

Measures of reducing obstetric emergencies hysterectomy incidence

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Abstract: To study the obstetric emergency hysterectomy which can reduce the incidence of measures. In maternity of Xinxiang Central Hospital, the total number of deliveries cases has been up to 50,526 in 20 years, of which 48 cases were retrospectively analyzed for the clinical data of Emergency uterine surgery cases. cases underwent obstetric emergency hysterectomy accounted for 0.095% of total deliveries (48/50 526), in which 11 cases of vaginal delivery, 37 cases of cesarean section. The indications for surgery: 27 cases were caused by placental factors accounted for 56.25%; 14 cases of uterine inertia, accounting for 29.17%; uterine rupture in 4 cases, accounting for 8.33%; 3 cases of coagulopathy, accounting for 6.25%. Where the maternal placental factors hysterectomy is the most common (69.70%, 23/33) and the predominant factor is early maternal uterine inertia (60.00%, 9/15). There are 74.09% (20/27) of patients with placental abnormalities history of previous cesarean section or uterine surgery. The major risk factors leading to obstetric emergency hysterectomy is placental factors. Preventing the occurrence of placental abnormalities planting actively can effectively reduce the rate of obstetric hysterectomy.

Keywords: Emergency obstetric hysterectomy; postpartum hemorrhage; placental abnormalities planting; previous cesarean section.

INTRODUCTION

Obstetric emergency hysterectomy means that emergency hysterectomy which is taken after drug therapy and conservative surgery postpartum hemorrhage after the baby is delivered within 24 h (Rossi, Lee and Chmait; 2010). It is also an important method to rescue the lives of patients, but it also means a permanent maternal fertility lost. Emergency hysterectomy is the most effective means of the treatment of intractable postpartum hemorrhage. But at the same time the patient will never lose fertility, and some cases also produce endless medical disputes (Mathlouthi, Trabelsi, and Zayen; 2012). Therefore, how to use this technique just right formula in clinical work has become the goal for the front-line workers strive. The paper retrospectively analyzes 48 cases of obstetric emergency hysterectomy clinical data of the Xinxiang Central Hospital for nearly 20 years (Participants are formally asked to indicate their agreement to participate. They should be informed on the purpose of the experiment and their right.). Through this we can look for surgical risk factors, and provide a basis for improving maternal quality of life.

MATERIALS AND METHODS

General information

Obstetrics of Xinxiang Central Hospital

There are 50 526 cases of total 1994 deliveries in 20 years from November to October 2014. Pregnant women aged 25 to 42, mean age (32.1±3.4). Parity 1 to 4 times, the average parity were (2.2±1.1) times. 28 to 42 weeks gestational age, average (39.2±2.7) weeks. Wherein

cesarean 20,214 cases (40.00%), 1415 cases of postpartum hemorrhage (7.00%), hysterectomy 37 cases (2.6%), in which 23 cases in the surgical removal of the uterus at the time, and the other 14 cases in production within 24 h after resection (average 6 h); 30 312 cases of vaginal delivery (60%). The occurrence of postpartum hemorrhage were 1364 cases (4.5%). 11 cases of Hysterectomy (0.8%) were occurred within 2~16h in postpartum (mean 10.1 h); 48 of urgent hysterectomy, 36 routine subtotal hysterectomy, 12 cases of total hysterectomy. The postoperative diagnoses were took uterine pathology results as the standard.

Methods

1. Gained the amount of postpartum through hemorrhage volume method or gravimetric method, shock index and hemoglobin assays capacity (Obstetrics and Gynecology Branch of the Chinese Medical Association obstetrics group of postpartum hemorrhage prevention and treatment guidelines (draft); 2009). If each method is not consistent with the value obtained, it should choose the most blood loss calculations.

2. Analyze age, parity, gestational age and delivery methods of patients. In general, the basis of advanced maternal age, primipara, premature birth, mode of delivery were divided into two groups. Then calculated hysterectomy rates and detailed records of surgical indications, postpartum hemorrhage amount, female children prognosis after 7 days.

3. Dangerous type of placenta previa (Ying and Duan; 2004) is defined as the history of cesarean section women pregnant again, front or low-set placenta planted in the uterus scar.

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STATISTICAL ANALYSIS

Data were analyzed by using SPSS 13.0 statistical software. The count data which is using statistical analysis compare two sample rate χ^2 test. Describing the measurement data as mean \pm standard deviation, statistical methods for the ONE-WAY ANOVA test, pairwise comparisons using S-N-K method. It takes $P < 0.05$ as a standard to examine the test statistic and the difference which was statistically significant.

