

Peripartum hysterectomy for primary postpartum hemorrhage: 10 years evaluation

E. Kashani^{1*} and R. Azarhoush²

¹*Department of Gynecology & Obstetrics, Golestan University of Medical Sciences, Gorgan, Iran*

²*Department of Pathology, Golestan University of Medical Sciences, Gorgan, Iran*

ABSTRACT

The aim of the study was to estimate incidence, indications, risk factors and operative morbidity and mortality in pregnant women undergoing emergency peripartum hysterectomy (EPH) in ten years at a community based academic medical center. We conducted a retrospective cohort study of 23 cases of Emergency Peripartum Hysterectomy (EPH) in a total of 61820 deliveries in ten years at Dezyani women Hospital between years 2000-2009 in (Gorgan) Iran. Emergency peripartum hysterectomy was defined as one performed for hemorrhage, unresponsive to other treatment less than 24 hours after delivery. For each case a form with question about demographic data obstetrical history indication of surgery-the type of hysterectomy and complication was completed. There were 23 Peripartum Hysterectomy in 61820 deliveries, so the incidence of EPH in total number of deliveries was 0.37 per 1000. 19 hysterectomies were performed followed a cesarean sections (relative risk =15) and 15 patients had prior cesarean section (relative risk =12) and 15 cases with placenta previa (relative risk =600). The indications for the hysterectomy were 15 cases with abnormal placentation (64%), 2 cases with ruptured uterus (9%), 4 cases with atonic uterus (18 %) , and 4 cases with hemorrhage during cesarean section (9%). Abnormal placenta was the most common indication in multiparous women and uterin atony in primiparous (Table 2). There was one maternal death (4.34%). Intra – and postoperative complications were prevalent, including: disseminated intravascular coagulation (2 cases), cardiac arrest (1 case), bladder injury (2 cases) that repair intraoperative, fibrile morbidity (3 cases), intensive care admission (2 case) and one case of septicemia with ATN accompanied with pulmonary embolism .

Key Words: Emergency Hysterectomy, Abnormal Placentation, Complication, Gorgan, Iran.

INTRODUCTION

Emergency peripartum hysterectomy, although rare in modern obstetrics, but is one of the life saving surgical procedures in the world. When severe obstetrical hemorrhage fail to respond to conservative treatment [1], Hemorrhage resulting from uterine rupture and atony has become rare events in the developed countries but this continues to be a major problem in developing countries [2, 3]. Newer drugs like prostaglandins, better antibiotics and availability of blood transfusion have brought down the incidence of obstetric hysterectomy [4]. In the past, the most common indications for emergency peripartum hysterectomy were uterine atony and uterine rupture [2]. More recent reports list placenta accrete as the most common indication which is most likely related to the increased number of cesarean deliveries observed over the past two decades [2]. Placenta accrete is a major cause of obstetric hemorrhage and loss of reproductive organ [5]. The most important risk factor of placenta accretes were previous caesarean section - placenta previa-multiparity [6]. Caesarean deliveries and repeat caesarean in woman with placenta pravia increase the risk of Emergency peripartum hysterectomy [7]. The aim of this study was to determine

the incidence of peripartum hysterectomy, indications, perinatal and maternal outcomes and the complications associated with the procedure in the Dezyani Clinical Hospital.

MATERIALS AND METHODS

We conducted a retrospective analysis of all cases of emergency peripartum hysterectomy performed in Daiyani women Hospital in ten years between January 1, 2000, and December 30, 2009. Emergency peripartum hysterectomy was defined as one performed for hemorrhage, unresponsive to other treatment less than 24 hours after delivery. prepartum hysterectomies for cancer and other elective indications or under 24 weeks pregnancy were included : The hysterectomies had been performed by consultants (stuffs) with minor differences in operating technique .

All the patients received prophylactic antibiotics pre-operatively. All of the patients were managed postoperatively in the recovery ward. Maternal characteristics such as age, parity, gestational age, previous cesarean delivery and type of delivery were recorded. The indication for surgery, type of hysterectomy, need for blood transfusion, postoperative hospitalization days –morbidity in terms of operative and post operative complication and maternal and fetal morbidity were obtained. The study population was subdivided based on parity comparing multiparous with primiparous women .Relative risks (RR) for the maternal risk factors and their 95% confidence intervals were calculated. Statistical analysis was conducted using SPSS for windows package program. A descriptive analysis was first performing to describe the characteristics of the pregnant women and the distribution of various delivery methods. P value <0.05 was considered significant.

