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RESEARCH ARTICLE

COMPARATIVE STUDY OF UTERINE GAUZE PACKAGING AND SANGESTAKEN BLACKMORE ESOPHAGEAL CATHETER FOR THE MANAGEMENT OF PPH

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Abstract

Aims and Objectives: The present study was conducted with the aim to assess and comparatively evaluate the safety and effectiveness of Sangestaken Blackmore oesophageal catheter with uterine gauze packaging for the management of PPH.

Methods and Materials: The study was conducted in 100 selected cases of PPH divided in two groups of 50 cases each who did not respond to standard medical therapy. The procedures were carried out in OT using minimal analgesia or regional anaesthesia. In uterine packing group. The packing was done with a variable length of sterile ribbon gauze soaked in povidine iodine solution. Vaginal route was used for women who develop PPH after vaginal birth where as packing was done through uterine incision in case of cesarean section delivery tip of the ribbon gauze was observed for soakage and free trickle of blood over 5-10 minutes. In case the tip remained dry packing was considered successful where as if gauze was readily soaked with blood the procedure was considered failure one. In second group SBE catheter was inserted via the cervix or through cesarean section wound intraoperatively at least 15 cm of the catheter was inserted into the uterine cavity and the balloon was inflated with 300ml warm normal saline and then palpated per abdomen upper vagina was firmly packed to avoid expulsion of the tube when there was no or minimal bleeding the procedure was considered successful.

Results: The success rate in SBMEC was higher 94% as compared to 78% in case of uterine packing group ($p = 0.021$). The removal of catheter was easy and there is no chance of concealed haemorhage and infection as compared to the uterine packaging group.

Conclusion: Sangestaken blackmore balloon temponade has the potential of being a life saving procedure and should be an integral part of obstetric emergency protocols for massive PPH. Uterine packing is technically difficult and time consuming and there is delay in recognizing continuous haemorrhage and there is a potential risk of trauma and infection and needs expertise for insertion.

INTRODUCTION

Obstetric haemorrhage is a significant contributor to worldwide maternal morbidity and mortality.[1] it is one of the top four causes of direct maternal death. Management of PPH involves a step wise approach including the exclusion of RPOCs and genital tract trauma uterine atony which is the most common cause[2] and is dealt with uterine massage

and various uterotonic agents such as oxytocin, ergometrine misoprostil and prostaglandin F2α if these attempts prove to be unsuccessful and the woman is not already having a cesarean section, a laparotomy is considered and various surgical interventions may be used. These are four vessel ligation, internal iliac artery ligation, uterine compression sutures and peripartum hysterectomy to control life threatening haemorrhage[6,7,8] and now recently uterine balloon temponade has been added in the management of PPH[9,10]. The earliest method of uterine temponade to control PPH was by uterine packing[11] with the possibilities of trauma, infection and ineffective packing and concealed haemorhrage. The balloon acts by excerting inward to outward pressure that is greater than the systemic arterial pressure to prevent continuous bleeding or more recently hydrostatic pressure effect on the uterine arteries. Sangestaken blackmore catheter successfully treats atonic PPH refractory to medical management in 80% of cases.[11]

MATERIAL AND METHODS

This comparative study was conducted in the Department of Obstetrics and Gynaecology at Lalla Ded Hospital Srinagar. 100 patients of PPH unresponsiveness to standard medical therapy were included in the study in all of these severe PPH cases women were treated with appropriate oxytocics and prostaglandins, 50 patients of failed medical therapy were managed with uterovaginal packing and another group of 50 patients with Sangestaken blackmore balloon temponade was done, patients with trauma to genital tract, uterine rupture and patient with RPOCS, uterine infection were excluded from the study. A detailed, medical and obstetric history was taken especially regarding to any such previous obstetric complications, duration of labour, mode of delivery, causes of bleeding, estimated blood loss, intrapartum and postpartum blood and blood products transfused. A quick and thorough general physical and systemic examination was performed, local examination included per speculum for any local injury, bimanual examination regarding the cause of PPH. Routine investigations included a complete haemogram, coagulation profile, KFT, LFT and USG after ruling out exclusion criteria and after failed medical therapy patients were selected for intrauterine temponade. Intrauterine packing was done in 50 patients and balloon temponade in 50 cases. Coagulation studies were carried out simultaneously to exclude coaglopathy. The temponade was done in OT using minimal or regional anaesthesia. The uterine packing was done with a variable length of sterile ribbon gauze soaked in povidine iodine solution. Vaginal route was used for women who developed PPH after vaginal birth were as packing was done through uterine incision in cases of caesarean section delivery firm packings was done with 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 case was taken to observe strict aseptic measures. In case of caesarean section uterine incision was closed. Tip of the ribbon guaze was observed for sockage and free tricke of blood over the next 5-10 minutes. In case where the tip remained dry packing was considered successful where as if gauze tip was soaked readily blood started trickling additional surgical procedures were employed.