RESULTS

General information

Maternal generally shown in table 1. The maternal risk of hysterectomy was significantly higher than early maternal ($P < 0.05$); the risk of cesarean hysterectomy occurs significantly higher than vaginal delivery ($P < 0.05$), advanced maternal age and preterm birth had little relationship with and emergency hysterectomy ($P > 0.05$).

The analysis of surgical indications

Obstetric emergency hysterectomy in patients with 48 cases, hysterectomy occurred before the intractable postpartum hemorrhage, a local 8-word suture, uterine tamponade, uterine B-Lynch suture, internal iliac artery ligation surgery were taken to after uterine massage and medical therapy. The end result was forced removal of the uterus, because of the deterioration of vital signs of patients or serious blood clotting abnormalities. 27 cases (56.25%) due to placental factors hysterectomy, in which 20 cases (74.07%) due to scar the uterus, or myomectomy history of cesarean section history merge placental abnormalities; uterine inertia in 14 cases (29.17%), in which 9 cases of early maternal, 4 cases of uterine rupture of 0.08%, 75.00% of which occurred in 3 cases of uterine scar; 3 cases of coagulation disorders, in which 1 case as primary thrombocytopenia (platelet lowest preoperative cases of amniotic fluid embolism with $42 \times 10^9/L$. 2 cases of amniotic fluid embolism various surgical indications in table 2. Cesarean deliveries due to placental factors and uterine rupture hysterectomy were significantly higher than vaginal delivery; Hysterectomy is the most common placental factors in cesarean section childbirth (69.7%, 23/33), and uterine inertia is the predominant factor in vaginal delivery of maternal (60.0%, 9/15). Placenta and uterine inertia constitutes are the major emergency hysterectomy surgical indications which accounted 29.17% and 56.25%, respectively.

Amount of bleeding analysis

Amount of bleeding caused by various factors, such as postpartum hemorrhage placenta placenta accreta, placenta previa dangerous, placenta previa and placenta accreta, placental abruption were (3865 \pm 267) mL, (6687 \pm 970) mL, (4000 \pm 707) mL, (3800 \pm 216) mL. Amount of bleeding caused by uterine inertia was 3971 \pm 258mL,

Amount of bleeding caused by uterine rupture was 3750 \pm 238mL, amount of bleeding caused by postpartum hemorrhage coagulopathy was 4207 \pm 808mL. Where dangerous type before postpartum hemorrhage due to placenta previa was significantly higher than other surgical indications, postpartum hemorrhage caused by differences in the rest of the various surgical indications no statistically significant ($P > 0.05$).

The mother of children prognosis

The death of 48 cases of maternal was 1. The reason is that multiple organ failure resulted death amniotic fluid embolism, cardiopulmonary resuscitation hysterectomy; a uterine rupture in patients with moderate to severe postoperative maternal concurrent septic shock, but she turned right after the corner. 48 cases of newborns, premature children were eight cases, including one case of 28 weeks of pregnancy severe preeclampsia complicated by severe placental abruption in premature child deaths. 1 case of uterine rupture caused by severe neonatal asphyxia.

DISCUSSION

Now Let's analyze the risk factors for surgery and surgical indications based on the results of the data.

The relationship between parity and mode of delivery

Cesarean births and the maternal obstetric are the risk factors of obstetric emergency hysterectomy. Herein hysterectomy cesarean delivery rate was 2.6%, which was significantly higher than vaginal delivery (0.8%). The probability of cesarean hysterectomy of the mothers in childbirth is higher than primipara, which has the same report with Muench. The delivery reasons for the increased probability of hysterectomy caesarean including: On one hand it is that surgery destroys the whole anatomy of the uterus, and sometimes even crack uterine incision extension and hematoma; on the other hand most puerpera choose cesarean deliveries because they exist obstetric pathological factors, such as planting placental abnormalities, abnormal birth process, complicated by a variety of obstetric psychosis. These factors are risk factors of postpartum hemorrhage. In the study, cesarean hysterectomy were mostly scarred uterus (cesarean section). A variety of factors caused a sharp placental abnormalities massive blood loss, and the vital signs were unable to maintain or uterine rupture was unable to retain the uterus. Vaginal delivery is mainly flaccid uterine inertia, and relax monitor maternal observed when they were back to the ward. So they missed the best time of the rescue, leading to the occurrence of adverse outcomes. The study did not find gestational age and risks are associated with hysterectomy, indicating pregnancy and childbirth may had a far greater influence on the uterus than the age of consumption growth brought natural decline; When

compared gestational age <37 weeks with gestational age \geq 37 weeks, the risk of hysterectomy had not differ significantly. Analysis found placenta and uterine rupture is a major factor in surgery causes when gestational age <37 weeks, and there was no Postpartum uterine bleeding caused by resection.