RESULTS AND DISCUSSION

During the study period a total 61820 women delivered, 46365(75%) were delivered vaginally and 15455 (25%) by cesarean section. There were 23 Peripartum Hysterectomy in 61820 deliveries (0.37per1, 000 deliveries), and the rate per cesarean section was 1.2/1000 and that per vaginal delivery was 0.08/1000 (Table1). The most common indication for emergency periparum hysterectomy was abnormal placenta 15 (64%)cases out of 23 EPH that in 9 patients were diagnosed abnormal attachment pathologically . all of these patients had placenta previa and 80% had previous cesarean section .the second common indication was uterine atony (n=4 ;18%), and Ruptured uterus (n=2:9%) , haemorrhage during cesarean section (n=1,4.3%)were the other indication (Table 2). The patients with atonic uterus underwent some conservative methods of treatment before the deciding to perform hysterectomy, including the use of oxytocin drip(40 units per liter of saline), administration of intravenous ergometrine (0.25-0.5

mg) and rectal misoprostol (800 mg)or intra muscular PG F₂ α . Oxytocic drug and Mgso₄ used in all patients in uterine atonic group during labour. There were 168 cases of placenta previa in our study population (rate 0/27per100). In abnormal placenta group oversewing placental bed and uterine artery ligation were done piror hysterectomy.

The range of the patient's age was from 25to42 years with a mean of 31.95years. The highest frequency was in the 31-35 year group and 25-30 year group respectively .Together the two groups constitute about 74% of the total population. The parity of the patients ranged from 0-5 with a mean of 2 .The highest frequency was in those who were para 2 (n=12, 52%). There were (n= 20, 87%) multiparous and (n=3, 13%) primiparous women (Table3). Uterin atony was the most common indication for hysterectomy in primiparas, abnormal placenta was the common in multiparas (P.value=0/0). Hysterectomy due to placenta previa was the common in multiparas (P.value=0/02, Table 4). The mean gestational age of the study group was 35.7 +4.3 weeks (range 26-40 weeks). The mean number of postoperative hospitalization days was 5.3 +2.9(range 1-30 days). The longest duration of hospital stay was 30 days which occurred in one patient who developed severe sepsis and disseminated intravascular coagulation. There were (n=8; 35%) total abdominal hysterectomies and (n=15; 65%) subtotal hysterectomies. Complications occurred in 9patients (26%), severe disseminated intravascular coagulation DIC (n=2), cardiac ischemia (n=1), acute tubular necrosis (in addition of pulmonary embolism) in one, bladder injury (n=2), intensive care (n=2), and fibrile morbidity in three cases (table3). Only one woman died within 24 hours of surgery. Therefore fatality rate was 4.34%. The mortality was due to severe disseminated intravascular coagulation. All the patients received transfusion (86 units). The median number of packed red blood cell units transfused was 3.73 (ranges 1-9). In the study population 82%, n=19 of the patients who had EPH my underwent it at the time of cesarean section, 65% n=15 had prior c/s, 64%had placenta pravia. There was almost a 12 fold greater risk of EPH with prior c/s and a 15 fold with cesarean delivery and a 684 fold with placenta previa (Table 1).

Table 1: Risk factors of hysterectomies

| Risk factor | Yes -no | Peripartum hysterectomy | Total population | Rate of hysterectomy | Relative risk |
|----------------------------|---------|-------------------------|------------------|----------------------|---------------|
| Cesarean delivery | Yes | 19 | 15455 | 0/0012 | 15 |
| | no | 4 | 46365 | 0/00008 | |
| Previous cesarean delivery | Yes | 15 | 8200 | 0/0018 | 12 |
| | no | 8 | 53620 | 0/00015 | |
| Placenta previa | Yes | 15 | 168 | 0/089 | 684 |
| | no | 8 | 61652 | 0/00013 | |

Table 2: Indications for emergency peripartum hysterectomies

| Indication | n (%) |
|-------------------------------|--------|
| Placenta previa only | 15(64) |
| adherent placenta with previa | 9(39) |
| uterine atony | 4(18) |
| ruptured uterus | 2(9) |
| broad ligaman hematoma | 2(9) |

Table 3: Complication of peripartum hysterectomies

| Complication | n(%) |
|-------------------|--------|
| DIC | 2(8/7) |
| Bladder injury | 2(8/7) |
| Febrile morbidity | 3(13) |
| Wound infection | 1(4/3) |
| Pulmonary emboli | 1(4/3) |
| Septicemia | 1(4/3) |
| ATN | 1(4/3) |
| Cardiac arrest | 1(4/3) |
| ICU admission | 2(8/7) |

