Chronic Uterine Rupture, after lower segment cesarean section: A Case report from Nizwa Hospital, Oman

Abstract **Uterine rupture usually presents acutely (intra-partum) with increased maternal and fetal morbidity and mortality. Long-standing uterine disruption is an unusual event and rare giving the question about the time of occurrence. Increased rate of caesarean sections and the chance for Trial of labor after cesarean (TOLAC) simultaneously are risks for more cases of rupture uterus and scar dehiscence. On the other hand when dealing with cases of adnexal masses, especially with previous lower segment cesarean section, should consider possibility to be related to uterine causes such as scar disruption.**

Keywords *Trial of labor after cesarean (TOLAC), Uterine rupture, adnexal cyst.*

Introduction

Uterine rupture is not uncommon morbidity and potentially life- threatening condition for the mother and fetus. Uterine rupture occurs more frequently in the setting of a scarred uterus. Recent studies have highlighted the growing incidence of uterine rupture attributed to the rising rate of cesarean delivery and myomectomy surgery, especially in pregnancies among older gravid patients. About 10% of uterine ruptures are managed through hysterectomy, and the remaining cases undergo repair without removal of the uterus [1]. Uterine rupture has become an important topic in recent years due to the increasing percentage of patients being offered a Trial of labor after cesarean. TOLAC refers to a plan to have a vaginal birth in any subsequent pregnancy after cesarean section. Uterine rupture is by far the most dangerous possible complication that can occur during TOLAC. Typically, uterine rupture occurs suddenly and requires immediate critical emergency care for mothers and neonates. The risk of this life-threatening condition varies from 0.012 to 0.3% [2].

Case Report

A 29 years old lady has three living children, known asthmatic (well controlled), with no other significant medical history. She had her first baby delivered vaginally, second delivered by Lower segment cesarean section for fetal malpresentation (breech presentation) on May 2021, followed by successful TOLAC, on August 2022, good maternal and fetal outcomes. Her hospital stay after TOLAC was uneventful. She consulted on August,2024 to her local health center for lower abdominal pain, dyspareunia and dysmenorrhea for almost 6 months duration. Her abdominal pain, through -out the month, but increases during menses and it was moderate in intensity, but disturbing her life. Her menses were irregular, with minute flow. She was on depo-provera injection for birth spacing. Physical Examination she had a normal Body Mass Index (BMI), her vitals were normal, systematic and pelvic examination were unremarkable. Her pelvic ultra sound reported that normal size anteverted uterus with normal echotexture and endometrial thickness. There is a septate unclear content cystic lesion measuring 7.0x6.0 cm seen attached to the inferior aspect of the right ovary, there was no free fluid in the Douglas pouch, no focal lesion seen on left ovary. Impression of right adnexal hemorrhagic cyst. Her baseline laboratories were normal, including complete blood count, renal functions test, Human chorionic gonadotrophin and tumor markers. Patient counselled about the findings & Offord surgical removal she opted for laparotomy and cystectomy, with all surgical risks has been explained, she understood and accepted.

After full preparations and anesthetic checkup, laparotomy was performed. Intra-operative findings of both ovaries & tubes were normal, there was a mass of 7 cm size encysted dark fluid located between the bladder & uterus which was adherent, bladder was intact. The cyst dissected, upon trying to release, it drained a dark chocolate material and noted a dehiscence of about 4 cm at the site of previous uterine scar (central part, figure 1). The cavity was well explored, the margins of the defect were marginalized and trimmed with good hemostasis which was repaired in two layers with proper alignment using with Vicryl suture material. The layers taken in interrupted manner followed by continuous running in the second layer. Some sample obtained sent for histopathology (marked as a cyst between Uterus and Urinary bladder). Blood loss estimated to be around 100 ml.

Her post-operative period was uneventful, patient received intra-venous antibiotics for 48 hours, Low molecular weight heparin for ten days, & proper analgesia. Post-operative counselling session for the patient &her family by obstetric team, about intra-operative findings was given. The patient was discharged in a good condition. At her follow-up at the outpatient clinic after four weeks from surgery, her last menstrual cycle was normal, asymptomatic for dysmenorrhea. Follow-up Ultrasound of the pelvis was normal. She was counselled again about intra-operative findings and explained to her that in her future pregnancies mode of delivery will be by lower segment cesarean section.

