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Uterine torsion in a full-term pregnancy presenting as prolonged latent phase and fetal intolerance of labor: A case report

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ABSTRACT

Background: Uterine torsion is defined as torsion of the uterus around its longitudinal axis exceeding 45 degrees. It is a rare obstetric complication. It is a dangerous complication that can lead to placental abruption and intrauterine fetal death. Although rare, early diagnosis is crucial to expedite intervention and optimize outcomes. While the few cases in the current literature have documented acute presentations of uterine torsion, our case is unique in that it had a slower evolution.

Case: A 38-year-old woman, G2P0, was admitted at 37 weeks 0 days of gestation for induction of labor for gestational diabetes mellitus, pre-eclampsia, and maternal BMI of 60. Due to a prolonged latent phase of labor and fetal intolerance of labor, primary cesarean was recommended. Through a sub-umbilical approach, the uterus was dextro-rotated almost 180 degrees and blanched with engorged uterine vessels. A vertical uterine incision was made, and a asphyxiated female infant was delivered via breech extraction. APGAR scores were 2, 7, and 8. The infant required brief respiratory support following delivery. The postoperative course was uncomplicated, with normal recovery time.

Conclusion: Uterine torsion poses significant risk to both mother and fetus. The phenomenon is so rare that epidemiological data are difficult to gather. In our case, the presentation was gradual compared with the acute presentations that have been reported, which may mislead clinicians toward more benign diagnoses. Our case report aims to add to the literature on uterine torsion, providing a unique presentation, clinical features, and treatment.

1. Introduction

Uterine torsion is defined as torsion of the uterus around its longitudinal axis exceeding 45 degrees, with most being approximately 180 degrees. It occurs at the junction of the cervix and uterine corpus. Torsion less than 45 degrees is considered physiologic. Uterine torsion is a rare obstetric complication, with most of the literature comprising single case reports. It is, however, a dangerous complication that can be harmful to mother and infant. Severe acute uterine torsion can lead to placental abruption [1,2], maternal death, and intrauterine fetal death [3]. The most common symptoms of uterine torsion in pregnancy are abdominal pain, fetal heart rate changes, and failure of cervical dilatation [4]. This report describes the clinical features, risk factors and treatment used for uterine torsion in term pregnancy.

2. Case presentation

A 38-year-old woman, G2P0010, was admitted at 37 weeks 0 days of gestation for induction of labor for poorly controlled gestational diabetes mellitus on insulin and metformin. Pregnancy was also complicated by gestational hypertension that later manifested as pre-eclampsia, advanced maternal age, group B *Streptococcus*-positive status, maternal body mass index of 60, concern for large for gestational age and maternal depression. Ultrasound scan at 36 weeks 6 days of gestation showed estimated fetal weight in the 94th percentile (3629 g), head circumference in the 82nd percentile, and abdominal circumference > 99th percentile. The patient was hemodynamically stable and afebrile during admission. Pre-operative hemoglobin was 11.5 g/dL.

On admission, oral misoprostol was used for induction of labor.

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Examination showed the cervix was closed/50%/−3. The fetus was cephalic presenting. Fetal monitoring was category I. The patient had two systolic blood pressure readings in the 160 s and 170 s but responded well to hydralazine. Patient denied any symptoms of severe pre-eclampsia.

Over the first hospital day, six doses of oral misoprostol were administered for induction of labor and the cervix had progressed to 0.5/60%/−3. Low-dose oxytocin was started. Urine protein/creatine ratio was 0.8 and pre-eclampsia was diagnosed. Five hours later, artificial rupture of membranes yielded copious amounts of clear fluid. Due to maternal body habitus, external fetal heart monitoring was difficult. Fetal scalp electrode (FSE) and intrauterine placement catheter (IUPC) were placed. The cervix was 3/100/−2 after FSE and IUPC placement. Epidural was requested. Contractions were borderline adequate show by IUPC. Oxytocin augmentation was started.

Five hours later, fetal heart tracing was judged as non-reassuring due to persistent decelerations, despite administration of supplemental oxygen, positional changes, and 300 mL amnioinfusion. The cervix was now 5/100%/−3. Due to slow progress, fetal intolerance of labor, and being remote from delivery, primary cesarean section was recommended. Due to the patient's body habitus and pannus, a sub-umbilical incision was recommended and discussed with the patient. Patient consented for a cesarean using a high incision.

