Case report

Uterine Torsion: A Rare Obstetric Emergency

Abstract:

Uterine torsion is the rotation of the uterus by more than 45 degrees around its long axis. It is considered to be a rare and fatal emergency especially in gravid uterus which can occur at any gestational age. In most of the cases, the diagnosis is often delayed and is recognized at cesarean section. The management is to detort the uterus, deliver the baby and act upon the cause if any. The first patient was a great grand multipara with bad obstetric history presented at term with transverse lie. Bicornuate uterus with torsion was diagnosed intraoperatively for which detorsion was attempted successfully and cesarean section was performed. The second patient was a primigravida with multiple fibroids and complete placenta previa. Emergency cesarean section was performed which revealed torsion of the uterus after the delivery of baby. The uterus was then detorted and the associated intra-operative complications were managed. In both the cases, immediate corrective measures led to good feto-maternal outcomes.

Keywords: Uterine torsion, Gestational, Obstetric, Placenta

Introduction:

"Uterine torsion has been defined as a rotation of more than 45 degrees of the uterus around its long axis that occurs at the junction between the cervix and the corpus. The extent of the rotation is usually 180 degrees, although cases with torsion from 60 to 720 degrees have been reported" (Sparić et al., 2007). Uterine torsion is one of the unusual complications in obstetrics which is almost impossible to diagnose antenatally. This obstetric emergency is considered to be the rotation of gravid uterus by more than 45 degrees along its long axis. Maternal age, parity, gestational age plays no significant role in uterine torsion.[1] "Clinical diagnosis is difficult since symptoms are either absent or non specific (cervical dystocia, painful uterine contractions, dynamic hypertonia...)" (Carbonne et al., 1994). It is difficult to estimate the prevalence of this condition as most of the data is in the form of anecdotal case reports. Being a life-threatening condition, it necessitates a high level of suspicion for diagnosis and prompt intervention to optimise results. Maternal mortality has been reported in patients with gestational age of more than 20 weeks with mortality rates up to 9% at term gestation. Overall perinatal mortality rate has been reported to be 12%.[2] "Clinical diagnosis is difficult since symptoms are either absent or non specific (cervical dystocia, painful uterine contractions, dynamic hypertonia...)" (Carbonne et al., 1994). Such rare entity is said to be "once in a lifetime diagnosis" for an obstetrician but we describe two such cases which we encountered in a span of less than 18 months.

Case descriptions:

Case 1: A forty-two-year-old G13P11L6A1 presented in our outpatient clinic at 37+5 weeks gestation. She had history of previous five term intrauterine fetal deaths, all of them being home deliveries. She neither had previous antenatal visits nor any obstetric sonography done during this pregnancy. Her past medical and family histories were insignificant. There was no abnormality detected on her general and systemic examination. Per abdomen examination revealed term gestation with transverse lie and clinical suspicion of oligohydramnios. She

was admitted for safe confinement and sonography confirmed a single live gestation of 37+1 weeks in transverse lie with severe oligohydramnios of AFI less than 3 cms. After counselling, the patient was taken up for emergency cesarean section. Under spinal anesthesia, Pfannenstiel incision was given followed by opening of abdomen in layers. Distended small bowel loops were seen and complete dextrorotation of the uterus by 180 degrees around its longitudinal axis was noted. Skin incision was converted into an inverted T shaped configuration and the uterine torsion was manually corrected. Baby was delivered by taking the incision on lower uterine segment. Negligible liquor was noted and baby cried immediately after birth with APGAR score of 7 and 10 at 1 and 5 minutes respectively. At the time of suturing the uterine incision, a non-gravid uterine horn was identified on the left side. The uterus and abdomen were closed in the usual manner and the blood loss was calculated to be less than 500 ml. Her post-operative period was uneventful and she was discharged with baby on day 5 of cesarean section.

Case 2: A twenty-nine-year-old Primigravida with type 4 placenta previa and multiple uterine fibroids presented in emergency with complaints of spotting per vaginum at 36 weeks gestation. This patient had regular antenatal visits and was diagnosed to have multiple myomas largest being 3 cms in her first trimester scan. She was admitted in her 17th week gestation with complaints of pain in abdomen and was treated symptomatically. Sonography confirmed multiple myomas largest being 6 cm x 6 cm size in second trimester. Patient followed up regularly with uneventful antenatal period and similar findings till she came to emergency. Patient was admitted and managed conservatively but had to be taken for emergency cesarean section as she went in labor three days later. Intraoperatively, enlarged blood vessels were noted in lower uterine segment which were thought to be due to placenta previa. Uterine incision was taken and baby was delivered after cutting through the placenta. Baby cried immediately after birth with APGAR score of 7 and 8 at 1 and 5 minutes respectively. Placenta was delivered completely but active bleeding was noted. Uterus was exteriorized and multiple myomas were noted largest being around 6 x 7 cms near the incision line. Close inspection revealed 180 degrees of uterine levo-rotation with uterine incision on the posterior wall. Further exploration revealed complete transection of the cervix. Spinal anesthesia was converted to general anesthesia and relatives were counselled about the intraoperative findings and need for hysterectomy if need be. Decision was taken to give a trial to reconstruct the anatomy initially as the relatives were keen to preserve the reproductive functions. 18G Foley's catheter was introduced intravaginally into the uterine cavity and the foleys bulb was inflated with normal saline. Cervix was sutured circumferentially around the foleys tube in interrupted manner. Myomectomy was performed and uterine incision was sutured in two layers. Bilateral adnexa were normal. Hemostasis was achieved and abdomen was closed in the usual manner. Estimated blood loss was approximately 1.8 litres for which 4 units of whole blood were infused (2 intra-operative and 2 post-operative in first 24 hours). Patient was shifted to ICU and closely monitored for next 24 hours and later shifted to ward in stable condition. Patient and her baby had an uneventful postnatal period and were discharged on day 7 without any further complications. The patient followed up regularly in outpatient clinic after a week, a month, 6 months and a year. Postpartum sonography revealed no abnormality. Patient resumed her menses with in five months of delivery.

