

## Role of Uterine Packing in Control of PPH

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### ABSTRACT

**Objective:** To determine safety and effectiveness of uterine packing to stop hemorrhage in postpartum

**Duration of study:** 1<sup>st</sup> Sep 2009-to 31<sup>st</sup> Aug 2010.

**Place of study:** The study was conducted in the Department of Gynaecology and Obstetrics, Lady Willingdon Hospital Lahore

**Methods:** Patients included in the study were those who presented in hospital with intractable postpartum haemorrhage not responding to medical treatment and postoperative patients who developed haemorrhage after caesarian section.

**Results:** 40 patients presented with PPH of whom 35(87.5%) had haemorrhage after vaginal delivery and 5(12.5%) after lower segment caesarian section. Twenty four patients (60%) were between the ages of 20-30 years, 6(15%) between 30-40 years, 8(20%) between 15-20 years and 2(5%) patients were more than 40 years age. Uterine atony unresponsive to oxytocics was the commonest cause of post partum haemorrhage, seen in 90% cases.

**Conclusion:** Randomized control trials under ethical approval are required to identify the best way of managing women with intractable haemorrhage unresponsive to conventional medical treatment. Depending on the availability of resources, these conservative methods help lower maternal death rates and minimize hysterectomies. The study concluded that uterine packing is a safe, quick and effective procedure for control of obstetric haemorrhage.

**Key words:** PPH, Uterine packing, haemorrhage

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### INTRODUCTION

Postpartum hemorrhage is an obstetrical emergency that can follow vaginal or cesarean delivery. It is one of the leading causes of maternal mortality. It remains a serious complication of childbirth in both developed and developing countries<sup>1</sup>. In developing countries, it is responsible for an annual mortality of approximately 150,000 women per year<sup>2</sup>. It occurs with a frequency of 1 per 1000 deliveries in the developed world<sup>3</sup>. From 2% to 5% of deliveries may lead to PPH with a blood loss of > 1000 mL within the first 24 hours<sup>2</sup>. Most common cause is due to atony of the uterus. Haemorrhage can occur despite active management of the 3rd stage of labour<sup>4</sup>. Postpartum haemorrhage due to other than trauma arises from the placental bed which is obviously inside the uterus. The blood supply comes from outside the uterus and traverses the myometrium. Primary haemostasis from the placental bed is due to compression of the uterine vessels as they pass through the myometrium. The degree of compression of these vessels depends on the force acting on the vessels. This force obeys the Young-Laplace relationship ( $F=2T/r$ ), where F equals the compressive force acting on the blood vessels, T is

the wall tension (generated by the uterine contraction), and r is the radius of the uterus. It is apparent that the force compressing the vessels cannot be very high if r is large. Therefore, it is essential that the radius of the uterus be made small by emptying the uterus from any blood or placental tissue and increasing the wall tension of the uterus (T) by giving ergonovins. This is the scientific basis of the initial treatment and the prevention of primary postpartum haemorrhage.

Uterine packing may be a reasonable alternative to further surgical intervention in patients with intractable obstetrical haemorrhage<sup>6</sup>. It should be considered when conventional therapy fails to provide relief<sup>5</sup>. All members of the obstetric team should know how to insert a uterine packing because timing is of essence. . The main focus of our study was on decreasing the morbidity associated with obstetric haemorrhage and the aim is to decrease the need for laparotomy and increase the likelihood of uterine preservation.

### PATIENTS AND METHODS

The study was conducted in the Department of Gynaecology and Obstetrics, Lady Willingdon Hospital Lahore from 1<sup>st</sup> Sep 2009-31<sup>st</sup> Aug 2010. Patients included in the study were those who presented in hospital with intractable postpartum

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haemorrhage not responding to medical treatment and postoperative patients who developed haemorrhage after caesarian section. Exclusion criteria included cases of ruptured uterus, perineal trauma, cervical trauma and vaginal trauma. Intrauterine packing was done by using 8-10 meters gauze starting from the fundus with the help of sponge holding forceps up to the cervix. Vagina was also firmly packed to give additional pressure to the uterine packing. Antibiotic coverage was given for 5 days. Uterine packing was removed after 12-24 hours of insertion (or removed earlier in case of failure).

## RESULT

During the study period, 40 patients presented with PPH of whom 35(87.5%) had haemorrhage after vaginal delivery and 5(12.5%) after lower segment caesarian section. Twenty four patients (60%) were between the ages of 20-30 years, 6(15%) between 30-40 years, 8(20%) between 15-20 years and 2(5%) patients were more than 40 years age. Uterine atony unresponsive to oxytocics was the commonest cause of post partum haemorrhage, seen in 90% cases (table 2).

Table 1: Parity of patient

Parity	No. of patients	%age
Primipara	8	20
P 2-4	20	50
P >4	12	30

Table 2: Cause of PPH

Cause of PPH	No. of patients	%age
Uterine atony	36	90
DIC	2	5
Endometritis	2	5

Table 3: Booking status of patients

Booking status	No. of patients	%age
Booked	4	10

Uterine packing was successful in 35(87.5%) cases whereas 5 patients had failure of uterine packing. Of these, 4 patients underwent postpartum hysterectomy and 1 patient had B-Lynch suture application. All patients required blood transfusion with 29 requiring 3 pints of blood, 6 patients 5 pints, and 5 patients 6 pints of blood. Fresh frozen plasma was transfused in 11 patients. Post insertion morbidity included fever more than 100°F in 3 patients and episiotomy wound infection in 1 patient.