The pressure is directly applied on capillary / venous bleeding vessels or surface oozing from within the uterus, the patients were strictly monitored for bleeding over the next 12-14 hours under cover of broad spectrum antibiotics and uterotonics. In the second group, SBC was inserted into the uterine cavity through the cervix or through caesarean section wound intraoperatively the Sangestaken blackmore esophageal catheter was soaked in glutartdehyde for 20 minutes. The catheter was originally designed for the management of esophageal variceal bleeding it is a three way catheter tube with stomach and esophageal balloon components (made of latex it can be inflated to a volume of 500ml for uterine temponade).

The insertion was facilitated by grasping the anterior and lateral margins of the cervix with sponge holding forceps and placing the esophageal balloon into the uterine cavity with at least 15cm of the catheter was inserted into the uterus and the drainage put through the cervix into the vagina or transvaginally and inflated after the uterine incision was closed after insertion. The balloon was inflated with warm, normal saline the distended balloon was palpated for abdomen as well as gentle traction was applied on the catheter to ensure that the balloon was firmly situated in the uterine cavity vagina was packed to avoid expulsion of the tube if no bleeding or minimal bleeding was observed via cervix or the SBC test was considered positive and surgical interventions like hysterectomy avoided.

RESULTS

50 patients were included in the temponade by uterine packing and 50 by Sangestaken blackmere catheter. There was no significant difference in various confounding factors between the two groups.

Table – 1

	UP	**SBECT**	**p value**

Mean age in patients	24.62±5.20	26.25±4.28	0.632
Parity range (media)	1 (1-6)	1-5	0.900

UP = Uterine packing; SBCT = Sangestaken blackmore Esophageal Catheter Temponade

Table – 2: Type of Labour

	UP	**SBECT**
Spontaneous onset of labour	15	6
Induced	10	19
Augmented	3	6
Placened C/S	11	14
Emergency C/S	10	5
Emergency Hysterotomy	1	0

UP = Uterine packing; SBCT = Sangestaken blackmore Esophageal Catheter Temponade

Table – 3: Mode of Delivery

	Normal vaginal delivery	**Planned Caesarean Section**	**Emergency Caesarean Section**	**Emergency Hysterotomy**
UP	28	11	10	1
SBECT	20	11	19	0
Chi square → 2.586; p value 0.46				

UP = Uterine packing; SBCT = Sangestaken blackmore Esophageal Catheter Temponade

Table – 4: Cause of PPH

	UP	**SBECT**
Attony	36	29
Placenta previa	3	9
Adherent placenta	6	3
Placenta previa and adherent placenta	2	3
Placenta previa and atony	3	2
Adherent placenta atony and placenta previa	0	2
Adherent plancenta and atony	0	2

UP = Uterine packing; SBCT = Sangestaken blackmore Esophageal Catheter Temponade

Table – 5: Comparative effect of temponade in two groups

	Success	**Failure**	**Total**

UP	39	11	50
SBEC	47	3	50
Chi square → 5.316; p value 0.021			

UP = Uterine packing; SBCT = Sangestaken blackmore Esophageal Catheter Temponade

DISCUSSION

A variety of surgical techniques have been proposed to avoid hysterectomy when uterotonic drugs fail to control massive life threatening PPH each has its advantages and risks and all require laparotomy. The morbidity of these surgeries and the desire to preserve fertility has lead to the development of new therapies including uterine temponade. Uterine packing was frequently practised in the early 20th century for uterine temponade. In this study balloon temponade with sangestaken blackmore esophageal catherer was highly effective. 94% in the management of PPH unresponsive to standard medical therapy and was associated with no significant complication compared to the success rate of 78% in the uterine packing (p value 0.021).

CONCLUSION

Uterine temponade by SBEC is a safe, effective procedure in the management of PPH and even fresher's can do it as the insertion and removal is easy and can prevent number of surgical techniques which are employed for the management of PPH, and can decrease the morbidity and mortality associated with PPH and various surgical procedures.

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