International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Dohare R et al. Int J Reprod Contracept Obstet Gynecol. 2025 May;14(5):1647-1650
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: https://dx.doi.org/10.18203/2320-1770.ijrcog20251259

Case Report

A case report of ruptured corpus luteal cyst with congenital bleeding disorder

Rubina Dohare[1]*, Surbhi Tiwari[2], Somlina Roy[3]

[1]Department of Obstetrics and Gynecology, Govt. Medical College, Datia, M. P., India
[2]Department of Obstetrics and Gynecology, Govt. Medical College, Vidisha, M. P., India
[3]Department of Obstetrics and Gynecology, Amaltas Institute of Medical Science, Dewas, M. P., India

Received: 28 February 2025
Accepted: 01 April 2025

***Correspondence:**
Dr. Rubina Dohare,
E-mail: 9164838934rubina@gmail.com

ABSTRACT

Women of reproductive age with Von Willebrand disease (VWD) are at increased risk of haemorrhagic ovarian cysts due to excessive bleeding into the corpus luteum during ovulation. The rupture of these cysts can lead to life-threatening hematoperitoneum and other complications such as pelvic adhesions, fallopian tube blockages, and ovarian damage, which may impair fertility. Early diagnosis and management of VWD are critical to mitigating these risks. A 20-year-old unmarried woman presented to the emergency department with acute abdominal pain and vomiting. She was hemodynamically unstable and in shock, with severe pallor, abdominal distension, and guarding. Laboratory tests revealed a hemoglobin level of 3.9 g/dl. Imaging suggested a ruptured corpus luteal cyst with gross haemoperitoneum, and a negative urine pregnancy test ruled out ectopic pregnancy. Emergency laparotomy revealed a ruptured 4x2 cm corpus luteal cyst and approximately 2000 cc of haemoperitoneum, which was drained. Postoperatively, the patient experienced recurrent bleeding from the wound site, requiring multiple blood transfusions, resuturing, and a second exploratory laparotomy to drain a 500 cc subcutaneous hematoma. Further investigations confirmed a diagnosis of VWD. The patient was managed with transfusions of blood products and factor VIII and eventually discharged in stable condition. This case underscores the diagnostic and therapeutic challenges of managing VWD in reproductive-aged women with acute gynecological emergencies. Severe haemoperitoneum, recurrent bleeding, and impaired wound healing necessitate a high index of suspicion for bleeding disorders in similar presentations. Multidisciplinary care involving gynecologists, hematologists, and critical care specialists is essential for optimal outcomes.

Keywords: Von Willebrand disease, Haemorrhagic ovarian cyst, Hematoperitoneum, Bleeding disorder, Gynecological emergency, Corpus luteal cyst rupture, Multidisciplinary care

INTRODUCTION

Women of reproductive age who have von Willebrand's disease (VWD) are twice as likely to have haemorrhagic ovarian cysts compared to the general population.[1] The cysts form due to excessive bleeding into the corpus luteum during ovulation, and the rupture of these cysts can lead to hematoperitoneum.[1-7] Recurrent and excessive bleeding in the abdominal cavity and the subsequent excessive production of fibrin can significantly contribute to the development of pelvic adhesions, blockages in the fallopian tubes, and damage to the ovarian tissue. These complications can ultimately result in reduced fertility in affected individuals.[1-7] The majority of these issues necessitate medical or surgical intervention.[1]

CASE REPORT

An unmarried 20 years old girl presented to us in emergency with complains of pain abdomen since 2 days and vomiting (2 episodes) since morning. On examination patient was haemodynamicaly unstable and was in shock. Patient was also pale [+++] Abdomen distension, tenderness present, guarding and rigidity was present.

Haemoglobin of the patient was 3.9 gm/dl. USG abdomen pelvis shows heterogeneously solid cystic lesion in midline pelvic cavity suggest ruptured ectopic pregnancy ruptured corpus luteal cyst with moderate to gross hemoperitoneum. Her urine pregnancy test was negative. Patient was immediately taken for emergency laparotomy.