## DISCUSSION

Management options for postpartum hemorrhage (PPH) include oxytocics, prostaglandins, genital tract exploration, ligation or angiographic embolization of

uterine/internal iliac arteries, and hysterectomy. After excluding uterine rupture, genital tract lacerations, and retained placental tissue, efforts are directed toward contracting the uterus by bimanual compression and oxytocics. If these are not successful, one must resort to surgical techniques. At this stage, an alternative option to remember is uterovaginal packing. Easy and quick to perform, it may be used to control bleeding by tamponade effect and stabilize the patient until a surgical procedure is arranged. Uterovaginal packing may sometimes obviate the need for surgery altogether<sup>6</sup>.

Uterovaginal packing for PPH was frequently practiced prior to the 1960s. Its use subsequently declined because of fear of infection and concealed hemorrhage<sup>7</sup> although sporadic reports of its successful use have been published<sup>8,9</sup>.

This modality is useful in controlling hemorrhage from uterine atony and placental site bleeding caused by placenta previa or placenta accreta<sup>3</sup>. Uterine atony unresponsive to oxytocics is the most common indication for its use<sup>10</sup>. Uterovaginal packing has also been used to gain time to stabilize the patient while arranging for a surgical procedure. In some of these situations, packing itself proved successful, thereby obviating the need for surgery<sup>9</sup>. Its foremost advantage is that it is very simple and quick to perform and requires no special equipment. Tight uniform packing of all areas of the uterine cavity has to be continued vaginally to the introitus in order to maintain a tamponade effect on the uterine sinuses and prevent concealed hemorrhage

In our study the main criteria assessed was the success rate, maternal mortality, and morbidity in terms of postpartum pyrexia and concealed haemorrhage. Wittch et al have recommended uterine packing as a pre-surgical management tool when lacerations of lower genital tract, uterine rupture and retained products have been excluded and conventional therapy has failed to control uterine haemorrhage. They described two cases managed successfully with uterine packing<sup>11</sup>. Our study also included cases of non-traumatic uterine haemorrhage and success rate was 87.5%.

A study conducted by Robert et al showed that successful treatment of haemorrhage was clinically evident after procedure was completed, although packing material became heavily stained with serosanguinous fluid. Fever after uterine packing was minimal and of no clinical significance<sup>12</sup>. Comparing this with our study as regards post insertion morbidity, 3 patients developed pyrexia and one patient developed episiotomy wound infection. Concealed haemorrhage was not seen in any of our patients, however there was some soakage of the packing.

In a recent review of obstetric records at the Children's Hospital of Buffalo, New York, 9 cases of uterine packing were reported over a 9-year period (5 during cesarean, 2 after vaginal delivery, and 2 after dilatation and evacuation)<sup>10</sup>. Although the incidence of blood transfusion was not reduced, as 8/9 required transfusion and the average blood loss was 2200mL, packing was successful to stop the hemorrhage in 8/9 cases; in only 1 case, hemorrhage continued and a hysterectomy was done. Thus, uterine packing was associated with decreased incidence of hysterectomy. Although not much data on the incidence of blood transfusion are available, it was observed in a study of 9 cases of packing that patients for whom packing was either delayed or unsuccessful received more transfusions than patients who underwent early and successful packing<sup>9</sup>. Such reports give evidence that further study should be done on this procedure. In our study 4 patients had hysterectomy.

In a study from Dow University Pakistan on uterine packing showed successful management and it was recommended that packing should be practiced at tertiary hospitals if women wishes to preserve fertility.<sup>(13)</sup> B Lynch Brace Suture which is another conservative surgical approach but not in practice. Ashley S Roman in his article of seven ways to control postpartum haemorrhage describes "re-emergence" of uterine packing, which fell out of use largely due to concerns of concealed haemorrhage. He also mentioned that several modifications have allayed these concerns<sup>14</sup>.

Interval for removal of pack has to be individualized according to clinical findings. Pack was removed earliest at 12 hours and maximum at 24 hours in successful cases in our study. Robert C reported earliest removal of pack at 5 hours and latest at 96 hours<sup>8</sup>.

Primary PPH is among the top 5 causes of maternal mortality in both developed and developing countries<sup>15</sup>. In a review of more than 2000 maternal deaths in the United States, Kaunitz and colleagues<sup>16</sup>. reported that 13% were due to hemorrhage, one third of which were attributed to PPH. Of the estimated 600,000 maternal deaths each year, 95% occur in developing countries<sup>17,18</sup>. In developing countries such as Pakistan, where PPH continues to be responsible for a large number of maternal deaths, any simple intervention that can be readily performed to control bleeding by tamponade is crucial. Uterovaginal packing requires no special equipment or expertise to perform and should easily come to the mind of the obstetrician whenever he or she encounters the life-threatening situation of PPH.

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