ORIGINAL ARTICLE

A RETROSPECTIVE STUDY OF CASE PROFILE, MATERNAL OUTCOME IN CASES OF ACUTE UTERINE INVERSION IN A TERTIARY CARE HOSPITAL

K. Srinivas[1], K. V. Malini[2], Rajeshwari B. K[3], Smrithi Cheluvaraj[4]

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ABSTRACT: Acute uterine inversion is a rare and life-threatening post-partum complication which often occurs when the placenta fails to detach from the uterus after childbirth. The uterine fundus falls into the endometrial cavity and may descend to the cervix (incomplete) or beyond the cervix (complete). Death may occur in 15% of the affected mothers due to blood loss and shock. **AIM**: To study case profiles of women who present with acute uterine inversion and to the maternal outcome and the determinants of the outcome in these cases. **METHODOLOGY**: It is a retrospective study for a period of 84 months at Vanivilas hospital attached to Bangalore Medical College from. 14 women in whom inversion was diagnosed were identified from the records. Maternal complications PPH, retained placenta, need for hysterectomy, ICU admissions, death were noted. Co morbid conditions which worsened the prognosis were looked into. **RESULTS**: 100% of the patients were booked elsewhere. Only 5 of them delivered in our hospital rest delivered elsewhere and were referred. 6 were primigravidae, 8 of them were in the age group of 20-25 years. Inversions were noticed in our hospital during caesarean with no adverse outcomes. 10 had delivered vaginally of which 9 were referred from elsewhere. Deliveries were conducted by obstetricians or trained personnel in 8 cases out of which 9 referred cases and 1 case was a home delivery conducted by an untrained dai. 4 patients required hysterectomy, 4 cases were diagnosed and managed corrected was made during caesarean section. Immediately and the rest 6 cases it was manually reduced. 2 women succumbed to PPH and shock. **CONCLUSION**: Acute uterine inversion a very rare complication after delivery but may be life threatening. Prompt immediate reposition could save the mother from neurogenic or haemorrhagic shock. Co morbid conditions may worsen the morbidity.
KEYWORDS: Uterine inversion, maternal mortality, manual reduction, hysterectomy.

INTRODUCTION: Acute uterine inversion is a rare and life-threatening post-partum complication which often occurs when the placenta fails to detach from the uterus after childbirth. The uterine fundus falls into the endometrial cavity and may descend to the cervix (incomplete) or beyond the cervix (complete). Death may occur in 15% of the affected mothers due to neurogenic shock and blood loss. The shock is often described as being "out of proportion" to the blood loss. Uterine inversion is associated with primiparity, the use of oxytocin, macrosomia and fundal insertion of the placenta. Premature traction on the umbilical cord and fundal pressure before placental separation are the usual direct causes. Care for acute uterine inversion involves pain management, resuscitation and replacement of the inverted uterus before oedema sets in. Surgery may be required in severe cases. The shock is thought to be due to the parasympathetic

effect of traction on the ligaments supporting the uterus and may be associated with bradycardia. This description of the shock is not well supported by the literature, and may mislead.

Management of uterine inversion has two important components: the immediate treatment of the haemorrhagic shock and replacement of the uterus. Resuscitation should start immediately while attempts are made to replace the uterus manually. The chance of immediate reduction is between 22 and 43%.[1, 5, 6] If unsuccessful, further attempts should wait until the patient is haemodynamically stable.[3] If possible, the placenta should be left in place to reduce bleeding.[5] If the uterus remains inverted, contraction of the cervix may require relaxation by general anaesthesia or tocolytic therapy. Severe cases require laparotomy.[7] Regional anaesthesia does not provide relaxation but may be helpful by providing analgesia.[6]

MATERIALS AND METHODS: Study design: It is a retrospective study for a period of 7 years months from Jan 2006 to Jan 2013 conducted at Vanivilas hospital attached to Bangalore Medical College by reviewing the records.

