

## Various presentations and management of primary postpartum hemorrhage at BMCH, Quetta, Pakistan

Sumaira Humza, Shazia Saeed, Hazrat Ali, GM Parkani, Mir Zaman Kasi

Department of Obstetrics and Gynecology, Bolan Medical College Hospital, Quetta, Pakistan

**Objective:** To determine various presentation and management of primary post-partum hemorrhage (PPH) in patients at seen at our institution.

**Methodology:** This Study was carried out at the Department of Obstetrics and Gynecology, Bolan Medical College Hospital, Quetta, Pakistan from January 2013 to January 2014. Patients with Post-partum hemorrhage with age ranging from 21 to 43 years were enrolled. Presentation and management were studied.

**Results:** The study included 120 patients with mean age  $32.43 \pm 6.23$  years. Mean parity was  $4.92 \pm 3.44$ . Uterine atony was the most common cause of primary PPH (n=64), following by tears of

cervix, vagina and perineum (n=28), APH (n=17), uterine rupture (n=10) and eclampsia (n=1). All patients responds well to the medical or surgical treatment except seven (5.83) patient died.

**Conclusion:** Primary PPH was an important cause of maternal mortality. Surgical management must be started timely after failure of first line treatment and be integrated in a global strategy aimed to control hemorrhage. PPH can be prevented by avoiding unnecessary inductions/augmentations of labor, identification of high risk patients and use of active 3<sup>rd</sup> stage management protocol. (Rawal Med J 201;42:68-72)

**Key words:** Primary post-partum hemorrhage, uterine atony, uterine rupture.

### INTRODUCTION

Post-partum hemorrhage (PPH) remains among the five main causes of maternal death in developing countries, and uterine atony is the most common cause (75-90%) of primary PPH.<sup>1,2</sup> It often responds to medical treatment such as administration of uterotonic drugs, alone or in combination with uterine massage or bimanual compression.<sup>2</sup> The first step is to establish a rapid diagnosis. This could be done in collecting bags, bath in place of birth. Once the diagnosis has been established it has to be communicated to the whole team including obstetricians, midwives and anesthetists. Abdominal uterine palpation confirms the diagnosis of uterine atony, the most frequent cause of PPH.<sup>2,3</sup>

When the placenta is retained, manual removal has to be performed to empty uterine cavity and to rule out uterine rupture. After placenta delivery, manual control of the uterine cavity is always required. Uterine massage and bimanual compression has to be performed after the intra uterine maneuvers and must not be stopped too quickly. During the same time uterotonic drugs have to be used; oxytocin (1/V inj: 5-10 IU) is generally employed.<sup>3</sup> Management options for PPH include oxytocin, prostaglandins,

genital tract exploration, ligation or angiographic embolization of uterine/internal iliac arteries and hysterectomy.<sup>4</sup> An alternative option to remember is uterovaginal packing, easy and quick to perform, it may be used to control bleeding by tamponade effect and stabilized the patient until a surgical procedure is arranged, which may sometimes obviate the need for surgery altogether.<sup>5</sup>

New strategies to prevent and manage PPH in developing countries include community based use of mesoprostol, oxytocin in the uniject delivery system, the non-inflatable anti shock garment to stabilize and resuscitate hypovolemic shock, and the balloon condom catheter to treat intractable uterine bleeding.<sup>6</sup> This study was conducted to determine various presentations of primary PPH in our setup.

### METHODOLOGY

A total of 120 patients with age of 22 to 43 years who developed PPH within 24 hours of delivery were included in the study. Patients were inducted from ward, outpatient and emergency labor room department. An elaborate history was taken with emphasis on the previous history of PPH, uterine over distention (macrosomia, multi pregnancy, and

polyhydramnios), prolonged labor (especially, second stage), instrumental delivery, grand multi parity (>4 pre-eclampsia and clotting/platelet dysfunction. The patients not in accordance with the above criteria will be excluded from the study. Informed consent was taken and the procedure was explained to the patient and partner.

Patients present with shock usually hypovolemic shock were first resuscitated immediately with call to all medical personal and senior obstetrician and anesthetist. Patient presented with DIC diagnosed by presence of multiple bruise on body, bleeding from the puncture site, and deranged bleeding and clotting time were immediately transfused fresh blood and FFPS.

Complete general physical examination was carried out, in case of shock the consciousness was checked using Glasgow Coma Scale, presence of anemia, edema, pateche and bruises at the site of puncture was looked for. Per-abdominal examination was carried out to check uterus was contracted or not and presence of scar of previos surgery and fetal heart sound. Per-vaginal examination was performed for perineal tears or lacerations, cervix examination for any tears the uterus examined for retained placenta,

PROCS, or uterine rupture, if present. Complete blood count, B.T and C.T were carried out to see both clotting and platelet dysfunction.