Discussion:

Uterine torsion occurs at the transition of the cervix and the corpus. Most of the cases published generally include uterine torsion at 180 degrees though cases with torsion of more

than 45 degrees to 720 degrees have been reported. Historically, torsion between 180-360 degrees carries a high risk of mortality with maternal mortality up to 36% and fetal demise of 71% has been noted.[3] Two-thirds of the cases seem to occur as dextrorotation and one-third of the cases are noted as levorotation.[4] Majority of the torsions occur in third trimester with first stage of labor being the most common.[1] The earliest gestational age is recorded at 6 weeks and latest at 43 weeks. Such torsions are known to cause vascular compromise and are dangerous for both the mother and the fetus.[5]

The main etiological factors for uterine torsion are considered to be the obvious asymmetry due to either congenital or acquired deformities and the traction due to the pelvic tumors or adhesions. Pregnancy also adds on to the congenital and physiological rotations along with obliquities of the uterus.[1] The known predisposing factors associated with uterine torsion are abnormal fetal presentation, uterine anomalies and myomas. Our first case was a patient with uterine anomaly of bicornuate uterus and the second patient was a case with multiple fibroids. Nevertheless, the torsion of the uterus is idiopathic in 30 % of the cases.[6] Despite the predisposing factors being quite common occurrences, uterine torsion is a rare entity. This suggests some additional influences may play a role. Irregular bodily movements, posture and positions of the patient, functional variations in the size, anatomy, position and mobility of the bladder and rectum, irregular contractions of the abdominal muscles along with the uterine contractions and fetal movements can be contributing factors. Robinson and Duvall named these influences as activating factors.[1] As reported in one of the cases in literature, there can be recurrent torsion of the uterus due to long round ligaments. In such cases, these round ligaments need to be plicated bilaterally to ensure stability of the uterus.[4]

The most common abnormal fetal presentation reported is transverse lie while the most common uterine anomalies noted are didelphys and bicornuate uterus as noted in our first patient. The sequelae to pathological uterine torsion include stenosis and compromise of the uterine vasculature which leads to poor perfusion of placenta subsequently. This further leads to abruption, fetal distress and finally fetal demise if emergency steps are not taken.[7] The sequelae to uterine torsion is narrowing of the torsional venous lumen which decreases the venous blood flow first and then there is compromise in the blood supply to the uterus followed by increased pressure in the placental cotyledons leading to fetal distress and placental abruption.[8]

The symptoms are generally related to the duration and degree of torsion that can be categorized as acute, subacute or chronic. The patient can be completely asymptomatic or may present with abdominal pain, irregular or hypertonic uterine contractions, bleeding per vaginum or in shock. Intestinal symptoms may include nausea, vomiting or loose motions. Urinary symptoms may include frequency, urgency, oliguria or even hematuria.[7]

Antenatally, imaging techniques can diagnose uterine torsion. Sonography can pick up transposition of the placental bed compared to previous scan with ovarian vessels anterior to uterus on doppler USG. MRI demonstrates “X” configuration in upper vagina.[2] On per vaginal examination, uterine pulsations might be felt in anterior or posterior fornix with twisted vagina and constriction ring in the cervix. But such diagnosis is seldom established pre operatively and these patients are generally taken up for emergency cesarean in view of fetal distress, antepartum hemorrhage, obstructed labor, uterine rupture or torsion of pelvic tumors.[5] Hence, MRI may not be an appropriate test in the emergency as excessive inspections and time spent on imaging may lead to missed opportunities for rescue of the mother and the baby.[8]

Maternal and fetal prognosis is related to the stage of pregnancy at which uterine torsion occurs and also on the degree of torsion. Laparotomy plays an imperative role in the management of uterine torsion. Intra-operative diagnosis is generally made by identification of anatomical landmarks. The approach for treating uterine torsion is mostly performed as detorsion, uterine incision and addressing the underlying cause. Detorsion is usually difficult but if performed first is beneficial to the mother and the baby.[6] In cases where the surgeon is not able to reposition the uterus anatomically, deliberate incision should be taken on the posterior wall to decrease the high likelihood of fetal mortality. In asymptomatic patients where the diagnosis is not established antenatally, the decision for cesarean section is delayed. This delay might lead to ischemia of reproductive organs and finally compromise the fertility of these patients.[9] Significant intrapartum blood loss has been seen in most of the cases due to uterine congestion associated with torsion, posterior uterine incision, incision on the thick upper segment or due to inadvertent extension into the uterine vessels. In one of the reported cases, hemorrhage occurred from large superficial vein due to infundibulopelvic ligament injury during baby delivery.[10] Trial of labor can delay the diagnosis of uterine torsion and add on to the complications.[3]