Data were obtained from review of medical records. A total of 14 cases were identified in whom a diagnosis of acute uterine inversion was made. Baseline data like maternal age, parity status, mode of delivery, place of delivery, 3rd stage complications, delivery conducted by whom, presence of co-morbid conditions, state of the patient at the time of presentation, symptoms with which she presented, inversion-intervention interval placental problems, degree of inversion, Hb%, etc. were noted. Adverse events occurring during the antepartum, intrapartum, and were recorded. Need for hysterectomy, initial resuscitation, feasibility of manual reposition, need for blood and blood product transfusion, ICU admission mortality were also noted.

OBSERVATIONS AND RESULTS: Age and parity distributions are shown in Table 1 and 2 respectively.

In the present study 57% patients were in the age group of 20-25years. About 43% were primigravidae. About 65% of the patients came to us being referred from elsewhere from where they had their delivery. Of these one had a home delivery went to a health care centre with PPH and was referred to us from there all the referred patients had vaginal deliveries. Of the 5 patients who delivered with us 4 cases (28%) had inversions during caesarean section and one during vaginal delivery all the 5 had no adverse outcomes as immediate reposition was done. This is depicted in Table 3.

Patients had varied presentations at admission which played a major role in determining the maternal outcome as shown in table 4. 71%of them presented with mass per vagina. There was overlapping of symptoms like shock, PPH, mass P/V etc., Table 5 shows that around 50% deliveries were conducted by obstetricians. Table 6 depicts the co-morbid conditions which probably clears that grand multiparity is not a risk factor for inversion, rather primiparity is an important risk factor. Surprisingly it was found that majority of the patients (64%) were a low risk patient who precludes the possibility of predicting this life threatening event of inversion.

The inversion intervention interval was immediate in 5 cases who delivered with us but in the rest it was less than 6 hours.

Other than the five cases which could receive immediate attention in the form of manual reposition, in another 2 cases manual reposition was done under IV sedation immediately on admission successfully. In 2 cases in view of persistantatony hysterectomy was done. In 1 case before anything could be done patient died within 10 minutes of reporting to our hospital. One more patient in whom manual reposition was successful, had atonic PPH, underwent hysterectomy but succumbed after 8 hours to DIC. In 2 cases reposition was done under general anaesthesia. 1 case could not be reduced because of the tight ring and an abdominal method of cutting the constriction ring and reposition was resorted to.

As most of them had delivered elsewhere the exact amount of blood loss could not be measured. But on an average 2 units of blood transfusion was required for the referred cases.

DISCUSSION: In the present study, the age group did not have much influence on the maternal outcome. Parity wise inversion was observed more frequently in primipara. The clinical features of uterine inversion have been investigated in several retrospective studies. Platt and colleagues reviewed 28 cases, of which eight patients were diagnosed as clinically shocked, although no definition was given. The average estimated blood loss was 1260 ml in primiparous women and 800 ml in multiparous women.[1]Brar and colleagues later reviewed 56 cases from the same hospital and the range of estimated blood loss was 500– 2500 ml.[5]

The average amount of blood transfused was 2 u (range 0–6), and one third of the patients were diagnosed as clinically shocked, defined as a systolic arterial pressure of less than 90 mm Hg and a pulse rate of more than 120 beats min–1 at any time during the episode. None were considered to be shocked out of proportion to the estimated blood loss. It was noted that removing the placenta increased the blood loss. In the current study also average blood transfusion requirement was 2 units. But blood loss could not be assessed accurately as most were referred cases.

In hospital cases required no blood transfusion as they were immediately attended to. Details of 11 uterine inversions were published from a retrospective study in Rhode Island.[2] Eight of the 11 patients had a calculated blood loss of over 1000 ml, and three patients lost over 2000 ml. Blood loss was calculated using the formula: Loss in ml = (pre-delivery haematocrit – predischarge haematocrit) × 150 ml + ml blood replaced. Only one patient was diagnosed as clinically shocked, again without definition and she had a calculated loss of 4300 ml. Only three of these patients were given a blood transfusion, of between 2 and 5 u of packed red cells. These surveys do not support the classical description of shock out of proportion to blood loss. Indeed, it must be remembered that blood loss is frequently underestimated.

