



## EFFICACY OF BALLOON TAMPONADE IN CONTROL OF PRIMARY POSTPARTUM HAEMORRHAGE (PPH).

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**ABSTRACT... Objectives:** Primary postpartum haemorrhage (PPH) refers to excessive blood loss (>500ml) during 3<sup>rd</sup> stage of labour in the 1<sup>st</sup> 24 hours after delivery, thereafter, significant bleeding is referred to as secondary PPH. Its incidence is about 5% of deliveries. This study was conducted to note the efficacy of balloon tamponade in the control of PPH. **Study Design:** Experimental study. **Setting:** Department of Obstetrics and Gyne, Civil Hospital, Bahawalpur. **Period:** 1<sup>st</sup> January 2018 to 30<sup>th</sup> June 2018. **Material & Methods:** A total of 80 cases with Primary PPH after vaginal delivery were considered for this study. Cases with Bleeding disorders, ruptured uterus, retained products of conception, genital tract injuries or on anticoagulant therapy were excluded. All patients received balloon tamponade. Failure of control of bleeding was observed amongst all the patients. **Results:** Mean age, gestational age and parity were 24.54 years, 37.88 weeks and 3.17 respectively. Mean estimated blood loss was found to be 1125±320 ml, SBP 90.10±20.6 mmHg, DBP 57±7.2 mmHg and pulse 106±9.2 bpm. As far efficacy of balloon tamponade is concerned, it was noted in 71 (88.8%) women. When women were analyzed for maternal age, gestational age and parity status, no significant difference was found (P value > 0.05). **Conclusion:** Balloon tamponade has good efficacy (88.8%) in controlling PPH. Its ease of use in cases at increased risk of PPH makes it a suitable option.

**Key words:** Blood Loss, Balloon Tamponade, Efficacy, Primary PPH.

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### INTRODUCTION

PPH refers to excessive blood loss (>500ml) during the third-stage of labour or in the 1<sup>st</sup> 24 hours following delivery.<sup>1</sup> Its incidence is about 5% of all deliveries.<sup>2</sup> PPH is the most frequent reason of maternal deaths by contributing around 25% to all sorts of maternal deaths globally.<sup>3</sup>

The management of Primary PPH will depend on the presence of risk factors and probable cause.<sup>1</sup> The most important cause of massive PPH is uterine atony when the uterus is not contracted. This accounts for 90% of cases.<sup>4</sup>

Recently, several techniques have been tried to avoid hysterectomy, when uterotonic drugs fail to control massive PPH.<sup>3,5</sup> The American College of Obstetrics and Gynaecologists also suggest that uterine tamponade can be effective in decreasing haemorrhage secondary to uterine atony, and that procedure such as uterine artery ligation or

B-lynch suture may be used to obviate the need for hysterectomy.<sup>3</sup> Tamponade techniques using a uterine balloon in management of PPH has been reported increasingly in the recent years.<sup>6</sup> Intrauterine tamponade with a Sengstaken-Blakmore tube appears as a simple, low cost, readily available and effective means of treating life threatening PPH.<sup>7</sup> Overall, the reported success rate vary 70-100%.<sup>3</sup>

In our setup, with limited and overburdened resources, and lack of personal trained in invasive surgical procedures uterovaginal packing still retains an important role in emergency obstetrics.<sup>8</sup> Due to multiparity and unsupervised home deliveries in the peripheral area of Pakistan, large number of patients present with PPH. In all of them we cannot embark upon surgical options after the failure of medical treatment. The balloon tamponade is a new technique in Pakistan and not much data is available of comparative trials with

conventional method of uterovaginal packing. The objective of this study was conducted to note the efficacy of balloon tamponade in the control of primary PPH.

**MATERIAL AND METHODS**

This was an experimental study conducted at the department of Obstetrics and Gyne, Civil Hospital, Bahawalpur, from 1<sup>st</sup> January 2018 to 30<sup>th</sup> June 2018. This study was approved by the ethical committee of QAMC/BVH. A total of 80 women were considered for this study by purposive non-probability sampling technique. All the cases who developed primary PPH in Obstetrics and Gynaecology unit-1 after vaginal delivery were included in this study. Patients were diagnosed at having PPH by giving pre-weighed pad, if bleed is more than 500ml, they were labeled as having PPH. All women who were 18 to 35 years of age, parity from 1 to 6 and having gestational age between 31 to 41 weeks. Cases with bleeding disorders, ruptured uterus, retained produces of conception or with genital tract injuries, or on anticoagulant therapy were excluded from this study.

After explaining merits and demerits of study and taking informed consent, patients received balloon tamponade i.e. insertion of Sengstaken-Blakemore oesophageal catheter (S.BOC) in the uterine cavity and fill with saline up to 500ml for 24 hours.

Data was collected through a predesigned proforma. Mean and standard deviation were calculated for quantitative variables while frequency and percentages for effectiveness. Stratification was done to control effect modifiers such as maternal age, gestational age and parity. Post-stratification chi-square test was used by considering p value of less than or equal to 0.05 as significant.

**RESULTS**

Mean age was 24.54 with standard deviation of 5.1 years amongst all the women while majority, 53 (66.3%) had age between 26 to 35 years. Mean gestational age was 37.88 weeks with standard deviation of 1.8 years while most, 50 (62.5%) had

gestational age between 38 to 41 weeks. In terms of parity, mean parity was 3.17 with standard deviation of 1.4 amongst all women while 52 (65.0%) women had parity status between 1 and 3.