Placenta factors

In the paper, 56.25% patients (27/48) in 48 cases were placental abnormalities, which were higher than the findings of Glaze *et al.* (33%) (Glaze *et al.* 2008). More and more research shows that placenta previa and cesarean section were an independent risk factor for recurrent placenta previa (Wang and Fan, 2009). In recent years, with the rise rate of caesarean section and the increase number of prenatal artificial abortion, the incidence of all kinds placental abnormalities have increased. Postpartum various conventional treatment measures for multi-placental factors leading to bleeding often can-not solve the abnormal placenta planting fundamentally and restore the anatomy of muscle fibers. Therefore hemostatic effects were poor, and some patients eventually had a hysterectomy to save lives. It has been reported the ratio of dangerous type of placenta previa with placenta accreta hysterectomy had reached 71.4% (Wang and Fan, 2009). In this study, postpartum hemorrhage of hysterectomy due to dangerous type of placenta previa were significantly higher than other surgical indications, showing such disease had characteristics of onset, bleeding ferocious, rapid deterioration. It is recommended to improve the understanding of the dangerous type of placenta previa in the clinical work. Make full use of existing resources in preoperative, assess the condition carefully and make B super and MRI examination carefully, which allows clinicians to pinpoint the placenta before surgery. It is conducive to develop well-planned operation, greatly reducing the risk of surgery. We should make full prepare of force personnel and equipment, prepare enough blood, and get ready to do a hysterectomy at any time. Taking appropriate pre-uterine incision before surgery to stop bleeding: such as using the cuff, ligation of obvious engorgement of blood vessels and even a certain degree of controlled hypotension. All these contribute to reducing the amount of bleeding instant in delivery of the fetus and placenta period. Choosing uterine artery embolization timely and effectively can greatly minimize the risk of hysterectomy (Zwart, Dijk, Roosmalen; 2010). In addition, telling the high risk to pregnant women and their families in preoperative is effective method in preventing follow-up patient disputes after hysterectomy once implemented.

Uterine inertia

Strong contractions after the fetus delivered is an important physiological mechanism to the placenta and prevent bleeding. In clinical treatment process, we found

that if we can identify uterine inertia early and actively with massage, uterotonics, tied ligation, uterine tamponade means, we can avoid hysterectomy completely. In the study, the average amount of bleeding in patients with hysterectomy due to Postpartum hemorrhage was 3900ml, and the implementation of hysterectomy delivery time is longer (both \geq 10h). All patients were secondary to DIC due to hemorrhagic shock. Long missing blood and hypoxia result edema myometrium, and lose response to various of contractions agents and conservative surgery. Finally, they take hysterectomy desperation. The fundamental reason is delaying early identification and treatment of Postpartum hemorrhage. Our lesson is that we must observe postpartum mothers carefully and closely, especially postpartum maternal who is likely to occur high risk with slow bleeding: pressing fundus regularly and effectively, try to record the amount of bleeding accurately, close monitoring of the patient's vital signs, and it is significant to early detect of postpartum hemorrhage. Pregnant women with anemia during pregnancy, high blood pressure or body mass index is small should be observed carefully. Because of their own circulation function and blood volume abnormalities, poor tolerance to blood loss, so even if observed no significant external bleeding, we should actively look for reasons to exclude possible of hemorrhage if the maternal shock index was "1" pulse shrink. Stanch bleeding effectively and actively with reason for the bleeding as soon as possible, in order to avoid delaying the time of troubles caused by hysterectomy.

Uterine rupture and coagulation disorders

Choose the timing of Hysterectomy after uterine rupture was associate with onset time, infection, and fracture severity. In recent years, with standardization stage of labor in the Eighth People's Hospital of Qingdao, the occurrence of uterus rupture due to obstructive dystocia almost disappeared. But the occurrence of sudden rupture of scar the uterus was increased in the production process. So strictly control VBAC (vaginal birth after cesarean) means for pregnant women voluntarily choose VBAC. We should first evaluate the existence of testify in previous cesarean surgery carefully. The gestation of last surgery, timing of surgery, surgical, surgery and after surgery, the interval between the pregnancy and after cesarean section, if there is abdominal pain between the second trimester and pregnancy, abdominal discomfort and the thickness of lower uterine segment scar, placental site in particular the front wall of the placenta, we should pay attention to the relationship between the edge of the placenta and scar. Ensure that there is adequate personnel to strengthen close observation of the first stage of labor, and shorten the second stage while doing the vital signs monitoring in the production process. It is the necessary measures to improve the success rate of VBAC, reduce complications, and safeguard pregnant women security; the lack of

