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ACUTE UTERINE INVERSION(AUI) - STILL PREVELANT IN TODAY'S MODERN PRACTICE INSPITE OF WIDESPREAD BEmOC TRAININGS

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Abstract :
Introduction: In spite of BASIC EMERGENCY OBSTETRIC CARE(BEmOC)Trainings and Services rate of AUI in the country is seemingly high especially in the peripheries. AUI is an unpredictable entity where in hemorrhage can be life threatening requiring prompt recognition and aggressive management. This study is a retrospective analysis of the admissions at a tertiary care centre over 3 years with AUI**.**

Materials and Methods This is a rural based retrospective study carried out in a tertiary care centre involving study of maternal outcome and complications in patients of AUI. All patients admitted in the tertiary care centre with AUI from August 2013 to August 2015 were included.All 10 cases of AUI were referred cases out of which 6 were from private hospitals and 4 from government centres mainly due to improper management of third stage of labour . 50 % females were Primipara ,50% presented with hemorrhagic shock and 10 % adherent placenta. Almost all were managed successfully by Manual reposition technique and only 3 required Hydrostatic method .All required ICU stay due to hemorrhagic and neurogenic shock and critical condition. Three required DUBT and one ended up in a Laparotomy**.**

Conclusion AUI is a preventable obstetric complication .Active management of third stage of labour is the key to prevent such complications and the following morbidity and mortality .It is time we check our training programs and reinforce the field staff with ongoing supervised monitoring after the training program. Since all cases presented with hemorrhagic shock a multidisciplinary approach for resuscitation is the key to the management .Early and timely management at a tertiary care centre has shown to reduce the mortality rate considerably.

Introduction:

A somewhat uncommon but dangerous obstetric problem is puerperal inversion, in which the uterus's corpus is prolapsed entirely or partially through the cervix. Following the third stage of labor, uterine inversion manifests itself with severe shock and hemorrhage after delivery. Maternal death may result from improper management or treatment. Das[1] recorded incidents in the 1940s that varied from 1 in 23127 in the USA, 1 in 8537 in India, and 1 in 27992 in Great Britain. The death rate varied from 13 to 41 percent. Recent studies have not reported any maternal deaths, most likely as a result of early detection and effective care.[2,3]Mismanagement of the third stage of labor, including premature tension

on the umbilical cord and/or fundal pressure before the placenta has detached, is typically cited as the cause of acute uterine inversion.[4,5] Other variables that have been suggested are Nulliparity;[6,7] Use of magnesium sulfate during childbirth;Manual placental removal following vaginal delivery or prior to complete placental separation during Caesarean section; Abdominal pressure spike that occurs when you cough, sneeze, or push; Short umbalical cord; and uncommon diseases of the connective tissues. In spite of BASIC EMERGENCY OBSTETRIC CARE(BEmOC)Trainings and Services the rate of AUI in the country is seemingly high especially in the peripheries. AUI is an Unpredictable entity where in hemorrhage can be life threatening requiring prompt recognition and aggressive management.The aim of the study is a Retrospective analysis of the admissions at a tertiary care centre over 3 years with AUI.

Material and methods :

This study is a rural based retrospective study carried out in a tertiary care centre's Department of Obstetrics and Gynecology at Shree Krishna Hospital (SKH), Karamsad involving study of maternal outcome and complications in patients of AUI. All patients admitted in the tertiary care with AUI from August 2013 to August 2015 were included. Five categories were created based on the inclusion criteria for severe acute maternal morbidity (SAMM): uterine rupture, eclampsia, substantial obstetric hemorrhage (defined as ≥4 units of packed cells, hysterectomy, or embolization), and miscellaneous. The treating obstetrician believed that the last group included uncommon cases of SAMM. Included were all uterine inversion cases that occurred between August 2013 and August 2015.The primary outcome indicators for uterine inversion were incidence and related variables.Age, parity, BMI, gestational age, ethnicity, birth weight, and Apgar score were among the clinical features. Delivery details included the method of delivery, the length of the second and third stages of labor, the amount of blood lost, and the length of hospital stay. Uterine inversions were categorized based on when they occurred and how severe they were. There were three categories for the timing of inversion following delivery: acute (within 24 hours), sub-acute (24 hours to 30 days), and chronic (greater than 30 days). There were two categories for the degree of inversion: incomplete and complete (beyond the cervical ring). Haemoglobin levels, the degree of shock, the quantity of packed cells transfused, the type of anesthesia, and the technique for repositioning the inverted uterus were among the management details.

