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ORIGINAL ARTICLE

Uterine Rupture: Still a Harsh Reality!

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Abstract

Objective To determine the, incidence, etiology, management, maternal, and fetal outcome and to evaluate trends in our area and recommend preventable measures.

Methodology This prospective study is done between Jan 2012 and Aug 2013 in Pt. J.N.M. Medical College Raipur. All the women who had ruptured uterus were included. Relevant history was taken, women were assessed, adequate intervention done, and were followed up till 6 months after discharge.

Result A total number of deliveries were 11,323. Out of 11,323 deliveries, 9,844 women were without prior LSCS, 1,479 women were with prior LSCS. A total of 40 cases of rupture uterus were there 25 in women with prior LSCS and 15 in women without LSCS. Thus, incidence among women with prior LSCS was 1.69 % and for women without LSCS was 0.152 %. Overall incidence of uterine rupture was 0.35 %. Major risk factors found were unbooked status (92.5 %), injudicious use of oxytocin (52.5 %), and unjustified VBAC trial (44 %). Bladder injury was found in 20 %. Extension to cervix was found commonly in uterus with no previous section (46.66 %). Blood transfusion was required in 92.5 %. Perinatal mortality was 85%. Only one maternal death was there (2.5%).

Conclusion Developed countries have incidence of uterine rupture 0.000 % in women without LSCS and 1 % in women with prior LSCS[1]. Thus, by directly comparing, our study of 20 month revealed that women stand 1,500 times higher risk for rupture even without previous cesarean section and 1.7 times in women with previous section in comparison to the developed countries. The overall burden of women with previous section being admitted for

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delivery is 12.28 %. 62.50 % women who had rupture uterus were those with previous section. Thus, careful selection of these women for trial of labor and a compulsory institutional delivery is recommended. We recommend use of oxytocin in titrated dose which clearly indicated by an obstetrician only, and it should be a prescription drug strictly.

Keywords Uterine rupture · Cesarean section · Vaginal birth after cesarean (VBAC) · Traditional birth attendant (TBA) · Oxytocin · Trial of labor (TOL)

Introduction

Rupture uterus is rare, but it is one of the most serious preventable obstetrical emergencies which could lead to grave sequelae to both mother and baby, perinatal mortality being 80–95 %.

Several factors are responsible for rupture uterus as grand multiparity illiteracy, previous cesarean scars, contracted pelvis, injudicious use of oxytocics, obstructed labor, lack of good peripartum care, malpresentation, difficult operative vaginal delivery, etc.

In developed countries, previous cesarean section is the primary risk factor for rupture uterus during VBAC trial [1]. In developing countries like India, uterine rupture even in unscarred uterus is common, reflecting poor health care [2].

Medical College Raipur is a tertiary hospital where cases are referred from peripheral rural areas, district hospitals, first referral units and from maternity homes, and other private hospitals. Most of the women are brought late in state of shock.

Aims & Objectives

The aim is to determine the incidence, etiology, trends, and maternal and fetal outcome of rupture uterus and to identify and recommend preventable measures applicable to our area.

Materials and Methods

This is a prospective cross-sectional study of patients with uterine rupture from Jan 2012 to August 2013 in the Department of Obstetrics & Gynecology Pt. J.N.M. Medical College Raipur Chhattisgarh.

All the cases of rupture uterus who were admitted with the diagnosis or who had rupture uterus in our hospital were included in our study.

Relevant history was taken from patient and/or her attendant. History of referral and all treatment given were recorded. Detailed examination and baseline investigations were done. Operative finding regarding, site and type of rupture, hemoperitoneum, placenta and/or baby in peritoneal cavity, and other associated injury to adjacent organ were noted. Type of surgery, number of blood transfusions, and maternal and fetal outcome were recorded.

Post operative follow-up was done till discharge and 6 months thereafter.

Results

A total of 40 cases of rupture uterus were recorded from January 2012 to August 2013; during this period, total no of deliveries were 11,323. Out of 11,323 deliveries, 9,844 women were without prior LSCS, and 1,479 were with

Table 1 Demographic & clinical profile

Characteristics	With previous section ($n = 25$)	Without previous section ($n = 15$)
Age in years		
<20	02	01
21–25	11	04
26–30	09	06
31–35	03	03
>35	00	01
Booking status		
Booked	03	00
Unbooked	22	15
Parity		
1	00	03
2	12	00
3	13	06
4	00	02
5	00	04
Interval (months)		
12–24	15	06
>24	10	06
Gestational age (weeks)		
<28	01	01
28–34	03	01
34–37	03	00
>37	18	13
Fetal weight		
<2.5	07	05
2.6–3	10	04
3.1–3.5	08	06
Referred	22	14

Table 2 Symptoms and signs noted prior to diagnosis of uterine rupture

Symptoms and signs	With previous section ($n = 25$)	Without previous section ($n = 15$)
FHS absent	17	12
Fetal bradycardia	03	01
Palpable fetal parts	12	10
Maternal tachycardia	15	14
Hypotension	04	12
Vaginal bleeding	13	11
Abdominal pain	06	05
Altered uterine contractions	13	12
Distorted uterine contour	10	10
Scar tenderness	07	00
Hematuria	02	00

Table 3 Etiological factors

Etiological factors	With previous section ($n = 25$)	Without previous section ($n = 15$)
Spontaneous		
Malpresentation	00	03
Multiparity	00	04
Abnormal placentation	00	01
Unco-operative patient	01	00
Iatrogenic		
Oxytocin induced	11	10
Misoprostol induced	02	01
Fundal pressure	03	07
Trauma	04	01
VBAC trial	11	00

prior LSCS; out of 40 cases, 25 rupture occurred in women with prior LSCS and 15 in women without prior LSCS.