Intra-operative findings

A 4×2 cm right side corpus luteal cyst was found., cystectomy done. Around 2000 cc of haemoperitoneum drained. Intraoperatively and postoperatively multiple blood transfusions were done. Post operatively patient was shifted to ICU. In ICU on day 4 patient had serous discharge from stitch line, later on had wound gap. Underwent re suturing for the same and then discharged in good condition. On post laparotomy day 16 she again presented to us with profuse bleeding from stitch line. Immediately she was taken for exploratory laparotomy and subcutaneous hematoma of around 500 cc drained. Post operatively patient was shifted to ICU and further investigated for bleeding and clotting disorders. On post laparotomy day 4 patient again had bleeding from stitch line. On investigating further patient was diagnosed with VWD. She had undergone multiple blood products and factor 8 transfusion.

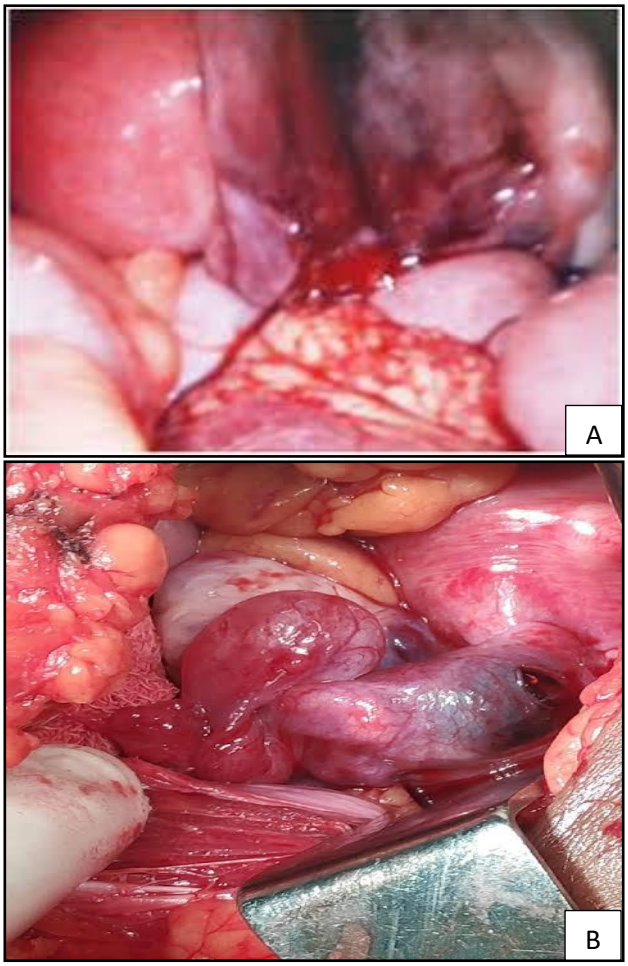

Figure 1 (A and B): Ruptured corpus luteal cyst.

DISCUSSION

Ovarian cysts frequently arise in women who are menstruation and between the ages of 18 and 35. They are typically detected via ultrasound. There are two forms of functional ovarian cysts: follicular cysts and corpus luteum cysts. The corpus luteum is a highly perfused anatomical entity. The blood flow to the corpus luteum is higher than any other adult organ, when measured per unit of tissue. This enhanced blood flow is necessary to provide the necessary substances for hormone production and to support the rapid division of luteal cells.[8] The corpus luteum high vascularity is seen in its oxygen consumption, which is estimated to be 2-6 times greater than that of the liver, kidney, and heart per unit of tissue.[9,10]

Corpus luteum cysts are vascular entities with thin walls that are prone to rupture.[11] The rupture of a corpus luteum cyst is a significant gynaecological factor that leads to hemoperitoneum. The cause of cyst rupture is still unknown, although it has been hypothesised that the heightened blood flow to the ovary during the luteal phase and pregnancy may make it more susceptible to the rupture of a corpus luteal cyst. Corpus luteal cysts occur when the corpus luteum grows quickly and has a lot of blood vessels, leading to bleeding within the corpus luteum and the development of a cyst filled with blood. Continuous haemorrhaging into the cyst can lead to fast expansion, spontaneous rupture, and the release of blood into the peritoneal cavity.