Mean estimated blood loss was found to be 1125±320 ml, SBP 90.10±20.6 mmHg, DBP 57±7.2 mmHg and pulse 106±9.2 bpm.

As far efficacy of balloon tamponade is concerned, it was noted in 71 (88.8%) women. When women were analyzed for maternal age, gestational age and parity status, no significant difference was found (P value > 0.05) as shown in Table-I.

In 9 cases where balloon tamponade did not show efficacy, 5 (55.6%) had incorrect placement due to large size of the uterus whereas 2 (22.2%) women had fibroid uterus and 2 (22.2%) developed disseminated intravascular coagulation (DIC).

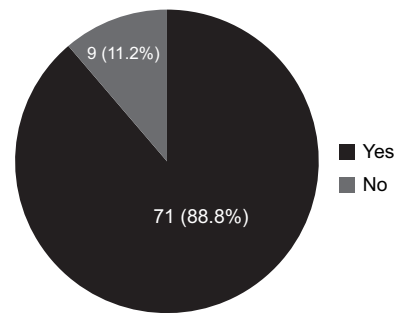


Figure-1. Efficacy of balloon tamponade

Variables	Efficacy of Balloon Tamponade		P-Value
	Yes (n=71)	No (n=9)	
<b>Maternal Age (years)</b>			
18-25	48 (67.6%)	5 (55.6%)	0.471
26-35	23 (32.4%)	4 (44.4%)	
<b>Gestational Age (weeks)</b>			
31-37	29 (40.8%)	1 (11.1%)	.083
37.1 to 41	42 (59.2%)	8 (88.9%)	
<b>Parity Status</b>			
1-3	48 (67.6%)	4 (44.4%)	0.170
4-6	23 (32.4%)	5 (55.6%)	

Table-I. Efficacy of balloon tamponade with regards to study variables

## DISCUSSION

PPH is known to be one of the major reasons of maternal mortality specially in developing countries. Active postpartum management must be on priority while managing all women who are at of risk.<sup>8</sup> If conventional management of PPH fails, uterine tamponade specifically using balloons have been taken into consideration recently for active management of PPH. There is a variety in the availability of different balloons like “Bakri, Foley, Sengstaken-Blakemore, Rusch and condom catheter”.<sup>9</sup>

Dabelea V and coworkers experienced intrauterine balloon tamponade for the management of PPH and noted that it was effective in most of the cases while 10% needed hysterectomy even after catheter was successfully placed.<sup>10</sup>

Yoong W et al in a prospective-observational trial<sup>11</sup> assessed ‘uterine sandwich’ technique in cases with failed conventional treatment of PPH. Ten out of eleven (90.9%) cases went through CS while one went through normal delivery. The median blood loss in this study was estimated to be 1500ml with a range of 750 to 4000ml whereas a median to 2 units of blood were transfused ranging zero to 9 units.

Doumouchtsis SK and colleagues<sup>12</sup> studied 27 cases with the use of balloon tamponade for PPH management. It was observed that 81% cases achieved haemostasis whereas in remaining 19% women, success was not achieved in terms of arresting haemorrhage. In the same study, 14.8% of the cases required hysterectomy while in 1 women, balloon expulsion was the reason of failure and conservative management was enough to attain haemostasis. Reasons of failure seems quite alike to those observed in the current work.

In cases where PPH is associated with deranged coagulation, uterine tamponade are potentially lifesaving. These cases are at increased susceptibility when we talk about surgical intervention and possibilities like angiographic embolisation.<sup>13</sup>

The efficacy associated with intrauterine balloon catheters for managing PPH has been assessed as highly successful when compared with other ways considered for the management of PPH.<sup>6-12</sup> The thing that make balloon tamponade more special is that is least invasive. Balloon tamponade can be applied rapidly and this is the major reason why it can be applied at 1<sup>st</sup> consideration for management in appropriated cases.

Dabelea V et al<sup>14</sup> evaluated 23 cases of PPH. All these cases were done with intrauterine balloon tamponade after all were failed when medical treatment was used earlier. After proper placement of the catheter, PPH was arrested in 90% of the women. The results of our study stand consistent with the findings of Dabelea et al<sup>14</sup> in terms of efficacy. In the said study<sup>14</sup>, hinderences to successful placement went on to be the major reason in failed cases. The study summarized that balloon tamponade should be considered as an ideal treatment for the management of severe PPH, particularly in cases of uterine atony after failure of medical treatment.

Rathore AM and colleagues<sup>15</sup> found the success catheter balloon as 94% for the control of haemorrhage. Mean amount of fluid that needed to be filled in the condom catheter balloon was recorded to be 409 mL whereas average time used up for controlling the haemorrhage was noted as 6.2 min. The mean amount of blood loss noted in that study was also quite similar to what we observed in the current study.

As far as limitations of this study are concerned, comparing the efficacy of balloon tamponade with other conservative methods being applied at our center like uterovaginal packing would have given more weightage to the results of this study. More studies with randomized sampling comparing different methods will give further insights about the management of PPH.

## CONCLUSION

Balloon tamponade has good efficacy (88.8%) in controlling PPH. More studies with bigger sample size to further understanding the factors influencing the outcome will prove helpful. Ease



of use regarding balloon tamponade in cases that are at increased risk of PPH makes it a suitable option.

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## AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author(s) Full Name	Contribution to the paper	Author(s) Signature
1	Kashfa Tasnim Akhtar	Methodology, Proof Reading, Discussion.	
2	Sobia Tabassum	Data collection, Literature review, Data analysis.	
3	Shazia Siddique	Methodology, Data collection, Literature review.	