitoneum, case reports or protocols for corpus luteal cyst management is lacking. The treating physician is always confused whether to definitely open up the patient for surgery or not. This case report also reviews the available literature on corpus luteal cyst rupture.

2. CASE REPORT

38 year old women, a case of primary subfertility came for evaluation to our hospital. Her initial investigation including complete blood count, serology, thyroid profile, blood sugars and ultrasound pelvis were normal. Since she was in her second day of her menstrual cycle, she was asked to come for a hystero laparoscopy after 1 week. On the day of her surgery she suddenly developed an episode of sudden loss of consciousness and fall. She was immediately taken to the emergency department, her pulse rate: 90/min, blood pressure: 110/70 mmhg, saturation: 100% in room air, respiratory rate: 17/min, capillary blood glucose: 100 g/dl. The women regained her consciousness within 2 minutes. The patient was having pallor. Respiratory and cardiovascular examination was normal. Abdominal examination revealed mild tenderness in the lower abdomen. Intravenous

line was secured and her bloods for complete blood count and serum electrolyte was sent. Electrocardiography (ECG) was normal. Ultrasound abdomen and pelvis was done, it showed a right adnexal mass measuring 4.5*5 cms with fluid with moving echoes in the pouch of douglas suggestive of blood in the peritoneal cavity. There was also a small hyperechoic mass measuring 3*2 cms suggestive of hematoma in the pelvis. Her Hemoglobin (hb) was 8.2 g/dl. Last Hb done 1 week back as a routine preoperative investigation was 12.2 g/dl. Since ruptured ectopic was the working diagnosis, serum beta human chorionic gonadotrophins (HCG) was sent and it was negative.

Patient was taken up for diagnostic laparoscopy with blood crossmatched. Intraoperative finding was suggestive of left ruptured corpus luteal cyst of about 4*5 cms with about 50 ml of clots in the pouch of douglas. The cyst was removed and the clots were cleaned from the pelvis. Patient was uneventful in the postoperative period and histopathologic examination (HPE) confirmed the diagnosis of hemorrhagic corpus luteal cyst.

Patient came for infertility workup after 3 months. She is planned for stimulation (IVF –own embryos) in the next cycle.

3. DISCUSSION

Spontaneous hemoperitoneum may occur in various gynecological emergencies like ectopic pregnancy, ruptured corpus luteal cyst, uterine rupture, endometriosis, and ruptured hydrosalpinx [1]. Corpus luteum is a functional cyst which develops in the luteal phase of the ovarian cycle which regresses spontaneously in to corpus albicans when pregnancy does not occur [2]. In some cases it does not regress and enlarges in to a cyst. Hallatt et al. [3] described the first large series of patients with corpus luteal hemorrhage and hemoperitoneum. They observed that it occurs at all stages of a woman's reproductive life, and a wide range of volumes of hemoperitoneum can be found at the time of exploration.

Corpus luteal cyst generally have a thin-walled vascular cyst wall which makes it prone to hemorrhage inside the cyst, with subsequent

rupture and hemoperitoneum [4]. Rupture is more common with right ovarian cyst than the left, probably due to the protection of left ovary from trauma by the cushioning of the recto-sigmoid colon [3,5]. The exact etiology of corpus luteal cyst is unknown, though frequent association with abdominal trauma and anticoagulation therapy have been reported. Nupur et al. [6] reported 3 cases of corpus luteum haemorrhage due to congenital or acquired coagulation abnormality, 2 cases were treated with laparotomy. The third patient was treated with fresh frozen plasma and blood transfusion only. Ara A et al. [7] in their case report also reported two cases where hemoperitoneum were managed conservatively with blood transfusion and fresh frozen plasma.

The diagnosis of ruptured corpus luteal cyst is based on proper clinical history suspicion, clinical features, and laboratory tests. The patient generally is in the luteal phase of the ovarian cycle or may have delayed cycles. Patients may present a wide range of clinical signs, from no signs to severe anaemia resulting in hemodynamic instability due to acute blood loss to severe peritoneal irritation mimicking acute appendicitis. The patient noted in our case history came with history of sudden loss of consciousness with hemodynamic instability slowly setting in. Haemoglobin estimation (triages the patient) and serum β hCG-levels is necessary to differentiate ruptured corpus luteal cyst from ruptured ectopic pregnancy, which has a similar presentation [8]. USG is the first imaging modality due to its high sensitivity and easy availability. USG in ruptured corpus luteal cyst may reveal a complex adnexal cyst, with a rim of increased echogenicity surrounding the cystic component, associated with free hypoechoic moving echoes suggestive of fluid in the peritoneal cavity (hemoperitoneum) with focal collections of higher echogenicity (e.g., clotted blood) in the pelvis [9]. Doppler USG may demonstrate vascularity [10]. In the presence of a positive pregnancy test or elevated beta HCG, a corpus luteum cyst rupture may occur with normal intrauterine pregnancy also, so uterus should be properly screened to look for a sac. Although MRI is the most accurate technique for the pelvic evaluation, it is not usually used in the acute setting due to its considerably, limited availability, and high costs.

CT scan can be done provided intrauterine pregnancy is ruled out, it is of much use when other gastrointestinal or renal causes are also

suspected. On CT examination, corpus luteum usually appears like a well-circumscribed unilocular adnexal lesion. The cyst walls appear slightly thickened (<3 mm) and show a characteristic inhomogeneous contrast enhancement after administration of contrast medium due to increased vascularity [9]. Seok Lee et al. [11] found that positive active bleeding in the portal venous phase (AB_PVP) and a hemoperitoneum depth > 5.8 cm in CT scan showed a surgery rate of 45.5%, and the rate substantially decreased in patients who had only one or none of these risk factors. The ring of fire sign, which originated from the color Doppler USG finding, as an increased cyst wall flow, was observed in approximately half of all cases with corpus luteal cyst rupture. The highly vascular nature of the corpus luteum is due to its increased oxygen consumption which is estimated to be 2-6 times that of the liver, kidney and heart (per unit of tissue) [12].

The approach to ruptured corpus luteal cyst can be broadly divided into conservative or surgical. Most of the bleeding stops by itself. When the patient is hemodynamically stable without undue fall of hemoglobin values conservative management can be taken up. In case of suspicion of continuing hemorrhage in the pelvic cavity marked by significant fall in haemoglobin laparoscopy and surgical arrest of bleeding with or without cystectomy is undertaken immediately. In case of patients presenting with hemodynamical instability emergency laparotomy with cystectomy should be done immediately. In patients presenting with recurrent corpus luteal cyst oral contraceptive pills were tried [13].

4. CONCLUSION

Corpus luteal cyst is by far a self limiting condition. Though corpus luteal cyst is a common occurrence in day to day clinical practice, clear guidelines about its complications and management are lacking. Treating physician should have high index of suspicion about the conditions and its management.

CONSENT

As per international standard or university standard written patient consent has been collected and preserved by the authors.

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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