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ANAESTHETIC IMPLICATIONS AND MANAGEMENT OF A PATIENT WITH RUPTURED UTERUS IN HYPOVOLEMIC SHOCK

Anaesthesiology

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ABSTRACT

Introduction: Rupture of gravid uterus is a rare, unexpected and often catastrophic complication of pregnancy. The overall incidence is 0.07 % (1: 1536 pregnancies). In developed countries, the rate of uterine rupture in pregnancy in unscarred uterus is 1 in 8,434 pregnancies (0.012%). It is associated with high incidence of foetal and maternal morbidity and mortality. As the initial signs and symptoms of uterine rupture are nonspecific, it is difficult to diagnose and there is a delay in starting a definitive treatment. We describe here a case of 25 years old G3P2L2 patient with previous normal vaginal delivery who was in hypovolemic shock with uterine rupture.

KEYWORDS

Uterine rupture, shock, anaesthesia, intensive care

CASE REPORT

A 25 year old female presented to the emergency in shock. She was referred from private hospital where she was admitted for normal vaginal delivery. A brief obstetric history was taken. Patient was G3 P2 L2 with previous normal vaginal delivery. Last vaginal delivery was two years back.

On examination patient was drowsy but responding to painful stimuli (GCS 12 /15), Pulse rate and Blood pressure were non recordable. Respiratory rate was 40/min and Heart rate was 140/min. On Per-abdominal examination, foetal parts were palpable and foetal heart sound could be localised. A diagnosis of ruptured uterus in shock was made.

Immediately intravenous access was achieved with two 18 G i.v cannula and both crystalloid and colloid were rushed. Blood sample was sent for emergency investigations i.e complete blood count, blood grouping, coagulation profile, renal function and viral markers. Requisition was sent for arrangement of blood. Patient was shifted to operation theatre for emergency laparotomy. Standard monitors were attached which showed heart rate 150/min, Spo2 non recordable and BP of 70 /40 mmHg. Patient was given 100% oxygen. On one side crystalloid was rushed and from the other cannula colloid was started. Patient was accepted for surgery as ASA IV E. High risk consent was taken. NPO status was confirmed.

General anaesthesia with endotracheal intubation was planned. Anaesthesia was induced with intravenous ketamine 50 mg and suxamethonium 75 mg to facilitate endotracheal intubation . Trachea was intubated with No 7 cuffed ETT, fixed at 18 cm mark after confirming bilateral equal air entry. Patient was put on mechanical ventilation on VCV mode with tidal volume 400 ml, respiratory rate 12/min on closed circuit with dragger anaesthesia work station. Anaesthesia was maintained with oxygen and air. Inotropic support was started with inj dopamine at 10µg/kg /min as blood was not available in hand. Left radial artery was cannulated for blood pressure monitoring. Intra-operatively Sp02 was 85%. Midline incision was given for laparotomy. There was a frank rupture of uterus. Uterus was completely torn posteriorly from fundus to isthmus and laterally extending to the left broad ligament. Male baby weighing 3.2 Kg was delivered with APGAR score of 0, 0, 0 at 1 minute and 5 minutes. 2500 ml of blood was evacuated from the peritoneal cavity. Hysterectomy was planned. Crytalloid and colloid was rushed. Once the blood was available it was pushed. Patient's condition started improving after three units of blood transfusion. Intra-operatively, patient received 2 L crystalloid, 1 L colloid and 4 units of whole blood. Duration of surgery lasted for 80 minutes. Post-operatively, patient's heart rate was 116/min, normal sinus rhythm, blood pressure was 136/76 mmHg and Spo2 was 100%. After the surgery, arterial blood gas analysis was done which showed uncompensated metabolic acidosis with hyperkalemia . Because of metabolic acidosis and hyperkalemia, neuromuscular blockade was not reversed and patient was shifted to intensive care unit for further management. Patient was put on ventilatory support on SIMV mode of ventilation TV 400 ml, respiratory rate of 12/min, fio2 of 0.4. Inj. Calcium gluconate 10 ml of 10% was given and sodium bicarbonate 50 meq was given. Inotropic support was tapered off over night. Patient received four units of FFP in the postoperative period. Patient was hemodynamically stable. Another arterial gas analysis was done after eight hours of elective ventilation which was relatively normal. Plan was made to wean off the ventilatory support and extubate the trachea coming morning. After stopping sedation, patient was conscious and responding to verbal commands. She was hemodynamically stable without any inotropic support. Patient was given T piece trial which she tolerated well and her trachea was extubated. Patient was observed in the ICU for another 24 hours and then shifted to the ward. She remained in the Obsteric and Gynecology ward for another 5 days. Her hospital stay was uneventful. She was discharged on hematinics and vitamins after 5 days.

DISCUSSION:

Uterine rupture is a serious obstetrical emergency associated with high incidence of fetal and maternal morbidity and mortality. It can either occur in a uterus with a surgical scar from previous surgery or uncommonly in unscarred uterus. Meta-analysis of pooled data from peer reviewed medical literature published from 1976-2012 indicated an overall incidence of pregnancy related uterine rupture of 1 in 1,416 pregnancies (0.07%).[1] In developed countries, the incidence of spontaneous rupture in unscarred uterus is 1 per 8,434 pregnancies (0.012%).[1] In developing countries like India, the incidence of uterine rupture is 0.11 % (1 in 920 deliveries).[2]

The incidence of uterine rupture is less in unscarred uterus. Grand multiparity, obstructed labour breech extraction predisposes to uterine rupture. Our patient was referred form private hospital so the exact cause of rupture is not known. Uterine rupture has both maternal and fetal consequences.