A sub-umbilical skin incision was made and carried down through the subcutaneous tissue to the fascia. The fascia was opened transversely 4 cm above the symphysis. The layers of the abdominal wall were opened with a combination of sharp and blunt dissection. Upon entering the abdomen, the uterus was noted to be rotated almost 180 degrees, with the left adnexa well right of the midline (dextro-rotation). The uterus was also blanched with engorged uterine vessels. No uterine anomalies, fibroids, or ovarian pathologies were seen. The uterus would not rotate with direct gentle palpation. Nonetheless, the physicians were able to manually rotate the uterus enough to make an incision to the left of midline with the knife and extend this incision bluntly. An asphyxiated female baby was delivered by breech extraction. Nuchal cord times three was reduced. The umbilical cord was clamped and cut, and the infant handed to the waiting neonatal team. A section of cord was preserved to draw cord gasses. The placenta was removed intact and appeared normal. The uterus was exteriorized. It appeared soft and boggy despite manual massage. Pitocin was administered. Both uterine tone and color improved. The uterine incision extended from the upper lower uterine segment to the fundus and disrupted the left fallopian tube. The uterine cavity was wiped clean. The uterine incision was closed with three layers: running non-locking, then interrupted, and lastly a running non-locking imbricating layer of suture. The uterus was returned to the abdomen and the uterine incision was re-inspected and found to be hemostatic. The uterus immediately returned into the original dextro-rotated position and would not be coaxed to stay midline. The gutters were cleared of all clots and debris. The rectus muscle beds were inspected and made hemostatic with minimal cautery. The fascia layer was closed in a running fashion. The subcutaneous tissue was made hemostatic with minimal cautery and closed in 2 layers. The skin incision was closed with staples. Blood loss was 875 mL. 2400 mL of intravenous fluids were given. 3 g of cefazolin was used as prophylaxis.

The newborn's Appearance, Pulse, Grimace, Activity, and Respiration (APGAR) scores at 1, 5, and 10 min were 2, 7, and 8 respectively. Weight was 3630 g, height 50 cm, and head circumference 34 cm. Arterial cord pH was 7.018 and arterial base deficit was 12.4 millimole/L. Venous cord pH was 7.081 and venous base deficient was 8.6 millimole/L. The infant required brief positive-pressure ventilation and continuous positive airway pressure therapy following delivery and was transferred to the neonatal intensive care unit on room air for observation and stayed due to hypoglycemia. The infant received a dextrose bolus and intravenous fluids but was weaned off without difficulty. The infant was discharged two days later with the mother in excellent condition.

Postoperative course was uncomplicated, with normal post-operative recovery. Maternal insulin was adjusted postpartum. Blood pressure continued to be elevated and a second anti-hypertensive was added to the postpartum regimen. On the day of discharge, the patient met all post-operative milestones. There was no evidence of infection at the incision site. The patient was discharged on post-operative day 2.

3. Discussion & conclusions

Uterine torsion is defined as the rotation of the uterus more than 45 degrees on its longitudinal axis. Due to the rarity of uterine torsion, it is difficult to study the actual epidemiology of this obstetric emergency [5]. While the definitive etiology remains elusive, risk factors have been identified, including abnormal fetal position, uterine ligament relaxation, uterine malformations, uterine fibroids, polyhydramnios, ovarian cysts, and pelvic adhesions [4,6,7]. However, this case falls under the 30% of cases that occur without discoverable cause [8].

Uterine torsion poses significant risk to both mother and fetus. Maternal complications include complete or partial placental abruption and maternal hemodynamic shock [1,2]. There have been no maternal deaths reported before 20 weeks, mortality rates of 17% reported between 20 and 28 weeks, 10% at 29 to 34 weeks, and 9% at term gestation [4]. Fetal complications associated with uterine torsion are fetal hypoxia, fetal antepartum hemorrhage, and death [3]. Perinatal mortality is approximately 12% [5].

The extreme difficulty in diagnosing uterine torsion preoperatively stems from the variable presentation, compounded with its rare occurrence. Clinical symptoms of uterine torsion in pregnancy are variable, ranging from an asymptomatic presentation to severe acute abdomen. Furthermore, slow progression of labor as well as a cervix that is high and difficult to examine, as in this case, may be additional manifestations of uterine torsion. Ultrasound, computed tomography, and magnetic resonance imaging can also be helpful in the diagnosis to a certain extent [3,9]. However, due to this patient's body habitus, ultrasound detection would have been difficult.

Uterine torsion should be treated with immediate surgery. Posterior hysterotomy, high incision from the anterior wall of the uterus, or classical incision have been documented as ways to deliver the fetus in a uterus that has undergone torsion [10]. In this case, the uterus could not be manually repositioned so a classical incision with breech extraction was made to ensure safe delivery of the fetus. The uterus was blanched but did not seem necrotic. The uterine vessels appeared engorged but improved after delivery of the fetus. If the uterus had been necrotic, a cesarean hysterectomy would have been indicated [4].

In this case the presentation was gradual compared with the more acute presentations that have been reported in the literature [2,4,10,11]. Non-reassuring fetal heart tracings and slow cervical progression despite labor induction and augmentation, as seen in this case, may mislead clinicians toward more common differential diagnoses, such as first- or second-stage arrest, failed induction of labor, or fetal intolerance of labor.

The diagnosis of uterine torsion before birth and cesarean section is extremely difficult and sometimes impossible. Successful birth after uterine torsion has been documented; however, there are too few reports to accurately depict the long-term implications of delivery after uterine torsion [12]. This patient will need cesarean delivery in all subsequent pregnancies, given the obstetric history and co-morbidities.

Contributors

Kimberly Huynh, MD was involved in patient care, acquired and interpreted the data, drafted the manuscript, revised the article critically for important intellectual content, and approved the final submitted version.

H. Frank Andersen, MD drafted the manuscript, revised the article

critically for important intellectual content, and approved the final submitted version.

Conflict of Interest

The authors declare that they have no conflict of interest regarding the publication of this case report.

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Patient consent

Obtained.

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