Thus, incidence was 1.69 % in women with prior LSCS and 0.152 % in women without it. Overall incidence was 0.35 %. 75 % women (30) were in age group 21–30 years (Table 1). Only 3 (7.5 %) were primigravidas, and 4 (10 %) were of parity 5.

92.5 % (37) women were unbooked, and 36 (90 %) women were referred cases. Fourteen (35 %) women delivered babies more than 3 kg. Most of them showed signs and symptoms of absent FHS, palpable fetal parts maternal tachycardia, vaginal bleeding, altered uterine contractions, and distorted uterine contour (Table 2). Only 7 out of 25 (28 %) women with prior LSCS had scar tenderness. Most common etiologic factor for uterine rupture in our study was induction with oxytocin in 21 (52.5 %) women (Table 3). Out of 25 women with prior LSCS 11 (44 %) got VBAC trial. Most common site of rupture was

Table 4 Rupture characteristics & surgical management

	With previous section ($n = 25$)	Without previous section ($n = 15$)
(A) Site of rupture		
Lower uterine segment		
Anterior wall	24	04
Posterior wall	00	03
Right lateral wall	02	07
Left lateral wall	01	01
Upper uterine segment		
Anterior wall	01	00
Posterior wall	00	03
Right lateral wall	01	06
Left lateral wall	01	02
Fundus	01	00
(B) Extension to other organs		
Bladder	06	02
Cervix	01	07
Vagina	00	01
Round ligament	01	01
Broad ligament	00	01
(C) Type of surgical management		
Repair only	18	09
Repair with tubectomy	06	03
Subtotal hysterectomy	01	03

Table 5 Maternal outcome

Maternal outcome	Scarred uterus ($n = 25$)	Unscarred uterus ($n = 15$)
Anemia/BT	22	15
Fever	04	05
Prolonged stay	03	04
Paralytic Ileus	05	05
Wound infection	03	02
Cough/Crepts	01	01
Ventilatory support	01	02
Inotropic support	01	02

lower segment, but often upper segment was also involved along with it (Table 4). Involvement of upper segment was more common in women without LSCS. Eight (20 %) women had bladder injury, and 8 (20 %) had extension to cervix. One woman had extension to vagina, 2 to round ligament, and 1 to broad ligament. Uterine scar repair was performed in 36 (90 %) women, of which 9 women underwent scar repair with tubectomy. Maternal morbidity is shown in Table 5 and includes BT in 37 (92.5 %) women, paralytic ileus in 10 (25 %), and ventilatory support in 3 (42.8 %).

Discussion

Worldwide incidence ranges between 0.006 for women without previous cesarean section from a developed country and 25 % for women with obstructed labor in a least developed country [1]. Age of the women ranged from 19 to 37 years. Most of the women were in age group 21–30 years (75 %). Similar findings were found in other studies also as it is the age of maximum fertility [2, 3]. A majority of women were unbooked (92.5 %) and had unsupervised delivery. Similar results were found in other studies [3–5]. No woman had delivery interval of <12 months; however, more the interval, less the incidence of rupture was found. Multiparity, even without previous section itself is an independent high risk factor [1–3].

The clinical presentation of women with rupture uterus showed that in a woman with previous section, only scar tenderness is not a very sure sign of rupture, but altered uterine contractions and absent FHS are equally important.

The rate of rupture uterus in our institution was 0.035 %. Overall we had 4 ruptures, out of which 2 were in women for VBAC trial and one woman with previous section was very unco-operative. Another woman was of 23 weeks pregnancy with imminent eclampsia and was induced with misoprostol 50 micrograms. This was very unexpected as a study in UK showed that uterine rupture at gestational age of <24 weeks is common in women with 1 previous section [6].

During the period of study, we had 202 VBAC with only 2 rupture uterus. Thus, incidence of rupture uterus during VBAC trial in our institute was 1 %. This finding is similar to other studies [1, 6]. A total of 15 women with unscarred uterus had rupture, of whom 14 women were trying to deliver at home with the help of traditional birth attendants. History of oxytocin induction was very common at 52.5 % [3, 5, 7–9]. Oxytocics are easily available and often misused [8, 10]. As rural health workers and Dais have easy access to oxytocics in remote areas, and they do not have knowledge of its titrated dose, oxytocics are often misused or inappropriately given to a parturient in bolus doses sometimes even before active phase of labor. Our VBAC rate is 16.66 %; this is just the double of VBAC rate in a study in Bethesda [11].

A total of 36 repairs were done. The best procedure for rupture uterus is the one which is the shortest in duration and which is not aggravating the patients state of shock and which will get the patient off the operating table in best possible condition [4].

Conclusion

Injudicious use of oxytocics and excessive trial of labor (even in women with prior cesarean section) by TBA at home in spite of proper counseling about institutional delivery comes out to be a major contributing factor of uterine rupture in our area. Innovative strategies are needed to address the problem. We recommend following strategies: (a) Lowering primary cesarean rate, (b) Compulsory institutional delivery for women with prior LSCS, (c) Oxytocics should strictly be available under prescription, (d). Improving knowledge & skill of TBA, and (e) Oxytocics to be used under supervision of competent obstetrician only.

Compliance with ethical requirements and Conflict of interest As this is observational study not an interventional or case control study, informed consent with human subjects for being included in the study was not necessary, however all procedure followed were in accordance with ethical standard of the responsible Committee on human experiments (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2008 (5). Abha Singh and Chandrashekar Shrivastava declared that they have no conflict if interests.

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