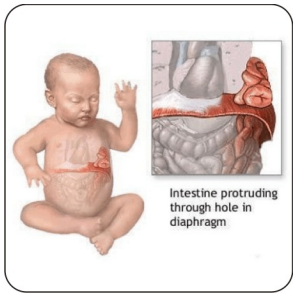
ORIGINAL PROF-1375

PRIMARY PPH;

ROLE OF UTERINE PACKING IN CONTROL OF HAEMORRHAGE.



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ABSTRACT... Objective: To determine the effectiveness and safety of uterine packing in selected cases of primary postpartum haemorrhage. Study Design: Cross-sectional study. **Place and Duration:** The study was conducted at Jinnah Postgraduate Medical Centre, Karachi, From September 2003 to April 2008. **Patients and Methods:** Women developing primary PPH due to uterine atony, placenta previa and coagulation failure were selected for uterine packing. Firm packing was done with enormous length of sterile ribbon gauze, using 'layering technique' under prophylactic antibiotic cover. Vagina was also packed to give additional pressure. Pack was removed after 12 - 36 hours or early in case of failure to control haemorrhage. Pulse, blood pressure, soakage of pads, height of uterine fundus and temperature were monitored to assess effectiveness and safety. **Results:** 39 women were included in the study. Cause of PPH was uterine atony in 30 (76.9%), coagulation failure in 5 (12.8%) and placenta previa in 4 (10.3%) cases. Packing was successful in arresting haemorrhage in 32 (82.1%) and failed in 7 (17.9%) cases; 95% Confidence Interval 67-91. There was no case of concealed haemorrhage, four patients developed emdometritis and none had delayed haemorrhage. 13 laparotomies were prevented. The difference between the causes of haemorrhage in successful and failed cases did not show a definite trend. **Conclusion:** If employed early, uterine packing is a quick, effective and safe method for controlling primary PPH in carefully selected cases.

Key words: Primary PPH. Uterine Packing. Concealed Haemorrhage. Infectious Morbidity. Delayed Haemorrhage.

INTRODUCTION

Primary PPH is traditionally defined as a blood loss of 500ml or more occurring within 24 hours of the delivery of the baby[1]. Approximately 80%-90% of the cases of primary PPH are associated with uterine atony. However, a combination of improvement in drug therapy for uterine atony and increased caesarean section rates in developed countries have resulted in uterine atony, often taking second place to placenta accreta as a cause of morbidity[2,3]. PPH is one of the five leading causes of

maternal deaths, in both the developed and developing countries[4].

Risk of life threatening haemorrhage is 1 in 1000 deliveries[3]. It is estimated that worldwide 140, 000 women die of post-partum haemorrhage each year, 1 every 4 minutes[5].

Avoidance of haemorrhage remains the principal rationale for active management of third stage of labour[6] but haemorrhage may occur despite active management[7].

Although many risk factors have been associated with PPH, it often occurs without warning[8]. After excluding traumatic lesions and retained placental tissue, the first line therapy is of course uterotonic drugs. Failing that, surgical intervention is required. Modern obstetrics aims at decreasing the need for laparotomy and increasing the likelihood of uterine preservation, especially in the case of a low-parity patient[9, 10].

One way of achieving these objectives is uterine packing which was popular in early half of 20th century. The procedure fell out of favour, the probable reason being fear of concealed haemorrhage and infection[11]. Adherence of packing material to bleeding surface was another concern[12].

Hsu S. et al suggest that uterine packing may be a reasonable alternative to further surgical intervention in patients with intractable obstetrical haemorrhage[13]. The objective of our study was to determine the effectiveness and safety of uterine packing in selected cases of primary PPH.

MATERIALS AND METHODS

The study was conducted in Department of Obstetrics and Gynaecology Unit II, JPMC, Karachi from September 2003- April 2008. We included 39 patients in the study. Criteria for inclusion were all primiparas with primary PPH due to uterine atony (not responding to conventional uterotonic drugs), placenta previa or coagulation failure. Women with high parity were also included if they had strong desire to conserve uterus. Criteria for exclusion were primary PPH due to retained placental pieces or genital tract lacerations, obvious signs of genital tract infection and haemodynamic instability.

Intrauterine packing was done with a variable length of sterile ribbon gauze. Vaginal route was used for women who developed primary PPH after vaginal delivery, whereas packing was done through uterine incision in cases of caesarean deliveries. Firm packing was done with the help of sponge holding forceps, layering the ribbon gauze from fundus to cervix to achieve a smooth, uniform and firm application. Vagina was also firmly packed to provide additional pressure. Care was taken to observe strict aseptic measures.

