

Bakri Balloon Tamponade for PPH

A Study of 20 Cases from Jan 2018-June 2018 in A Tertiary Care Centre Umaid Hospital
Hanslata Gehlot¹ Deepika Gurnani²

¹Senior professor, department of Obstetrics and Gynecology, Umaid hospital,
Dr Sampurnanad Medical College, Jodhpur

²Resident doctor, department of Obstetrics and Gynecology, Dr Sampurnanad Medical college,
Jodhpur*Corresponding author: Dr Deepika Gurnani

ABSTRACT:

Massive postpartum hemorrhage (PPH) is one of the most serious complications during delivery. Hysterectomy is performed when other conventional treatment attempts fail. Bakri balloon tamponade (BBT) is a novel conservative management option for PPH. Little is known of the effectiveness of this procedure. We conducted a study at Umaid hospital to know the effectiveness of BBT in various cases of PPH in vaginal or caesarean deliveries.

- Method : Prospective case series
- Study population: All the cases of PPH managed with BBT along with other measures during study period at Umaid Hospital.
- Study period : Jan 2018- June 2018
- Main outcome measures. Achievement of definitive hemostasis by BBT among the study population.
- Results: among the women treated with BBT causes of PPH were atonicity (65%) trauma to perineum and cervix (10%) APH (20%) RPOC (5%). Overall success rate was 90%. 1 case required hysterectomy. Another case required laparotomy and application of compressive sutures, she expired due to irreversible shock and MODS though hemostasis was achieved with BBT.
- Conclusion: BBT is a simple, readily available, effective and safe procedure for the management of PPH in selective cases. BBT does not exclude the use of other procedures if necessary. Even if BBT failed, it may provide temporary tamponade and time to prepare for other interventions or transportation from local hospital to tertiary centre. We suggest that BBT should be included in the PPH protocol.

Keywords:- BBT(bakri balloon tamponade), PPH(postpartum haemorrhage) uterine tamponade

I. INTRODUCTION

Postpartum Haemorrhage (PPH) is commonly defined as a blood loss of 500 ml or more within 24 hours after birth (primary PPH) or after 24 hours to within 6 week postpartum as secondary PPH. PPH is the leading cause of maternal mortality in low-income countries and the primary cause of nearly 25% of all maternal deaths globally and about 38% of maternal mortality in India. The majority of these could be avoided by timely and appropriate management. Improving health care in order to prevent and treat PPH is an essential step towards the achievement of the Millennium Development Goal-5

WHO recommends If women do not respond to treatment using uterotonics, or if uterotonics are unavailable, the use of intrauterine balloon tamponade is recommended for the treatment of PPH due to uterine atony.(1)

No randomized controlled trials have examined the use of uterine tamponade for the treatment of PPH. Twenty-two case series and 18 case reports (278 women), as well as two reviews are identified. Case series have reported success rates that ranged from 60 % to 100 %.(1)

II. METHODS AND MATERIALS

- Method: Prospective case series. Individual case sheets were studied in detail.
 - Study population : All the cases of PPH managed with BBT with or without other measures whether delivered vaginally or by caesarean section during study period at Umaid Hospital.(n=20)
 - Study period : Jan 2018- June 2018
 - Main outcome measures. Achievement of definitive haemostasis by BBT among the study population.
- We reported obstetrical indications for BBT, time when PPH developed, the amount of haemorrhage, the total time for which balloon was left in situ, the volume of the inflated balloon, and the use of additional procedures

such as uterotonics, tear repair, laprotomy and compressive sutures over uterus, hysterectomy in refractory cases.

In our cases of PPH following vaginal delivery, uterotonics were given, patient was catheterised, after which the cervix and lower genital tract were examined to localise the site of hemorrhage. Lacerations were surgically managed. Curettage was performed in cases of secondary PPH.

If hemorrhage continued, the Bakri balloon was inserted into the uterus. The balloon was then filled with sterile saline up to the desired volume (max 500cc).

The drainage port of the balloon was connected to a fluid collection bag to monitor hemorrhage. The balloon was kept inflated for 12–24 hours, in few cases upto 48 hours with careful monitoring of the hemorrhage. The balloon was deflated gradually or removed completely when adequate hemostasis was achieved.

When the balloon was placed at the time of CS, an assistant pulled the distal end of the balloon shaft through the cervix into vagina. The uterine incision was closed carefully in order to avoid damaging the balloon, later the balloon was inflated upto desired volume.

The timing of removal is correlated with the availability of senior doctors. In all cases balloon was removed within 48 hours.

