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Posterior Hysterotomy in a Full-Term Gravid Uterine Torsion: Clinical and Educational Insights from a Rare Obstetric Emergency

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ABSTRACT

Background: Uterine torsion during pregnancy is an extremely rare obstetric condition defined as rotation of the uterus of more than 45° around its longitudinal axis. Severe torsion may lead to maternal and fetal morbidity due to distortion of pelvic anatomy and compromise of uterine blood flow. Because of its rarity and nonspecific presentation, uterine torsion is often diagnosed intraoperatively during caesarean section. From an educational perspective, such cases highlight the importance of surgical vigilance and adaptability in obstetric training.

Case Presentation: We report the case of a 33-year-old gravida 3 para 2 woman at 38+3 weeks of gestation who underwent an elective caesarean section. Intraoperatively, the uterus appeared slightly rotated and was repositioned to the midline. Due to altered anatomical landmarks, an incision was inadvertently made on the posterior uterine wall. After delivery of a healthy male neonate weighing 2.6 kg using vacuum assistance, the uterus was exteriorized and found to have undergone torsion exceeding 180°. The uterus was detorsed and the posterior uterine incision was repaired in three layers using Vicryl sutures. The patient had an uneventful postoperative recovery.

Conclusion: This case highlights the diagnostic challenges associated with uterine torsion and emphasizes the need for awareness of this rare condition during obstetric surgical training. Incorporating such case-based learning into obstetric education can enhance surgical preparedness and improve maternal and fetal outcomes.

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KEYWORDS:
uterine torsion, posterior hysterotomy, obstetric emergency, caesarean section, medical education

BACKGROUND

Uterine torsion is defined as rotation of the uterus of more than 45° along its longitudinal axis, most commonly occurring at the junction between the cervix and the uterine corpus [1]. While mild uterine rotation is frequently observed during pregnancy, pathological torsion exceeding 45° is rare but clinically significant. Extreme cases of torsion up to 720° have been documented in the literature [2].

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The incidence of uterine torsion remains extremely low, and most obstetricians encounter the condition only once in their professional careers. The condition is associated with significant maternal and fetal complications including placental abruption, uterine ischemia, fetal distress, and intrauterine growth restriction [3]. Perinatal mortality rates of approximately 12% have been reported, largely due to compromised uteroplacental blood flow caused by vascular compression [1].

Uterine torsion most commonly occurs during the third trimester of pregnancy and often involves rotation toward the right side [4]. Several predisposing factors have been described, including uterine fibroids, congenital uterine anomalies, pelvic adhesions, adnexal masses, and fetal

malpresentation [5]. However, in more than one-third of reported cases no identifiable cause is present [3].

One of the most significant clinical challenges associated with uterine torsion is distortion of normal pelvic anatomy. This distortion may complicate surgical procedures such as caesarean section and may result in inadvertent posterior uterine incision if torsion remains unrecognized [6].

From a medical education perspective, rare obstetric emergencies such as uterine torsion provide valuable learning opportunities for surgical trainees. Case-based learning and simulation-based teaching have been increasingly emphasized in obstetric education to improve clinical preparedness and decision-making during unexpected intraoperative findings [7].

We report a case of uterine torsion identified intraoperatively during elective caesarean section that resulted in posterior hysterotomy, highlighting both clinical management and educational implications.

CASE PRESENTATION

A 33-year-old woman, gravida 3 para 2 living 1 abortion 0, presented at 38 weeks and 3 days of gestation for an elective caesarean section.

Her obstetric history included a full-term vaginal stillbirth during her first pregnancy due to probable intrapartum asphyxia. Her second pregnancy was uneventful, and she delivered a healthy female child through elective lower segment caesarean section.

The current pregnancy progressed without major complications. Routine antenatal investigations and Doppler studies performed at 38 weeks were normal. The patient was admitted for elective caesarean delivery and reported symptoms suggestive of urinary tract infection. She was started on intravenous cefuroxime and scheduled for surgery the following day.

Under spinal anesthesia, the uterus appeared deviated toward the right side. The assistant repositioned the uterus to the midline to facilitate surgical exposure. A Pfannenstiel incision was made over the previous scar and the abdomen was opened in layers.