In cases of caesarean section uterine incision was closed. Tip of the ribbon gauze was observed for soakage and free trickle of blood over the next five to ten minutes. In cases where the tip remained dry, packing was considered successful, whereas if gauze tip soaked readily and blood started trickling, additional surgical procedures were employed.

Blood and blood products were transfused during and after the procedure as per individual requirements. Ceftriaxone 1g twice daily and metronidazole 500mg 3 times a day were given intravenously for 5 days. Syntocinon infusion (40 units in 500ml of Ringer's solution at a rate of 10 drops per minute) was continued till 24 hours after removal of pack. Patients were kept in high dependency area. Pulse, blood pressure, temperature, height of uterine fundus and soakage of pads was closely monitored. Pack was removed after 24 hours on an average, during morning hours.

Rise in pulse rate and fall in blood pressure with a rise in the level of uterine fundus were taken as indicators of concealed haemorrhage. Fever (temperature more than 101˚F) beyond 48 hours after removal of pack in the absence of signs suggestive of non uterine source of infection was taken as an indicator of infectious morbidity (endometritis/pelvic abscess). Any difficulty in removing the pack was noted. After removal of pack, patients were

observed for bleeding per vaginum over next 6 – 8 hours. Chi square method is used to confirm the impact of parity, mode of delivery and cause of PPH is statistically insignificant.

RESULTS

During the study period, uterine packing was done in 39 cases of primary PPH. Cause of PPH was uterine atony in 30 (76.92%) cases, coagulation failure in 5 (12.82%) and placenta previa in 4 (10.3%). Ages of women included in the study ranged between 18 to 36 years, with a mean of 26.15(±5.26) years. Regarding parity, 18 (46.15%) women were primiparas, 16 (41.02%) multiparas and 5 (12.82%) grand multiparas. Mode of delivery was caesarean section in 23 (58.97%) cases and vaginal delivery in 16 (41.02%). Table-I.

Table-I. Age, parity, mode of delivery and cause of PPH in 39 patients.

Age years		
Mean age	26.15 ± 5.26	n=39
Age range	18 - 36 years	
	No. Of pts.	**%age**
Parity		
Primiparas	18	46.2
Multiparas	16	41
Grand Multiparas	5	12.8
Mode of delivery		
Caesarean section	23	59
Vaginal delivery	16	41
Cause of PPH		
Atony	30	76.9
DIC	5	12.8
Previa	4	10.3

Uterine packing was successful in arresting haemorrhage in 32 (82.1%) and failed in7 (17.9%) cases. Of the 32 successful cases, 13 women had had PPH after vaginal delivery; hence 13 laparotomies with their consequent morbidity were prevented. Rest of the 19 women had delivered by caesarean section. Packing was removed after 12-36 hours with a mean of 22 (±5.1 hours). There was no case of concealed haemorrhage. Four (12.5%) patients developed endometritis which responded well to antibiotic therapy. No case of pelvic abscess was recorded. Removal of pack was difficult in 7 cases but none required general anaesthesia. No patient had delayed bleeding. (Table II).

Table-II. Post intervention results in 39 cases of PPH.

Time of removal (n=32)		
Mean time	22.0 ± 5.1	n=32
Time range	12 - 36 hrs	
	No. Of pts.	**%age**
Outcome (n=39)		
Success	32	82.1
Failure	7	17.9
Morbidity (n=32)		
Concealed Haemorrhage	--	--
Endometritis	4	12.5
Difficult removal	7	21.88
Delayed Haemorrhage	--	--

Among 7 patients where packing failed to control haemorrhage, cause of PPH was uterine atony in 5 and placenta previa and DIC in 1 case each. Internal iliac artery ligation was carried out in 3, hysterectomy in 1; internal iliac artery ligation followed by hysterectomy in 3. In this group, 2 women died of septicaemia on the second and third post-operative days. Impact of mode of delivery, parity and underlying cause of PPH on the outcome was statistically not significant as p-value is 0.91, 0.49 & 0.91 respectively. (Table III)

Table-III. Association of outcome with age, parity, mode of delivery and cause of PPH				
	Success	Failure	P-Value	Statistical
	(n=32)	(n=7)		Significance
Age (years)	26.6±5.6	24.3±2.5	0.3	NO
Parity				
Primiparas	15	3	0.49	NO
Multiparas	12	4		
Grand Multipras	5	0		
Made Of Delivery				
Vaginal deliveries	13	3	0.91	NO
Caesars Section	19	4		
Causes of PPH				
Atony	25	5	0.91	NO
Previa	3	1		
DIC	4	1		