Although the exact cause of haemorrhage linked with ovarian cyst rupture is not always evident, there are identifiable risk factors. These factors encompass abdominal trauma and anticoagulant treatment.[10] Based on our observations in both cases, it appears that the right ovary has a higher likelihood of rupturing compared to the left ovary.[11] One potential reason for this tendency is that the left ovary is shielded from injury by the cushioning provided by the recto-sigmoid colon.[12]

Usually, when a rupture occurs, there is a rapid and intense onset of pain that does not have any specific characteristics. The amount of blood loss might range from minimal bleeding to hypovolemic shock.[12] Pain in the abdomen and/or pelvis may arise as a result of any of these problems. The occurrence of this issue is not documented; gynaecologists in practice consider it to be infrequent but acknowledged. Recent case reports have shown that a burst corpus luteum cyst leading to severe hemoperitoneum is linked to systemic anticoagulation, coagulation abnormalities, VWD, and sickle cell anaemia.[3,13-15] Hallatt et al provided a detailed account of the initial extensive group of patients who experienced corpus luteum haemorrhage and hemoperitoneum.[12] It was observed that this phenomenon happens at every stage of a woman's reproductive life, and that a diverse range of amounts of blood in the abdominal cavity might be discovered upon examination. Corpus luteum haemorrhage can lead to spontaneous hemoperitoneum in

individuals with bleeding problems. It is crucial to gather a comprehensive bleeding history from all surgical patients, and keeping a broad range of possible causes in mind will help in conducting the necessary tests and improving peri-surgical care. For people who have a corpus luteum cyst accompanied by substantial bleeding, it is advisable to seek a consultation with a haematologist.

According to Hallatt et al the bleeding from a burst corpus luteum cyst is expected to be less severe compared to an ectopic pregnancy, and it is unlikely to happen again once it stops.[12] Corpus luteal cysts are frequently detected as unintentional formations on pelvic ultrasonography examinations. The hemorrhagic ovarian cyst has been categorised into various sonographic patterns and is commonly referred to as the "great imitator".[16] In our case, the ultrasonographic appearance of a ruptured corpus luteum cyst with intra-abdominal haemorrhage was indistinguishable from a ruptured ectopic pregnancy. However, a negative serum pregnancy test was a distinguishing characteristic.[12,17] The usefulness of a computed tomography scan of the abdomen/pelvis is limited and typically confirms the diagnosis of a ruptured ectopic pregnancy. However, if a serum pregnancy test is negative, it may indicate a different diagnosis.[18] While the sonographic patterns of haemorrhage within an ovarian cyst are widely recognised, there is a lack of detailed information in the literature about the findings associated with cyst rupture and haemorrhage.[17] As a result, patients who have a ruptured ovarian cyst are sometimes incorrectly diagnosed with illnesses that are not linked.[19] According to a study, the presence of hemoperitoneum was determined to be the main imaging characteristic, rather than the cyst itself.[17] Hemoperitoneum resulting from a burst hemorrhagic ovarian cyst has imaging characteristics that resemble those of hemoperitoneum caused by other sources, such as a ruptured ectopic pregnancy.[21] Hemoperitoneum caused by the rupture of a corpus luteum cyst has been documented since the early 1900s. It is often mistaken as a ruptured ectopic pregnancy, acute appendicitis, ovarian torsion, or endometriosis.[22,23] The diagnosis mostly relies on a strong clinical suspicion, laboratory evidence, and ultrasound results. Traditionally, the primary differential diagnosis is ectopic pregnancy. In addition, there have been reports of the simultaneous occurrence of corpus luteum cyst rupture and ectopic pregnancy.[16,17,19] Hence, it is important to consider the potential and occurrence of corpus luteum cyst rupture, even when the presence of intrauterine or extrauterine pregnancy has been proven. The management of corpus luteum haemorrhage can be either conservative or surgical.[24-26] Treatment for burst corpus luteal cysts with intraabdominal haemorrhage should be customised to the individual patient. In the first case, our patients had symptoms and observations that resembled acute abdominal pain similar to ectopic pregnancy. In the second case, the patients showed signs of intestinal obstruction. Additional potential causes of stomach discomfort in a young female include gastritis, peptic ulcer disease, gastroesophageal reflux disease, ectopic pregnancy, pyelonephritis, pancreatitis, and various ovarian disorders such as pelvic inflammatory disease, ovarian torsion, and cyst rupture. Observation, pain management, and regular monitoring of haemoglobin levels may be suitable for specific circumstances, such as our second example when the patient's condition remained stable. However, if there are indications of blood loss or hypovolemic shock, urgent laparoscopic intervention, as was done in our first case, is necessary. The presence of a significant volume of peritoneal fluid and intense discomfort detected during ultrasonic examination is a clear signal for surgical intervention.[24-26] In cases of corpus luteum haemorrhage, oophorectomy is seldom required.[26] This type of minimally invasive surgery offers prospective advantages in terms of enhanced aesthetic appearance, shorter duration of hospitalisation, decreased postoperative discomfort, and quicker resumption of normal activities after surgery. Oral contraceptives are administered to patients experiencing recurrent corpus luteum haemorrhage in order to inhibit ovulation.[25]