After opening the parietal peritoneum, the fallopian tube and ovary were visualized in the midline. The lower uterine segment was not clearly visible, making bladder dissection difficult. A mild uterine torsion of approximately 15° was suspected at this stage.

An incision was therefore made on the lowest visible portion of the uterus toward the right side below the floating fetal head. After rupture of membranes, the fetus was delivered using a vacuum extractor. A male neonate weighing 2.6 kg was delivered and cried immediately after birth.

Following placental delivery, the uterus was exteriorized. At this stage, torsion exceeding 180° was identified. The uterus was carefully detorsed, revealing that the uterine incision had been inadvertently made on the posterior wall.

The uterus was noted to be markedly hypermobile, suggesting that torsion may have occurred earlier in pregnancy without producing symptoms. The posterior uterine incision was repaired in three layers using No.1 Vicryl sutures. Hemostasis was achieved and the remainder of the surgical procedure was completed without complications.

The patient experienced an uneventful postoperative recovery and was discharged in stable condition.

Figure 1: Intraoperative view of the anterior wall of a hypermobile gravid uterus during caesarean section showing distorted uterine orientation due to uterine torsion.

Figure 2: Posterior uterine wall hysterotomy identified after detorsion of a uterus with more than 180° torsion and repaired with multilayer suturing.

DISCUSSION

Uterine torsion is a rare obstetric complication that remains difficult to diagnose before surgery because clinical symptoms are often nonspecific [1,3]. Patients may present with abdominal pain, gastrointestinal disturbances, urinary symptoms, or signs of fetal distress. In some cases, patients may remain completely asymptomatic until torsion is discovered during surgical intervention [4].

Several etiological factors have been proposed in the literature. Uterine fibroids account for approximately 32% of cases, congenital uterine anomalies for 15%, pelvic adhesions for 8%, adnexal masses for 7%, fetal malpresentation for 5%, and fetal anomalies for 3% [5]. However, approximately 30–35% of cases have no identifiable cause.

Previous caesarean section has recently been suggested as a possible contributing factor. Imaging studies have demonstrated that poor healing of the uterine isthmus following caesarean delivery may lead to elongation and angulation of the cervix, predisposing the uterus to torsion [6].

The distortion of pelvic anatomy associated with uterine torsion presents a major surgical challenge. When torsion remains unrecognized during caesarean section, the surgeon may inadvertently perform hysterotomy on the posterior uterine wall. Such incisions require careful multilayer repair due to potential complications including excessive bleeding, impaired wound healing, and increased risk of uterine rupture in subsequent pregnancies [3].

From an educational perspective, rare obstetric emergencies such as uterine torsion highlight the importance of case-based learning in obstetric training. Exposure to uncommon clinical scenarios enhances the ability of trainees to recognize abnormal anatomical findings and adapt surgical techniques accordingly. Simulation-based training has also been proposed as an effective educational strategy for improving surgical preparedness for rare obstetric complications [7].

In the present case, uterine hypermobility and abdominal wall laxity may have contributed to the development of torsion. The absence of significant symptoms further illustrates the diagnostic challenge posed by this condition.

Educational Implications for Obstetric Training

Rare intraoperative findings represent important opportunities for experiential learning in obstetric practice. Incorporating case-based discussions of uterine torsion into postgraduate medical education may enhance awareness of unusual anatomical variations encountered during caesarean section.

Simulation training and multidisciplinary team-based learning may further improve preparedness for managing rare

obstetric emergencies. Such educational strategies can strengthen surgical decision-making, promote early recognition of anatomical abnormalities, and improve patient safety outcomes in obstetric care [7].

CONCLUSION

Uterine torsion is a rare but potentially serious obstetric condition that may remain asymptomatic until surgical intervention. Distortion of uterine anatomy may result in inadvertent posterior hysterotomy during caesarean delivery. This case underscores the importance of maintaining a high index of suspicion when normal anatomical landmarks are altered during surgery. From a medical education perspective, documenting such rare clinical scenarios contributes valuable learning material for obstetric training and improves preparedness for managing unexpected intraoperative complications.

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