Medical management was given priorly or simultaneously with the surgical treatment. Medical treatment consisted of injection syntocinon diluted in infusion in 4 hours, inj: syntometrin I/V, tab mesoprostol 1000 mcg p/r and inj: syntocinon 10 units in myometrium (for atony). In case of failure of medical treatment, surgical treatment was given in the from of bimanual compression and massage, B-lynch compression suture, internal iliac artery ligation uterine packing. Statistical analysis was performed through SPSS version 10.0

### RESULTS

Out of 120 patients, average age was 32.42 years. Most common presentation was uterine atony, n=64 (53.3%) followed by tears of cervix vagina and perineum n=28 (23.3%). Factors causing uterine atony were: 20 cases (31.21%) were due to retain placenta, 12 cases (18.7%) were due to RPOCs, and 32 cases (50%) were due to other risk factors of uterine atony. Medical and surgical management is shown in Table 1.

**Table 1. Various presentations and their management (n=120).**

Presentation	Number (%)	Management	
		Medical	Surgical
<b>Uterine</b>	64 (53.3%)	--	--
<b>Atony</b>	07 (10.9%)	Injection aynto.60units in infusion 1000 cc, injection synto. Methergin I/V, twice, tab. Mesoprostol 5P/R Treatment failed	Bimanual compression and massage of uterus
<b>Atony</b>	01 (10.9%)	Injection aynto.60units in infusion 1000 cc, injection synto. Methergin I/V, twice, tab. Mesoprostol 5P/R Treatment failed	B-lynch suture
<b>Atony</b>	24 (37.6%)	Injection aynto.60units in infusion 1000 cc, injection synto. Methergin I/V, twice, tab. Mesoprostol 5P/R	Cesarean hysterectomy and post-partum hysterectomy
<b>RPOCs</b>	12 (18.7%)	Injection aynto.60units in infusion 1000 cc, injection synto. Methergin I/V, twice, tab. Mesoprostol 5P/R	Evacuation and bimanual compression and massage of uterus
<b>Retained placenta</b>	20 (31.2%)	Injection aynto.60units in infusion 1000 cc, injection synto. Methergin I/V, twice, tab. Mesoprostol 5P/R	Manual removal of placenta and bimanual compression and massage of uterus
<b>Perennial of cervical tears</b>	28 (23.3%)	Injection aynto.60units in infusion 1000 cc, injection synto. Methergin I/V, twice, tab. Mesoprostol 5P/R	Tear repair with vaginal packing where necessary
<b>APH</b>	17 (14.16%)	Injection aynto.60units in infusion 1000 cc, injection synto. Methergin I/V, twice, tab. Mesoprostol 5P/R Treatment failed	1) bimanual compression and massage of uterus (3 cases) 2) cesarean hysterectomy (13 cases) 3) Stitches in placental bed (1 case)
<b>Uterine Rupture</b>	10 (8.33%)	Injection aynto. 60 units in infusion 1000 cc, injection synto. Methergin I/V, twice, tab. Mesoprostol 5P/R Treatment failed	Cesarean hysterectomy (9 cases), internal iliac artery ligation (1case).
<b>Eclampsia</b>	01 (0.83%)	Injection MGSO 4 I/V, tablet capoten and tablet Aldomet, strict intake and output chart, injection synto.10 units I/V slowly tablet Mesoprostol 5 P/R	Bimanual compression and massage of uterus.

**Table 2. Maternal mortality in PPH (n=7).**

Age	Parity	Presentation	Management	Address
40	P12 +6	APH	Cesarean hysterectomy	Pishin
42	P7 +2	Rupture uterus	Cesarean hysterectomy	Muslim Bagh
38	P8 +1	Rupture uterus	Hysterectomy	Much
36	P5 +1	Uterine rupture	Hysterectomy	Chaman
39	P8 +4	APH	Hysterectomy	Quetta
40	P11 +4	APH	Hysterectomy	Loralai
36	P10 +2	Rupture uterus	Hysterectomy	Kalat

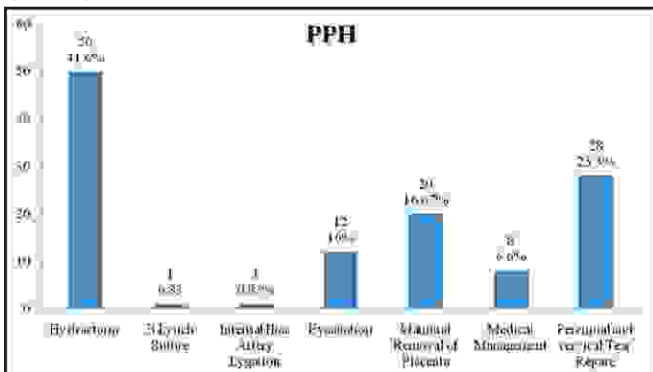
**Table 3. Presentation in different age groups (n=120).**

Age group	Presentation of PPH					
	Uterine atony	Cervical and perennial tear	APH	Uterine Ruptured	Eclampsia	Uterine inversion
20-24	06 (9.3%)	11 (39%)	-	01 (10%)	-	-
25-29	12 (18.7%)	06 (21.4%)	02 (11.7%)	-	-	-
30-34	16 (25%)	06 (21.4%)	03 (17.6%)	02 (20%)	-	-
35-39	21 (32.8%)	03 (10.7%)	06 (35.2%)	05 (50%)	-	-
40-44	09 (14%)	02 (7.1%)	06 (35.2%)	02 (20%)	01	-

Maternal mortality occurred in 7 cases (5.83%) due to uncontrollable hemorrhage and DIC. All were grand multiparas (Table 2).