CONCLUSION

This case highlights the challenges in diagnosing and managing VWD in women of reproductive age, particularly when presenting with acute complications such as haemorrhagic ovarian cyst rupture. The patient's presentation with severe haemoperitoneum, recurrent bleeding, and poor wound healing underscores the importance of considering bleeding disorders like VWD in young females with unexplained hemorrhagic events. Early diagnosis and appropriate management, including targeted transfusion of blood products and clotting factors, are critical to prevent life-threatening complications. This case also emphasizes the need for multidisciplinary care involving gynecologists, hematologists, and critical care specialists to ensure optimal outcomes in patients with VWD and complex gynecological emergencies.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Jarvis RR, Olsen ME. Type 1 von Willebrand's disease presenting as recurrent corpus hemorrhagicum. Obstet Gynecol. 2002;99(5pt2):887-8.
2. Meschengieser SS, Alberto MF, Salviu J, Bermejo E, Lazzari MA. Recurrent haemoperitoneum in mild von Willebrand's disease combined with a storage pool deficit. Blood Coagul Fibrinolysis. 2001;12(3):207-9.
3. Gomez A, Lucia JF, Perella M, Aguilar C. Haemoperitoneum caused by haemorrhagic corpus luteum in a patient with type 3 von Willebrand's disease. Haemophilia. 1998;4(1):60-2.
4. Ghosh K, Mohanty D, Pathare AV, Jijina F. Recurrent haemoperitoneum in a female patient with type III von