The average estimated blood loss in uterine rupture is (1500-2500) ml.[3] Our patient had hemoperitoneum of 2500ml. As per literature, 44% parturients who had complete uterine rupture required blood transfusion; our patient also received blood transfusion.[4]

Rahman et al reported that 33 out of 96 patients with uterine rupture (34 %) developed hypovolemic shock.[5] Our patient was also in hypovolemic shock when she came to hospital.

As per the literature, 6 – 19 % of patients of uterine rupture required hysterectomy.[6] Our patient also had hysterectomy.

In developed nations, the incidence of maternal mortality due to uterine rupture is 0-1 %, while in developing countries it is 5- 10 %.[1]

Our patient was not at particular risk of uterine rupture . She had previous two normal vaginal deliveries. Patient came to the hospital relatively early when her condition started deteriorating. Patient was saved by the prompt intervention by the obstetrician, anaesthesiologist

, blood bank and the intensive care unit.

Foetal hypoxia, acidosis and neonatal death is a consequence of uterine rupture.[8] As per the literature , perinatal morbidity was not observed in neonates when delivery was within 17 minutes of an isolated and prolonged deceleration of foetal heart.[6] 91 % of foetuses born between 18- 37 minutes of uterine rupture had foetal acidosis but no permanent neurologic injury or foetal death occurred.[7,8] Our patient was referred from private hospital which was at a distance of 30 km, so the baby could not be saved.

CONCLUSION:

Uterine rupture is a clinical diagnosis and there must be a high index of suspicion by the health care professionals. A scarred uterus is not a necessary precondition for uterine rupture. Timely diagnosis and intervention can prevent both maternal and foetal morbidity and mortality.

This case also stresses the importance of good obstetric practice and the need for qualified medical and paramedical staff. Uterine rupture is a preventable complication if the best obstetric practice is ensured.

Table 1: Arterial Blood Gas Analysis

parameters	Postoperatively	Before extubation
pH	7.117	7.447
pCo2	33 mmHg	32.9 mmHg
PO2	201 mmHg	200.2 mmHg
Na +	137.3 meq/ L	140.3 meq/L
K +	6.51 meq/ L	3.33 meq /L
Cl _	102.6 meq/l	103.9 meq/ L
Ca2+	3.84 mg /dl	4.48 mg /dl
AG	24.5 meq /L	14meq /L
Hco3 – act	10.2 mmol /L	22.4 mmol/L
Hco3 St	11.2 mmol /l	23.5 mmol/l
BE (ecf)	- 19.2 mmol/l	-1.7 mmol/l
BE (B)	- 17.9 mmol/l	-1.4 mmol/L

Table 2: Blood investigations

Parameter	Preoperative	Postoperative day 1	Postoperative day 2
Hb gm %	5.2	6.7	7.5
TLC / cumm	39000		17000
DLC	80, 13 ,6		88,7 ,4
Platelets	242000		91000
Blood urea	15	34	46
Serum creatinine			
Na +		135	139
K +		3.49	4.2
S. Cl			

Table 3: Consequences of uterine rupture

Foetal	Maternal
1.Fetal hypoxia or anoxia	1. Maternal blood loss
2.Fetal acidosis	2.Hypolemic shock
3.Fetal or neonatal death	3.Maternal bladder injury
	4.Need for hysterectomy 5.Maternal death

REFERENCES:

1. Justus Hofmeyr G, Say L, Metin Gulmezoglu. A systematic review: WHO systematic review of maternal mortality and morbidity : the prevalence of uterine rupture. Int J Obstet Gynecol 2005; 1221-28.(PubMed)
2. Veena P, Haheebullah S, Chaturvedula L. A review of 93 cases of ruptured uterus over a period of 2 years in a tertiary care hospital in South India. J Obstet Gynecol 2012; 32 : 260-3. (PubMed)
3. Cowan RK, KinchRA, Ellis B, Anderson R. Trial of labor following caesarean delivery. Obstet Gynecol 1994;83 (6) : 933-6 (Medline)
4. Kieser KE, Baskett TF. A 10 year population based study of uterine ruptur . Obstet Gynecol 2002; 100(4) : 749-53.(Medline)
5. Rahman J, Al -Sibai MH, Rahman MS. Rupture of the uterus in labor. A review of 96 cases. Acta Obstet Gynecol Scand 1985 ; 64 (4): 311-5.(Medline)
6. Leung AS, Leung EK, Paul RH. Uterine rupture after previous caesarean delivery: maternal and fetal consequences. Am J Obstet Gynecol 1993; 169 (4) : 945- 50.
7. Manihan CA. Uterine rupture in women attempting a vaginal birth following prior caesarean birth. J Perinatol 1998; 18 : 440 -3.
8. Yap OW, Kim ES, Laros RK Jr. Maternal and neonatal outcome after uterine rupture in labor. Am J Obstet Gynecol 2001; 184 (7) : 1576 – 81.
9. Bujold E, Gauthier RJ. Neonatal morbidity associated with uterine rupture: What are the risk factors? Am J Obstet Gynecol 2002; 186 (2) : 311-4. (PubMed)