Table 1: Comparison of maternal general

Project	Age (years)		Parity		Gestational age		mode of delivery	
	< 35	≥ 35	1	≥ 2	< 37	≥ 3	Vaginal delivery	Cesarean section
Total deliveries	48750	1776	30174	20352	7075	43451	30312	20214
The number cases of hysterect	46	2	15	33	8	40	11	37
Omy Hysterectomy incidence (%)	0.09	0.11	0.05	0.16	0.11	0.09	0.04	0.18
χ ² value	0.06		18.6		0.28		27.46	
P value	0.81		0.00		0.60		0.00	

Table 2: Emergency hysterectomy and constitute various surgical indications comparison (cases)

Surgical indications	Cases	Vaginal delivery	Cesarean section	χ ² value	P value	Constituent ratio (%)
Placenta						
Placenta accreta	13	1	12	14.64	0.00	27.08
Dangerous type of placenta previa *	8	0	8	11.86	0.00	16.67
Placenta previa and placenta accreta	2	0	2	6.48	0.00	4.17
Abruption	4	0	4	8.75	0.00	8.33
Total	27	1	26	9.73	0.00	56.25
Uterine inertia	14	9	5	0.12	0.48	29.174
Uterine rupture	4	0	4	5.93	0.03	8.33
Coagulopathy	3	1	2	0.06	0.64	6.25
Total	48	11	37	6.78	0.04	100

clotting factor or massive blood loss caused by consumption coagulopathy exhibits very severe bleeding and widely diffuse oozing, which need to add capacity quickly and transfusion of blood components as soon as possible. Once the bleeding $\geq 20\%$ percent of maternal weight (1500 mL or more), we should begin to transfuse blood liquid products, and pay attention to reasonable proportion of blood components. RBC and fresh frozen plasma ratio was at least 2: 1 or 3: 2, or cryoprecipitate and other clotting factors to prevent consumptive coagulopathy and dilution coagulopathy due to blood transfusion delays and a lot of rehydration. In various hemostasis invalid, early hysterectomy is still necessary to reverse the plight of choice to save lives.

CONCLUSION

In short, the mothers and cesarean delivery obstetric emergency hysterectomy are risk factors and abnormal placenta planting is a direct threat to success rate of conservative treatment in postpartum hemorrhage. It is the main indication for surgery in the current obstetric emergency hysterectomy. So we should try to reduce clinical cesarean section rate and the probability occurrence of abnormal placenta planting. And try to do the following: Strengthen perinatal care and family planning work to avoid repeated abortion and prolific tight production flow, and reduce the damage of the uterus before delivery. We should strictly control cesarean section of early maternal and make efforts to reduce the rate of cesarean section. While strengthen labor

observation and treatment in standardization, and improve dystocia recognition and conversion capabilities to prevent the occurrence of uterine rupture; whether is vaginal delivery or cesarean section, strengthen two-hour delivery room observation postpartum, and high-risk maternity care period should be extended. Early identify early signs of hemorrhagic shock, effective hemostasis and early implementation capacity supplement, timely input of blood components, especially replenish clotting substances, can reduce the incidence of secondary DIC. It also reduce the incidence of postpartum hemorrhage refractory, reduce risk of obstetric care and ensure medical safety. Through the discussion of risk factors caused obstetric emergencies and hysterectomy, we can make active prevention advanced, thereby reducing obstetric hysterectomy rate. Finally, these measured can provide more protection for the safety of maternal lives.

REFERENCES

- Glaze S, Ekwalinga P and Roberts G *et al* (2008). Peripartum hysterectomy: 1999 to 2006. *Obstet. Gynecol.*, **111**: 7322-7381.
- Mathlouthi N, Trabelsi H and Zayen Setal (2012). Emergency peripartum hysterectomy: Indications and prognosis. *Tunis. Med.*, **90**: 625-629.
- Muench M, Baschat A and Oyelese Y *et al* (2008). Gravid hysterectomy: A decade of experience at an academic referral center. *Reprod. Med.*, **53**: 271-278.
- Rossi AC, Lee RH and Chmait RH (2010). Emergency postpartum hysterectomy for uncontrolled postpartum

- bleeding: A systematic review. *Obstet. Gynaecol.*, **115**: 637-644.
- Wang Jun and Fan Qihui (2009). Implantable and non-implantable dangerous type of placenta previa. *CMCH*, **24**: 1617-1619.
- Ying Hao and Duan Tao (2004). Epidemiological investigation of pregnancy after cesarean section again. *CPOG*, **20**: 260-261.
- Zwart JJ, Dijk PD and Van Roosmalen J (2010). Peripartum Hysterectomy and arterial embolization for major obstetric haemorrhage: A 2year cohort study in the Netherlands. *Am. J. Obstet. Gynaecol.*, **202**: 105-110.