III. RESULTS

Age of patient(yrs)	20-25	25-30	>30
No of patients	14(70%)	5(25%)	1(5%)
Referral	Referred	Non referred	
No of patients	10(50%)	10(50%)	
Booking status	Booked	unbooked	
	9(45%)	11(55%)	
Obstetric history	Primigravida	Multi gravida	Grand multigravida
	7(35%)	12(60%)	1(5%)
Mode of delivery	vaginal	LSCS	
	8(40%)	12(60%)	

Table 1 distribution of patients according to age, referral, booking status, obstetrics history & mode of delivery

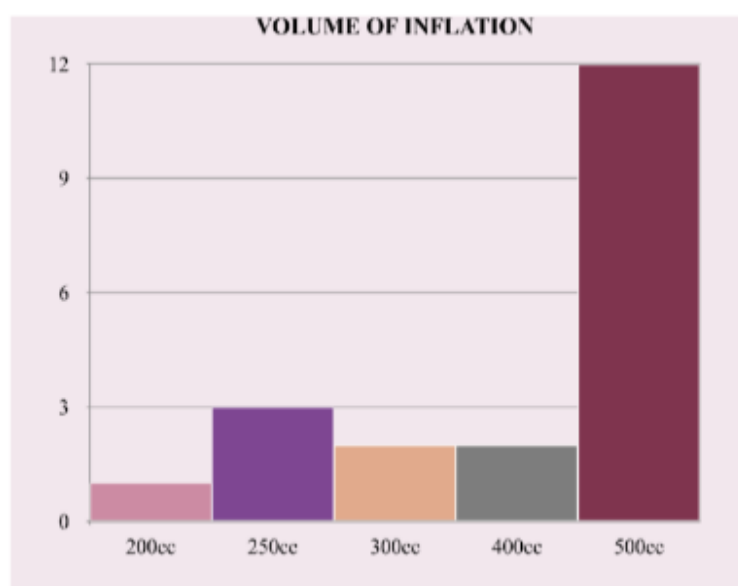
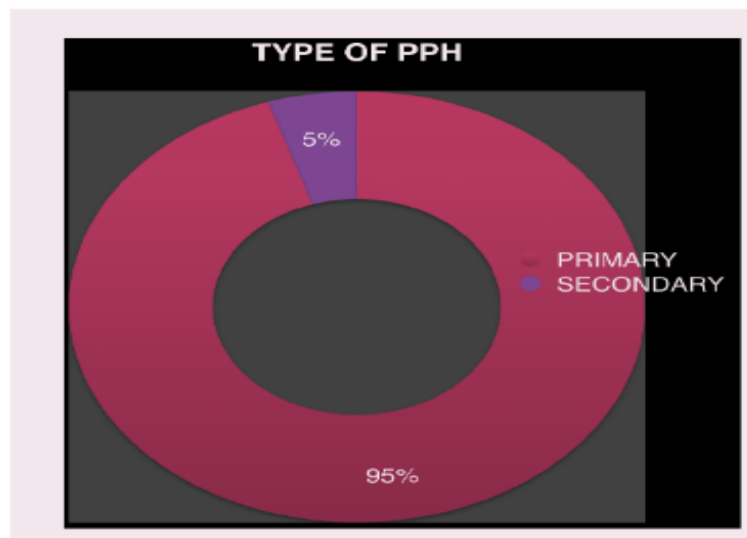
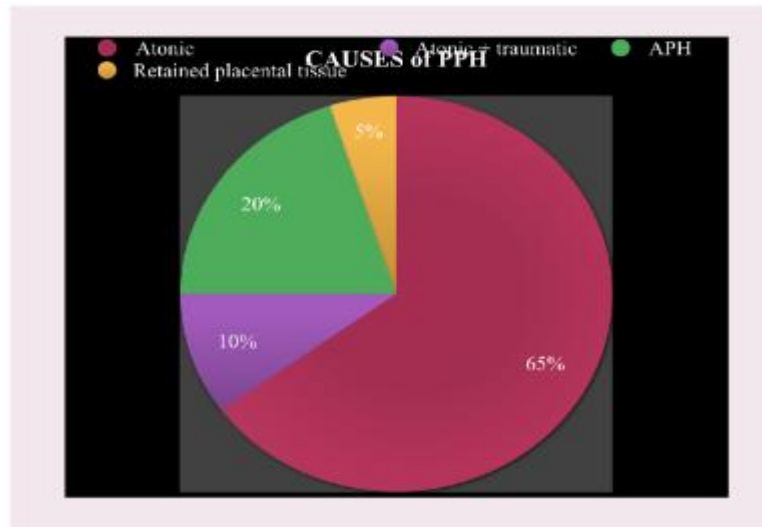
Successful haemostasis was achieved in 80% of patients in 5 % there was failure of BBT, in another 5% haemostasis was achieved but patient expired due to irreversible shock and delay in reaching health care.