62 (52%) patients with more than 4 parity presented with PPH, 33 (27.5%) cases presented with 2-4 parity and 25 (21%) presented with 0.1 parity Mean parity was 4.92±3.44. Hysterectomy and perineal repair were commonest surgical interventions (Figure).

**Figure. Various management options implemented (n=120).**



Uterine atony was more common in age group between 35-39 n=21 (32.8%) tears of cervix and perineum were common in age group 20-24 n= 11 (39%) 9. APH is common in age 35-45 years age group n=11 (39%). Most of the uterine rupture occurred in 35-39 n=(50%) (Table 3).

**DISCUSSION**

PPH is the most common cause of maternal mortality and accounts for 25% of all maternal deaths world Wide and 88% occur within 1<sup>st</sup> 4 hours of delivery due to events in 3<sup>rd</sup> stage of labor.<sup>7</sup> Uterine tone, retained tissues, trauma and Thrombin deficiency are major causes. In our study, the most common cause of PPH was uterine atony, which is quite comparable to the other studies, followed by tears of cervix vagina or perineum.<sup>7</sup>

We also found that mother were at there highest risk of death during the third stage of labor, that is why active management of 3<sup>rd</sup> stage of labor is the key to reducing development of PPH due to uterine atony.<sup>8,9</sup> Chong et al reported from Singapore that active management of third stage of labor is superior to expectant management, in terms of blood loss, PPH and other complications, but is associated with unpleasant side effects like nausea, vomiting and hypertension when ergometrine is included. Intramuscular oxytocin results in fewer side effects.<sup>10</sup> Our results are similar.

Common risk factor identified in our study is age multiparty. Grand multiparas are considered to be at higher risk of PPH. Amongst patients who developed PPH, 49% were

>35Years of age and 15% were <25 years. The risk of PPH was higher in grand multiparas who were Para 5 and above 20% of the patients were Para 1 and in 28% of the patients parity was 2 to 4.<sup>7,11,12</sup> Risk of PPH in advanced maternal age >35yrs and grand multiparty (Para than 5 and over) was two fold higher than low maternal age less than 25 years and low parity (Para 0-1) (p<0.02). Similar findings were reported from Nigeria.<sup>13</sup>

Uterine atony was most common cause of PPH in our study and a combination of uterotonics agents

and uterine massage were effective in controlling PPH in 49.1%. Uterine massage, uterotonics and minor surgical procedure were performed in 56.66%, as recommended by several researchers.<sup>14,15</sup>

Another 43.33% patients were treated by major procedures. Hysterectomy was the commonest (41.66%) surgical procedure in our study. In high resource countries, hemorrhage requiring hysterectomy is considered one of the life threatening condition.<sup>16,17</sup> Other procedures like arterial embolisation, facilities were not available in our setup.

In our study, blood loss was around 500 ml, blood loss of more than 1000 ml can occur.<sup>18</sup>

A tamponade test can reduce the amount of blood loss and indicate rapidly the need for definitive surgery.<sup>19,20</sup> Uterine packing or Berki SOS balloon tamponade has predictive value of 87% in successfully managing PPH without further surgical intervention.<sup>19</sup> Success rates have been reported with use of condoms in low resource setting.<sup>21</sup> Compression sutures were applied in one patient. B-lynch suture not only increase tension and compression force but also eliminates the need to open the uterus.<sup>22</sup> There is more room for compression sutures to prevent hysterectomy, as in our study.<sup>23</sup> Systematic revascularization was performed in only one case. Uterine artery ligation is technically easier and associated with less morbidity than internal iliac artery. The success of internal iliac ligation is 40-75%.<sup>24</sup> In our study, systematic devascularization was not adequately practiced.

## CONCLUSION

Primary PPH is an important cause of mortality. It has various presentations including atony uterus being the most common followed by tears of cervix vagina and perineum. Advanced maternal age and grand multi parity important risk factors for primary PPH.

Surgical management must be timely started after failure of first line treatment and be integrated in a global strategy aimed to cease hemorrhage.

### Author Contributions:

Conception and design: Sumaira Humza, Shazia Saeed  
Collection and assembly of data: Shazia Saeed, Mir Zaman Kasi  
Analysis and interpretation of the data: Hazrat Ali, Mir Zaman Kasi  
Drafting of the article: Hazrat Ali  
Critical revision of the article for important intellectual content: GM Parkani  
Statistical expertise: Mir Zaman Kasi  
Final approval and guarantor of the article: GM Parkani  
**Corresponding author email:** Hazrat Ali: alihazratpsy@gmail.com  
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