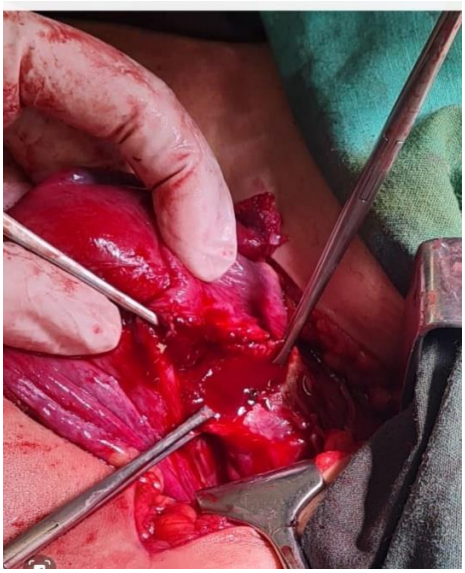

Figure 1 showing the dehiscence site which was repaired

Histopathology report revealed fragments of a fibroadipose cyst wall with smooth muscle elements the cyst is lined by focal endometrial stroma, macrophages, hemisiderophages and blood. CD10 highlights the endometrial stroma. Histopathological diagnosis: *endometriotic cyst.*

Discussion

Uterine rupture is an infrequent yet sometimes fatal complication of a subsequent vaginal birth attempt following a previous cesarean section. Yet in this case she was asymptomatic for two years following her childbirth, with a disrupted scar. At a later time she developed symptoms of lower abdominal pain, dyspareunia and dysmenorrhea. The strongest risk factor for a uterine rupture is trial of labor after cesarean (TOLAC). According to the literature, the likelihood of uterine rupture is also increased by the short period (<12 or <24 months) after previous CS, augmentation of labour using oxytocin, abnormal fetal position, an excessive amount of amniotic fluid, abnormally invasive placenta (especially placenta increta and placenta percreta), placental abruption, connective tissue diseases, adenomyosis, trauma, uterine abnormalities and even decreased myometrial scar thickness on ultrasound (less than 2.8 mm) [3].One study concluded that no association between Inter-delivery Interval (IDI) length and adverse maternal outcomes, including uterine rupture [4], although it is not the case of our patient where we consider IDI is a risk . In this case it was fifteen months interval following her cesarean. Uterine rupture occurs rarely but must be ruled out in all cases of second and third trimester vaginal bleeding. Uterine rupture is more common in women with prior cesarean delivery. The rate of uterine rupture is highly dependent upon the number of

cesarean deliveries a woman has had and the type of uterine incision present. The rate of uterine rupture is approximately 1% for women with one previous cesarean delivery versus 3.9% for those with greater than one previous cesarean delivery [5]. The classic symptoms described for uterine rupture include acute onset abdominal pain, vaginal bleeding, a non-reassuring fetal heart rate tracing, and a change in the contraction pattern on tocodynamometry. Unfortunately, these symptoms are often not present. Radiographic and laboratory tests can be helpful in diagnosing a minor uterine rupture. Imaging is not appropriate when there is a significant rupture because of the emergent need for delivery and hemorrhage control [5]. The following findings on abdominal ultrasound support the diagnosis of uterine rupture: an abnormality in the uterine wall, a hematoma next to a hysterotomy scar, free fluid in the peritoneum, anhydramnios, or fetal parts outside the uterus. Ultimately, the diagnosis of uterine rupture is often confirmed when hemoperitoneum and fetal parts are identified during laparotomy [5]. Ultrasound examination is a helpful diagnostic tool. Detection of uterine scar dehiscence in women with previous caesarean delivery helps prevent maternal and neonatal morbidity and mortality. However, the maximum benefit can only be obtained by scanning at appropriate intervals during pregnancy and accurate recognition of the ultrasonographic features of uterine scar dehiscence [6]. Pelvic masses are a common gynecological health issue. An estimated 10% of women will undergo surgery for a mass in their lifetime. On the other hand Pelvic masses are a common gynecological health issue. An estimated 10% of women will undergo surgery for a mass in their lifetime [7]. In women of reproductive age, the appearance of cysts and cystic formations in the pelvic organs is one of the most common phenomena. According to statistics, various cystic formations are diagnosed in more than 40% of women of reproductive age. Diagnosis of cysts and cyst-like masses at the risk of tumor formation requires a systematic approach based on careful collection history and analysis of existing symptoms[8]. However, due to the wide variety of benign ovarian tumors and the varying treatment approaches required for different types of benign tumors, it is crucial to accurately diagnose these tumors before surgery. Ultrasonography is currently one of the most commonly used diagnostic methods. Yet, in certain cases, such as when tumor size and blood flow signals are nonspecific, ultrasonography still faces significant challenges in distinguishing ovarian tumors. Under these circumstances, relying solely on ultrasonography for diagnosis becomes very difficult. Naturally, serum tumor markers play a crucial role in this context. However, the limitations in sensitivity and specificity of individual tumor markers still prevent them from being decisive [9]. Cystic-appearing lesions in the abdomen and pelvis can have a broad differential diagnosis encompassing neoplastic, inflammatory, congenital, and iatrogenic lesions. While some lesions are truly cystic, others may represent necrosis, cystic degeneration, hematomas, or reactive collections [10]. Clinical presentation of this case as a symptomatic adnexal cyst, which was formed from menstrual blood collection through the disrupted area.