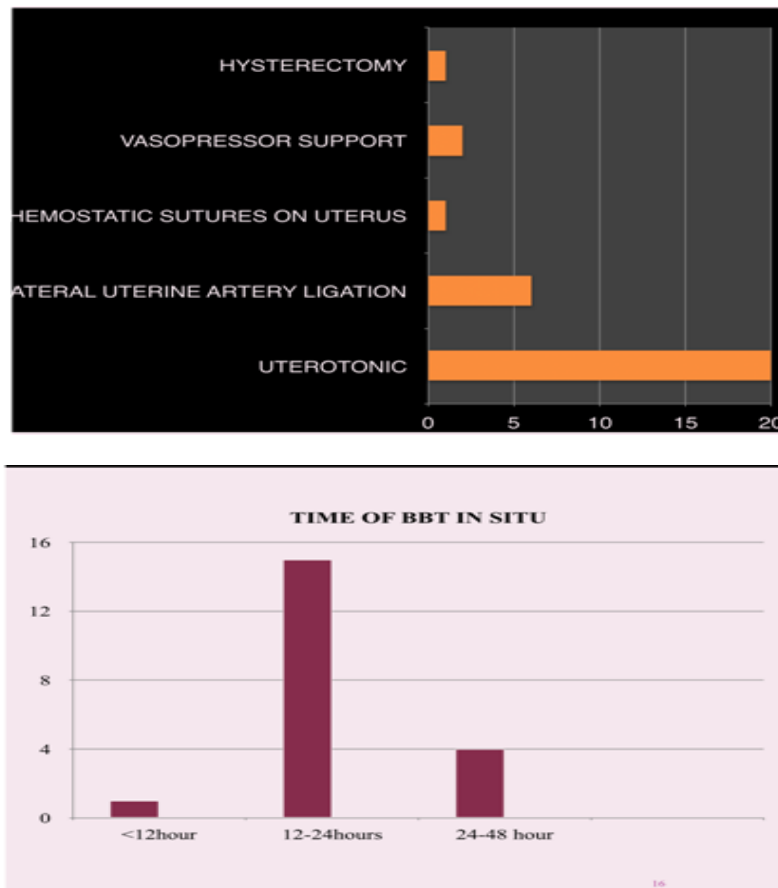
In our study 95% cases were of primary PPH and 5% were secondary PPH.

Among causes of PPH in our cases 65 % were atonic PPH 10 % had added traumatic component to atonicity 20% were PPH following APH (antepartum haemorrhage). Secondary PPH occurred due to retained placental tissue.

All cases required use of uterotonics. In 6 cases we additionally did bilateral uterine artery ligation. In 1 case hemostatic sutures were applied on uterus. 1 case required hysterectomy. 2 cases required use of vasopressors

In our case series 75% cases were minor PPH. 25% were major PPH and 5% were classified as massive PPH.





II. DISCUSSION

In study by **Gronval et al** success rate with Bakri balloon was 86%. In our study the it was 80% with partial success in another 5%.(2)

According to **Georgiou et al review**, the case reports, retrospective and prospective studies 91.5% cases were successful when the various balloons have been used.(3)

III. CONCLUSION

Postpartum hemorrhage (PPH) is a potentially life-threatening event. Uterine tamponade using intrauterine balloons appears to be an effective tool in the management of atonic PPH.

Given that the technology is simple to learn and apply and has minimal adverse effects, a balloon tamponade method should become a familiar component of existing guidelines for the management of PPH, although should not be considered as an isolated form of therapy.

It is hoped that this paper increases the awareness of the various tamponade balloons and contributes to an evidence-based appraisal of its place in the management of PPH.

REFERENCES

- [1]. WHO recommendation on the use of intrauterine balloon tamponade for the treatment of postpartum haemorrhage, September 2012(<https://extranet.who.int/rhl/topics/preconception-pregnancy-childbirth-and-postpartum-care/care-during-childbirth/care-during-labour-3rd-stage/who-recommendation-use-intrauterine-balloon-tamponade-treatment-postpartum-haemorrhage>)
- [2]. Grönvall M, Tikkanen M, Tallberg E, Paavonen J, Stefanovic, V. Use of Bakri balloon tamponade in the treatment of postpartum hemorrhage: a series of 50 cases from a tertiary teaching hospital. *Acta Obstet Gynecol* 2013; 92 :433-438
- [3]. Georgiou C. Balloon tamponade in the management of postpartum haemorrhage: a review. *BJOG* 2009;116:748–757

***Corresponding author: Dr Deepika Gurnani ² drdq19nov@gmail.com**
Resident doctor, department of Obstetrics and Gynecology, Umaid hospital,
Dr Sampurnanad Medical College, Jodhpur