Results :

During the study there were total 3759 deliveries. In the study there were no maternal deaths due to uterine inversion. All 10 cases of AUI were referred cases out of which 6 were from private hospitals and 4 from government centres mainly due to improper management of third stage of labour. The study group's mean maternal age was thirty years, which ranged from 23 to 37 years. The group's body mass index was between 17.9 to 25.5 kg/m2, with a mean of 21.5 kg/m2. Three women(30%) were from suburban areas, while the remaining seven (70%) were from villages. Eighty percent of the deliveries were at term , one was at preterm (36 weeks + 2 days), and two were postterm (42 weeks and 42 weeks + 1 day). The mean birth weight ranged from 2575–5120 grams, with 13% having macrosomia (>4500 grams). Every newborn was in good health. Eighty percent were delivered on time, one was delivered two days early (36 weeks + 2), and two births were made after the deadline (42 weeks and 42 weeks + 1).The The baby weight was within a range of 2575–5120 grams. Of those, 13% had macrosomia (>4500 grams). Each baby was in good health. Table 1 displays the clinical features of the women who had uterine inversion.Of the ladies, 13% had a partial inversion and 87% had a complete inversion. 40% had uterine inversion identified prior to placental delivery, and in 33% of these instances, the placenta was extracted prior to the repositioning procedure. 60% of the cases had hemoglobin levels that fell below 5.0 mmol/l during the complication, with a minimum of 2.5 mmol/l. All of the women were taken to the operating room for additional care, such as blood transfusions, and/or repositioning. Nine out of ten instances (90%) involved manual repositioning under general anesthesia.One out of ten required open laparotomy. For subsequent pregnancies, only

incomplete follow-up data is available.Uterine inversion resulted in the safe delivery of babies by at least two women.

Table 1. Clinical characteristics of women with uterine inversion.

		Cases,*n* =10
Age(year)		**30.1**
Parity	**0**	**5 (53.3)**
	1	**4(40.0)**
	2	**1 (6.7)**
Blood loss (ml)		**2857(1500-5000)**
Shock registered		**4 (40)**
Number of packed cells		**5(2-10)**
Hospital stay(d)		**3.5(1-7)**
Possible risk factors		
Low-risk		9 (90)
Low-risk at onset of birth		6 (60)
Mode of delivery		
Spontaneous		**6 (60)**
Vacuum extraction		**4 (40)**
Controlled cord traction		**4 (46.7)**
Retained placenta		**2(26.8)**
Macrosomia (>4500g)		**1 (13.4)**
Birth stage duration(h)		
	2nd	**42(5-108)**
	3rd	**40(8-90)**
Fundal implantation		**1 (10)**

Data are presented as means (range) or number (%).

Discussion :

About 1 in 20000 vaginal deliveries resulted in acute uterine inversion, which caused significant blood loss, a decrease in hemoglobin levels, the requirement for blood transfusions, and shock. It is an uncommon obstetric complication, with low-risk women experiencing the majority of occurrences. Vacuum extraction, retained placenta, macrosomia, and extended duration of the second and third stages of labor were discovered to be linked factors in certain cases. With puerperal uterine inversion's grave effects, it is highly improbable that any cases could have been overlooked using these standards. Nulliparity has been identified in numerous instances as a risk factor for uterine inversion. The percentage of nulliparous women in this study is similar to that of the population. As a result, nulliparity cannot be affirmed as a risk factor. Our results are supported by a case-control study conducted by Watson et al. [3]. Prior research has suggested that placental adherence[1,12], macrosomia[13], and precipitate labor[13] are risk factors.Maternal structural abnormalities[2,12], connective tissue disorders[14], fundal placental implantation[2,12], and a short umbilical cord[12] are other risk factors that are less commonly discussed. There was one incidence of fundal placental implantation and no cases of connective tissue abnormalities in our study. Regretfully, there were no data available for the remaining parameters. Owing to the low frequency of related factors pertaining to the mother and/or child, obstetric healthcare factors may be taken into account. Das et al. reported that, following a spontaneous origin, the two primary causes (representing 21 and 19% of all puerperal inversions) were umbilical cord traction and an incorrect technique of placental expression1. In our study, controlled cord traction was noted in 50% of the instances. Examining potential iatrogenic causes (e.g., controlled cord traction in a non-or partially constricted uterus) is challenging, and we believe that this item is likely to be underreported. Only two occurrences of spontaneous placental delivery