In this case as being seen late as a chronic scar disruption it might give the suggestion that the rupture happened after delivery of the fetus. Most of the cases were reported during the first, and second stage of labour with acute presentation features, but when happened during the third stage of labour, the placental manipulation, it might go in silence.

Conclusion

Though uterine rupture is a catastrophic event, which usually presents acutely, with abdominal pain, especially at scar site, hemorrhagic shock and associated with fetal and maternal morbidity. In this case the patient remained asymptomatic for two years despite disrupted uterine cavity, and achieved a good fetal outcome, though experiencing menstrual irregularities and dysmenorrhea. Her pelvic ultra-sound describing an adnexal cyst, which rendered the diagnosis before surgery challenging. This scar disruption most likely resulted following the expulsion of the fetus and placenta. It highlights the importance of recognizing this rare complication of delivery in women with existing lower segment uterine scar and avoiding digital exploration of the lower uterine segment after delivery.

References

1- **Shunya Sugai, Kaoru Yamawaki, Kazufumi Haino, Kosuke Yoshihara, and Koji Nishijima,Incidence of Recurrent Uterine Rupture A Systematic Review and Meta-analysis : Obstet Gynecol 2023 Dec 1, 142(6): 1365-1372 .**

2- **Wojciech Flis , Maciej W. Socha , Mateusz Wart، Rafał. Unexpected Uterine Rupture—A Case Report, Review of the Literature and Clinical Suggestions : J. Clin.Med.2023,12,3532**

3- **Egle Savukyne, Raimonda Bykovaite-Stankeviciene ,Egle Machtejeviene, Ruta Nadisauskievne , Regina Maciuleviciene : Symptomatic Uterine Rupture: A Fifteen Year Review , medicina , 2020, 56(11).**

4- **panelOscar Viteri , Suneet Chauhan , Hector MendezFigueroa , Ibrahim Hamm ad , Robyn Roberts , Baha Sibai : Interdelivery interval length and obstetric outcomes during trial of labor after cesarean: AJOG ,vol 212, S146January 2015, 267 .**

5- **Brandon M. Togioka, Tiffany Tonismae, Uterine rupture : Europe PMC , 2020 Jul 10 , 32644635 .**

6- **Zhengfeng zhu ,Hezhou Li , Junqing Zhang : Uterine dehiscence in pregnant with previous caesarean delivery , Annals of medicine 2021 ,volume 57 ,issue 1266-1270 .**

7- **Brian Bullock , Lisa Larkin ,Lauren Turker ,Kate Stampler: Management of the Adnexal Mass: Considerations for the Family Medicine Physician: Front.Med., 2022 July 5 , volume 9.**

8- **Khatamova Sarvinoz Muyitdinovna: Ovarian Cysts in Women of Reproductive Age , AMALIY VA TIBBIYOT FANLARI ILMIY JURNALI , 2022 ,vol.1 NO.7.**

9- **Tianlong Li , Nana Hou Lili Mao Fangmei Liu , Zilong Ma , Li Wang,Xiyue Xu, Yujia Han & Jinxian Wei : Tumor Markers in Differential Diagnosis of Benign Ovarian Masses ,Sep 2024 , Pages 1517-1531 .**

10- **Joseph H. Yacoub, Jennifer A. Clark, Edina E. Paal, Maria A. Manning : Approach to Cystic Lesions in the Abdomen and Pelvis, with Radiologic-Pathologic Correlation, Sep 1,2021,vol. 41 , No.5.**