We came across two different case scenarios of the same entity which is considered to be one of the rarest obstetric emergencies. In the first case, the diagnosis of uterine torsion was established after opening the abdomen. Detorsion was successfully attempted before the incision on the uterus with no maternal and fetal morbidity. In the second case, we picked lower uterine segment being very vascular but we attributed it to the complete placenta previa. The uterine incision was taken on the supposedly anterior surface which later was realized to be the posterior surface of the uterus. Eventually the anatomy was reconstructed but we still accept the fact that the patient was inadvertently subjected to a higher risk and associated morbidity. Both the patients recovered well with no long-term complications.

Conclusion:

Though many obstetricians might not encounter this emergency in their daily practice, we had the privilege to see two such cases in our institute. Though we had diagnosed the first case, we missed the similar diagnosis initially in different presentation even though we came across it in eighteen months making it a near miss situation. This highlights the varied presentations of this condition along with the grave consequences that can be associated with uterine torsion.
Preempting the diagnosis, prompt recognition of this condition and intraoperative skills and vigilance can considerably reduce the morbidity and mortality that can be caused by this dreadful obstetric entity.

Consent
As per international standards or university standards, patient(s) written consent has been collected and preserved by the author(s).

Disclaimer (Artificial intelligence)

Option 1:

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

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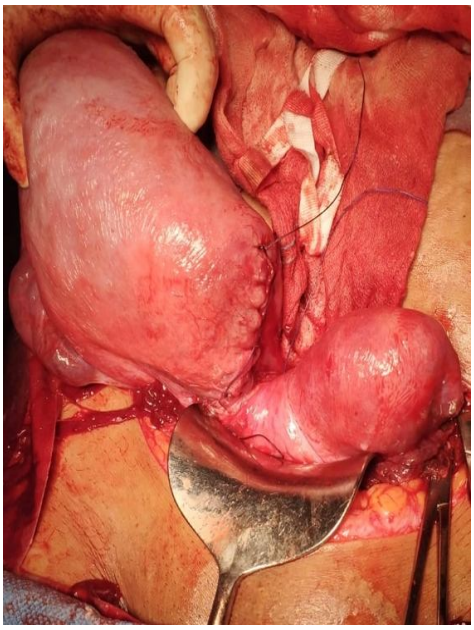

Fig 1: Bicornuate uterus after closure of uterine incision (Case 1)

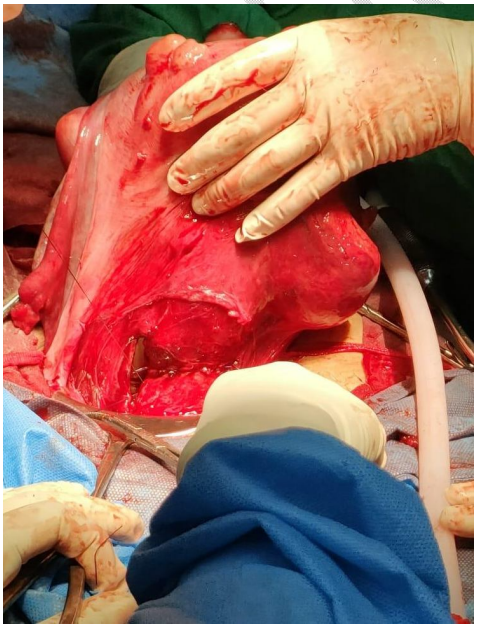

Fig 2a: Anterior surface of uterus Anterior surface of cervix sutured with foley's catheter seen intra-uterine (Case 2)

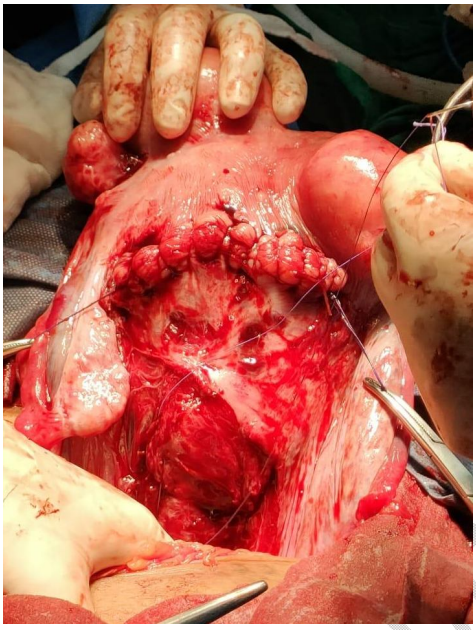

Fig 2b: Posterior surface of uterus after closure of uterine incision. Posterior surface of cervix sutured (Case 2)