Table 4: Frequency distribution of age and parity in the population studied

| age | parity | | | | | | Total number |
|-------|--------|---|---|---|---|---|--------------|
| | 0 | 1 | 2 | 3 | 4 | 5 | |
| 20-25 | 1 | - | 1 | - | - | - | 2 |
| 26-30 | - | 1 | 4 | 1 | - | - | 6 |
| 31-35 | 2 | 2 | 3 | 1 | 1 | - | 9 |
| 36-40 | - | 4 | - | - | 1 | 1 | 6 |
| Total | 3 | 7 | 8 | 2 | 2 | 1 | 23 |

Table 5: comparison of Multiparous and primiparous, age, undergoing emergency peripartum hysterectomies

| Variables | Multiparous (n=20) | Nuliparus (3) | p.value |
|--------------------------------|--------------------|---------------|---------|
| Age (year) | 32/30 | 29.6 | NS |
| Gestational age(wk) | 35/5 | 38.5 | 0.02 |
| Indication (n) Placenta previa | 14 | 0 | 0.02 |
| Atony | 1 | 3 | 0 |
| Rupture | 2 | 0 | NS |
| Hysterectomy total | 8 | 0 | NS |
| Hysterectomy sub total | 12 | 3 | NS |
| Blood transfusions | 20 | 3 | NS |

CONCLUSION

Although the prevalence of postpartum hemorrhage varies between developing and developed countries but still is in the primary cause of maternal mortality in the developing countries [8]. EPH is life saving procedure when other measurements not succeeded to halt postpartum bleeding [3]. In our study the overall incidence of peripartum hysterectomy was 0.37 per 1000 of all deliveries, very similar to those reported by others, Tarik et al [3] (0.5/per000), Tallab et al [1] (0/4per1000), Kwee et al [9] and Smith et al [10] (0.36 per1000) found our results therefore the rate of EPH is rare and the same of another country. We found abnormal placenta to be the most common indication for EPH. Similarly, Elana et al [2] found abnormal placenta followed by uterin atony the most reasons for EPH and Tallab et al [1], Smith et al [10], Habek D et al [11] and Rahman et al [12] reported abnormal placenta to be the most reasons. But the same study, Tarik et al [3], Ezechoic et al [13], Chark et al [14] and Zelop et al [15] found uterin atony has become the most reasons for EPH.

Situation conservative treatment include blood banking, antibiotics, oxytocin, prostaglandin drugs the reasons of arrest bleeding due to uterin atony and lower need to perform emergency hysterectomy. The other wise increased the rate of c/s in our center the case of increased rate of adheation placental and hysterectomy. mousa HA et al [16] reported emergency hysterectomy was the most common surgical intervention used to control magor post partum unresponsive to conventional therapy following c/s birth in our study uterin atony the most common indication for EPH. In primiparas (75%), that the same study Elana et al [2] and Tarik et al [3] found primigravidaeis a importante risk factor for postpartum bleeding duo to uterin atony. in our study all women used Mgso4 beacuse of pre-eclampsia. Combs et al [17] in the large case-control study who had postpartum hemoraahage that, pre-eclampsia nulliparity, twins, induction and prolong labor were all identified as important independent risk factors for uterine atony.

In our study all of the women with placenta accrete have had current placenta previa and in 9 paitions had previous cesarean (80%) Chio S.J et al [18] found in women with placenta previa as well as prior cesarean are strong antepartum hysterectomy. Umezurike CC et al [5] reported placenta accreta should be considered in women with previous cesarean section and placenta previa. In same studies in 2008 by Vázquez JA et al [19], Cesarean history induces higher obstetric hysterectomy incidenc e in women with high-risk pregnancy, due to its relation to placentation disorders. Selo-Ojme DOet al [7] eecurred cesarean deliveries, especially repeat cesareans in women with placenta previa, significantly increase the risk of EPH. In our study there was one maternal death and (n=9,40%) intra-postoperative complication. Eniola et al [20] reported one maternal death and (21%) bladder injury and Smith et al [9] studied there was no maternal death and one case bladder injury, One case cardiac arrest, four cases DIC, and one Septicaemia. Ding DC et al [21] studied there was no maternal death.

Results of our study and similary occurred EPH is the life saving surgical procedures with high operative and postoperative complication [6, 22]. In conclusion; abnormal placenta and adherent placenta were the most common indication for hysterectomy. Current placnta previa and prior cesarean were identified as risk factors of placental adhesion and should alert the obstetrician that an emergency peripartum hysterectomy may need. We suggest sonography as a screening test for detection of placental adhesion, in the presence of placnta previa and prior cesarean, in the 3rd trimester although, no maternal mortality occurred but morbidity was high.

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