DISCUSSION

A variety of surgical techniques have been proposed to avoid hysterectomy for PPH. Each has its advocates and is associated with identifiable benefits and risks. However, they all require a laparotomy. The attractiveness of uterine packing is that it does not require further invasive surgery and can avoid a laparotomy[6]. We prevented 13 laparotomies. Uterine packing should be considered as a pre-surgical management tool after lacerations of lower genital tract, uterine rupture or retained products have been ruled out and conventional therapy fails to control uterine haemorrhage[14]. The success of uterine packing is directly related to the technique[11, 15, 16]. In our study, uterine packing was successful in arresting haemorrhage in 32 (82.1%) cases and failed in 7 (17.9%). In 7 failed cases, the cause of haemorrhage was uterine atony in 5, coagulation failure in 1 and placenta previa in one patient. Gulfishan Haq et al[4] have reported a success rate of 85% in their series of 20 patients, which included 4 cases with haemorrhage after second trimester miscarriage. They did not point to the cause of haemorrhage in cases where packing failed. Robert C. Maier[11] in his retrospective review of 9 cases of primary PPH showed a success rate of 77.78%. In his study, uterine atony and placenta previa were the cause of haemorrhage in two cases where packing failed. Yet another study by Senzan Hsu et al[13] reported success in 8 (88.89%) of 9 cases. 2 cases had haemorrhage after dilatation and evacuation and one of them failed to respond to packing. Sherry Boschert[18] in her "small study" reported success rate of 66.66% after uterine packing. Three case reports[14, 15, 19] (reporting two cases each) claimed 100% success.

Historically, packing of uterine cavity was frequently practised in early part of 20th century. Arguments were presented in 1930s and 1940s that the procedure was "unphysiologic" and therefore, unacceptable[20,21,22]. Fears of infection and concealed haemorrhage were offered without specific examples or occurrence rates[21, 22]. According to Robert C. Maier[11], the procedure has rarely been associated with concealed haemorrhage when properly performed. We found this statement to be true as none of our 32 successful cases had concealed haemorrhage. Same had been found in many studies[4, 11, 13, 18] and case reports[14, 15, 19]. A good packing technique involves careful layering of ribbon gauze pack[6].

Modifications in the technique of packing have allayed the concerns regarding concealed haemorrhage[23].

Other methods of uterine temponade have been tried. The Sengstaken Blackmore Tube had the advantage of being equipped with a drainage channel which revealed any continuing haemorrhage[19]. However, it is complex to use and expensive[6]. Bakri Balloon with a patent lumen in the balloon shaft allows for direct measurement of continued blood loss[24]. But again, the non-availability and cost makes them unsuitable for use in low resource settings.

Despite the fact that a foreign body placed in uterine cavity can favour bacterial growth, there have been no reported cases of serious infection[19]. Although we

excluded patients with obvious signs of infection from the study, uterine packing has been successfully used in a case of PPH with clinically diagnosed endomyometritis[11]. In our study, four patients developed endometritis which was effectively treated with antibiotics. Careful selection of cases, aseptic technique, use of prophylactic antibiotics and not leaving the pack beyond 36 hours of insertion are important measures to minimise infection. Still there are reports of pack having been removed after 48 hours without any increase in infectious morbidity[19].

Another reason put forth by detractors of the procedure was adherence of packing material to bleeding surface, followed by delayed haemorrhage by dislodging the clot after removal of pack. The problem had been addressed by J. R. Wax et al in their case report in which they successfully tried to avoid adherence by using a non-adherent bag interposed between bleeding surface and pack[12]. But none of the studies has identified "adherence and delayed haemorrhage" as a concern. In our study, in spite of difficult removal in seven cases, no patient suffered from delayed haemorrhage.

Many authors stated that uterine packing should be abandoned because of concealed haemorrhage, uterine infection and delayed haemorrhage. Maier[11] and other investigators showed that these complications are very infrequent and should not be contraindications to this potentially life-saving treatment for PPH. Our study has strengthened this belief.

Uterine packing needs to be remembered as a management option before performing surgical procedures in PPH resulting from placental site bleeding, coagulation failure or atony. It may control the problem completely or give time to organise a definitive procedure which may include transportation to another centre[19]. If a correctly placed pack is unable to control haemorrhage, repacking is not advocated and other therapeutic options should be considered[25].

CONCLUSION

Uterine Packing is an effective and safe method for controlling PPH. It is cost-effective as well. All that is required to accomplish packing is a sponge-holding forceps and sterile ribbon gauze. Every obstetrician should be familiar with the technique of packing as this can save life, avoid laparotomy and conserve uterus.

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