In the present study incidence of inversion of uterus in caesarian birth is 1:4008 in vaginal deliveries is 1:72251. Hussein M.et.al studied 57036 deliveries and 36 acute uterine inversions occurred during the study period, so the frequency of uterine inversion was 1 in 1584 deliveries. Mismanagement of third stage of labour was responsible for uterine inversion in 75% of patients. Majority of the patients presented with shock, either hypovolemic (69%) or neurogenic (13%) in origin. Manual replacement of the uterus under general anaesthesia with 2% halothane was successfully done in 35 patients (97.5%).

Abdominal hysterectomy was done in only one patient. There were three maternal deaths due to inversion. In the present study many were manually reposited (5 cases immediately, of which 4 intracesarean, 2 cases under IV sedation, 2 cases under GA, 1 could not be reposited). 2 maternal deaths were encountered in the study.

3rd stage mismanagement could be the aetiological factor. Presentation in our study was also similar to the quoted study.

ICU admissions were required in 3 patients, of whom one died and 2 recovered. In all the cases the babies were found to be healthy. As none of the co-morbid conditions could be directly responsible for inversions the prediction of the condition may be impossible.

Place of delivery may play a very important role but the facilities like blood transfusion, anaesthesia availability may have a significant role in determining the outcome. Person who conducts the delivery may influence the outcome but the outcome may primarily depend on the available facilities, as in our study both the mothers who died were referred by obstetricians for lack of facilities.

CONCLUSION: In conclusion acute inversion of the uterus which is potentially a life threatening condition needs to be kept in mind while dealing with cases of unexplained post-partum collapse. Immediate reposition could be lifesaving. Though it is recommended to be done under anaesthesia the present study noticed that immediate reposition under IV sedation could be a good option which needs to be evaluated. As prediction is not possible managing the case in time properly, availability anaesthesia, blood and blood products, quick decision to proceed with hysterectomy in selected cases may be life saving for the mother.

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AGE IN YEARS	CASE
< 20	01
20-25	08
25-30	05

Table 1: Age distribution

Parity	Number
primi	06
Para 2	05
Para 3 and more	03

Table 2: Parity distribution

Route of delivery	Vanivilas	Outside (referred)
Vaginal	1	9
Caesarean	4	0

Table 3: Route of delivery & place of delivery

PPH	2
Pain	1
Retained placenta	1
Shock	2

PPH and shock	3
Mass per vagina	10*

Table 4: Mode of presentation

* there were overlapping of symptoms in some patients

Obstetrician	7
Trained personale (hospital)	06
Untrained dai (home)	01

Table 5: Delivery conducted by

Anemia	01
VBAC	01
Pre-eclampsia	02
Grand multiparity	01
Low risk	09

Table 6: Co Morbid conditions

AUTHORS:

1. K. Srinivas
2. K. V. Malini
3. Rajeshwari B. K.
4. Smrithi Cheluvaraj

PARTICULARS OF CONTRIBUTORS:

1. Assistant Professor, Department of Obstetrics and Gynaecology, Bangalore Medical College and Research Institute.
2. Professor and HOD, Department of Obstetrics and Gynaecology, Bangalore Medical College and Research Institute.
3. Post Graduate Student, Department of Obstetrics and Gynaecology, Bangalore Medical College and Research Institute.
4. Post Graduate Student, Department of Obstetrics and Gynaecology, Bangalore Medical College and Research Institute.

NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:

Dr. K. Srinivas,
780, Niranjana, 8th Cross,
3rd Main, BSK 3rd Stage, 3rd Phase,
3rd Block, Bangalore – 560085.
E-mail: srinivaskjois@gmail.com

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