Willebrand's disease responded to administration of oral contraceptive. Haemophilia. 1998;4(5):767-8.
5. Foster PA. The reproductive health of women with von Willebrand disease unresponsive to DDAVP: results of an international survey. Thromb Haemost. 1995;74(2):784-90.
6. Greer IA, Lowe GD, Walker JJ, Forbes CD. Haemorrhagic problems in obstetrics and gynaecology in patients with congenital coagulopathies. Br J Obstet Gynaecol. 1991;98(9):909-18.
7. Bottini E, Pareti FI, Mari D, Mannucci PM, Muggiasca ML, Conti M. Prevention of hemoperitoneum during ovulation by oral contraceptives in women with type III von Willebrand's disease and afibrinogenemia. Case reports. Haematologica. 1991;76(5):431-3.
8. Swann RT, Bruce NW. Oxygen consumption, carbon dioxide production and progestagen secretion in the intact ovary of the Day-16 pregnant rat. J Reprod Fertil. 1987;80(2):599-605.
9. Niswender GD, Juengel JL, Silva PJ, Rollyson MK, McIntush EW. Mechanisms controlling the function and life span of the corpus luteum. Physiol Rev. 2000;80(1):1-29.
10. Gupta N, Dadhwal V, Deka D, Jain SK, Mittal S. Corpus luteum hemorrhage: rare complication of congenital and acquired coagulation abnormalities. J Obstet Gynaecol Res. 2007;33(3):376-80.
11. Gupta N, Dadhwal V, Deka D, Jain SK, Mittal S. Corpus luteum hemorrhage: rare complication of congenital and acquired coagulation abnormalities. J Obstet Gynaecol Res. 2007;33(3):376-80.
12. Tang LC, Cho HK, Chan SY, Wong VC. Dextropreponderance of corpus luteum rupture. A clinical study. J Reprod Med. 1985;30(10):764-8.
13. Hallatt JG, Steele CH, Snyder M. Ruptured corpus luteum with hemoperitoneum: a study of 173 surgical cases. Am J Obstet Gynecol. 1984;149(1):5-9.
14. Hackethal A, Ionesi-Pasacica J, Kreis D, Litzlbauer D, Tinneberg HR, et al. Feasibility of laparoscopic management of acute haemoperitoneum secondary to ruptured ovarian cysts in a haemodynamically unstable patient. Minim Invasive Ther Allied Technol. 2011;20(1):46-9.
15. Terzic M, Likic I, Pilic I, Bila J, Knezevic N. Conservative management of massive hematoperitoneum caused by ovulation in a patient with severe form of von Willebrand disease--a case report. Clin Exp Obstet Gynecol. 2012;39(4):537-40.
16. Andikyan V, Ronald J, Bowers C. Massive hemoperitoneum secondary to ruptured corpus luteum cyst of pregnancy in 17-year old female with hemoglobin SC disease. Internet J Gynecol Obstetr. 2010;12(2):10.
17. Jeffrey RB, Laing FC. Echogenic clot: a useful sign of pelvic hemoperitoneum. Radiology. 1982;145(1):139-41.
18. Yoffe N, Bronshtein M, Brandes J, Blumenfeld Z. Hemorrhagic ovarian cyst detection by transvaginalsonography: The great imitator. Gynecol Endocrino. 1991;l5(2):123-9.
19. Swire MN, Castro-Aragon I, Levine D. Various sonographic appearances of the hemorrhagic corpusluteum cyst. Ultrasound Q. 2004;20(2):45-58.
20. Raziel A, Ron-El R, Pansky M, Arieli S, Bukovsky I. Current management of ruptured corpus luteum. Eur J Obstet Gynecol Reprod Biol. 1993;50(1):77-81.
21. Hertzberg BS, Kliewer MA, Paulson EK. Ovarian cyst rupture causing hemoperitoneum: imaging features and the potential for misdiagnosis. Abdom Imaging. 1999;24(3):304-8.
22. Waters CH. Hemorrhage into an ovarian cyst simulating ectopic pregnancy. JAMA. 1918;70(5):295-6.
23. Phaneuf LE. Intraperitoneal hemorrhage from ruptured ovarian cyst. JAMA. 1924;83(9):658-62.
24. Hoffman R, Brenner B. Corpus luteum hemorrhage inwomen with bleeding disorders. Womens Health (Lond). 2009;5(1):91-5.
25. Payne JH, Maclean RM, Hampton KK, Baxter AJ, Makris M. Haemoperitoneum associated with ovulation in women with bleeding disorders: the case for conservative management and the role of the contraceptive pill. Haemophilia. 2007;13(1):93-7.
26. Jamal A, Mesdaghinia S. Ruptured corpus luteum cysts and anticoagulant therapy. Int J Gynaecol Obstet. 2002;76(3):319-20.

Cite this article as: Dohare R, Tiwari S, Roy S. A case report of ruptured corpus luteal cyst with congenital bleeding disorder. Int J Reprod Contracept Obstet Gynecol 2025;14:1647-50.