without any manipulation were reported; the circumstances surrounding the other six cases are still unknown. Additional research backs up the third step of uterine inversion development, which involves manipulating the placenta and umbilical cord[2,12.] However, proactive management is required to stop further third-stage problems. Combs et al. state that if the third stage lasts more than thirty minutes, there is a higher risk of bleeding and blood transfusion[15].With our study population's third stage lasting an average of forty minutes, active management was recommended in the majority of cases. It is possible that when the placenta is difficult to deliver, cord traction will become "less controlled." Two crucial treatment measures are involved in the management of uterine inversion: reverting as soon as possible and preventing significant blood loss or shock.Oxygen, intravenous 0.9% NaCl injection, and, if required, plasma or blood products make up shock treatment. Using the Johnson's maneuver, which involves pulling the uterine fundus back while exerting pressure from the outside, one can successfully relocate the uterus. The placenta was removed in three (30%) of the cases in our study prior to the uterus being reversed; this is not recommended in this circumstance as it is thought to increase blood loss. To minimize the chance of recurrence, the internal hand should stay in place until the uterus contracts (which might occasionally happen after oxytocic drugs are administered). Tocolytic medications are occasionally required when contraction prevents repositioning. Laparotomy is no longer necessary for effective repositioning. In the operating room, all of these procedures ought to be carried out under general anesthesia.The danger of acute severe maternal morbidity should then be avoided by following the recommended course of action for appropriate care. We recommend limited cord traction for uteri that are well contracted in order to prevent the problem and service providers should under go regular BEmoc Trainings.

Conclusion :

AUI is a preventable obstetric complication .Active management of third stage of labour is the key to prevent such complications and the following morbidity and mortality .It is time to check our training and reinforce field staff with ongoing supervised monitoring after any training . Since all cases presented with hemorrhagic shock a multidisciplinary approach for resuscitation is the key to the management .Early and timely management at a tertiary care centre has reduced the mortality rate considerably.

References :

1. Das P. Inversion of the Uterus. BJOG 1940;47:525-48.
2. Shah-Hosseini R, Evrard JR. Puerperal uterine inversion. Obstet Gynecol 1989;73:567-70.
3. Watson P, Besch N, Bowes WA Jr. Management of acute and subacute puerperal inversion of the uterus. Obstet Gynecol 1980;55:12-6.
4. Dali SM, Rajbhandari S, Shrestha S. Puerperal inversion of the uterus in Nepal: case reports and review of literature. J Obstet Gynaecol Res 1997;23:319-25.
5. Rudloff U, Joels LA, Marshall N. Inversion of the uterus at caesarean section. Arch Gynecol Obstet 2004;269:224-6.
6. van Vugt PJH, Baudoin P, Blom VM, van Deursen CTBM. Inversio uteri puerperalis. Acta Obstet Gynecol Scand 1981;60:353-62.
7. Dirken JJ, Vlaanderen W. Uterine inversion. Ned Tijdschr Geneeskd 1994;138:38-40.8. Zwart JJ, Richters JM, Ory F, de Vries JI, 8.Bloemenkamp KW, van Roosmalen J. Severe maternal morbidity during pregnancy, delivery and puerperium in the Netherlands:a nationwide population-based study of 371,000 pregnancies. BJOG 2008;115:842-50.
9. The Netherlands Perinatal Registry. Perinatal care in the Netherlands, 2004-2006 http://www.perinatreg.nl/home_english accessed June 2011.
10. Bunke JW, Hofmeister FJ. Uterine inversion – obstetrical entity or oddity. Am J Obstet Gynecol 1965;91:934-40.
11. Kitchin JD, Thiagarajah S, May HV, Thornton WN. Puerperal inversion of the uterus. Am J Obstet Gynecol 1975;123:51-8.

12. Majd HS, Nawaz T, Ismail L, Luker R, Kalla S. Acute uterine inversion as a cause of major post-partum haemorrhage: a case report and review of the literature. The Internet Journal of Gynecology and Obstetrics 2009; Volume 12 number 1.
13. Rahman J, Rahman FZ, Rahman W, al-Suleimand SA, Rahman MS. Obstetric and gynecologic complications in women with Marfan syndrome. J Reprod Med 2003;48:723-8.
14. Combs CAM, Laros RKJ. Prolonged third stage of labor: morbidity and risk factors. Obstet Gynecol 1991;77:863-7.