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Original Research Article

A Descriptive Study to Assess Effectiveness of Hayman Suture Technique in Atonic Post-Partum Hemorrhage

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Abstract: The objective to study the effectiveness of Hayman suture to control atonic PPH when medical management fails. A retrospective study was conducted at Jay Kay Lon Hospital, Kota. From September 2013 to September 2015. B-Lynch suture (classical/modified form) were applied in 25 cases out of which 23 were during caesarean section and 2 after vaginal delivery. In 20 cases Hayman suture was the only intervention, in one case classical B-Lynch suture was applied, In 3 cases bilateral uterine arteries were ligated and in one case ovarian artery was also ligated in addition. During the 24 months of study period 5 %(1261/25,224) women had primary PPH, while massive PPH occurred in 0.4 %(106/25,224) cases, Majority of these cases were due to uterine atony. Haymen suture was applied to 25 women in whom conservative management failed for PPH. Effective haemostasis achieved in all cases, none of the women required hysterectomy. Hayman suture technique is an easily and rapidly applied, effective, simple, safe, lifesaving and fertility preserving method to control atonic PPH.
Keywords: PPH, B-Lynch suture, Hayman suture

INTRODUCTION:

Worldwide over 125,000 women die of PPH every year [1]. Hence it is a significant cause of maternal morbidity and mortality both in developed as well as developing countries. PPH complicates approximately 3.7% of vaginal and 6.4% of caesarean delivery [2]. In the recent triennial confidential enquiry into maternal deaths in UK (2003-2005), PPH remained one of the top 3 causes of direct maternal deaths. In India 25.6% of maternal death are due to haemorrhage [3]. Atonic uterus accounts for 75-90% of primary PPH [4]. Postpartum haemorrhage (PPH) is defined as estimated blood loss of 500 ml after vaginal delivery or 1000 ml after cesarean section [5]. Another definition of PPH is a reduction in the patients hematocrit level of more than 10% compared with the prelabour value or blood loss causing hemodynamic instability of sufficient degree to require blood transfusion. Atonic ppH, which is one of the most preventable causes of maternal mortality, is found in about 80% of women suffering from primary ppH [6]. Published data have confirmed that the B–lynch surgical technique is safe, effective and free of short and long term complications [7-8-9]. However many modified procedures have emerged from the original technique to achieve optimal results and fewer difficulties during surgery. Various techniques such as cho's square suture and Hayman's modification of the B–lynch suture technique have been introduced adding more available methods of conservative surgery [10].

The PPH management begins with conservative methods like, bimanual uterine compression, Uterotonics agents, and uterine tamponade with balloons. The failure of which mandates surgical intervention like Compression suture, uterine artery ligation. Ovarian artery ligation, internal iliac artery ligation-requires skill and practice and when all these measures fail, hysterectomy is the last resort. Rarely uterine arterial embolisation also requires.

In 1997 Christopher B Lynch devised an innovative technique to treat uterine atony where a continuous suture was used to envelope and mechanically compress the uterus in an attempt to avoid hysterectomy. Since then this technique has been widely used around the world. Later Dr Richard Hayman and Prof. Arulkumaran in Derby modified this procedure of B Lynch suture independently. Here there is no need to open the uterine cavity and the suture on

straight needle is used to transfix uterus from front to back just above reflection of bladder and tied at fundus of uterus which is known as hayman suture.

AIMS AND OBJECTIVE:

An aim of this study is to evaluate effectiveness of B–lynch or modified B-lynch suture in controlling atonic postpartum hemorrhage.

MATERIALS AND METHOD:

This retrospective study was conducted at jay kay lon hospital, Kota.This study included 25,224 patients from From September 2013 to September 2015 out of which 5% (1261) women had primary PPH, while massive PPH occurred in 0.4% (106). Majority of these due to uterine atony .In atonic PPH uterus is soft in contrast to traumatic PPH where uterus is firm, followed by bimanual examination under anesthesia to rule out evidence of trauma. Patient's record was also examined to rule out any preexistent coagulopathy.

We evaluated 25 patients of atonic PPH: 23 during LSCS and 2 after vaginal delivery, where routine uterotonics did not work and we use B-lynch or modified B lynch suture (Haymen suture) to control haemorrhage .While performing cesarean section, in all patients we follow AMTSL as per the protocol. With the delivery of vertex, 10 units inj. syntocinon is given intramuscularly and 20 units is added to the drip, following which inj. Carboprost 250 µgm i.m .is given if the contraction is not satisfactory. After expulsion of placenta, if the uterus is flabby, inj. Ergometrine i.m. (C/I- PIH & heart disease) and 800microgm misoprostol is given rectally with continuous bimanual uterine compression. Inspite of doing all this there was a situation in 25 patients where the uterus was still flabby and continued to bleed. At this hour we applied B-Lynch/Modified B-Lynch suture using vicryl no.1 and a round body needle and hemorrhage was controlled in all 25patients showing an efficacy of 100%.

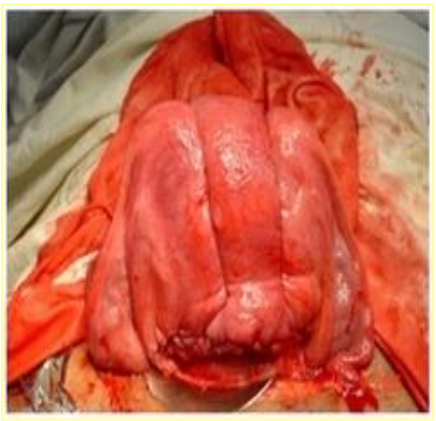

Fig-1: Anterior view of uterus showing Hayman suture Technique

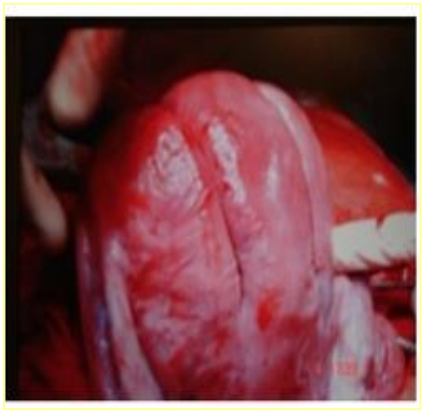

Fig-2: Posterior view of uterus showing Hayman suture Technique

RESULTS

This study included 25,224 patients from From September 2013 to September 2015 out of which 5% (1261) women had primary PPH, while massive PPH occurred in 0.4% (106)majority of these due to uterine atony In our study B-Lynch or modified B-Lynch (Hayman) suture was applied in 25 cases.

Majority of the patients were in the age group of 20-25 year (Table no. 1). Most of them patients were multipera (Table no. 2). Hayman sutures were applied in 25 cases in which 23 cases were delivered by LSCS while remaining 2 cases delivered by normal vaginal route (Table no. 3). Types of intervention are as given in (Table no. 4). In 20 cases Hayman sutures alone applied in 20 cases while in rest of 5 patient's additional methods like ligating uterine artery and ovarian artery were taken.

Table-1: Distribution of cases according to Age

Age in years	Numbers of patients
20-25 yrs	13
25-30 yrs	7
30-35 yrs	5

Table-2: Distribution of cases according to Parity

Gravida	No.of patients
I	2
II	4
III	7
IV	8
V	4

Table-3: Distribution of cases according to Mode of Delivery

Mode of Delivery	Number of cases
LSCS	23
Vaginal Delivery	2

Table-4: Distribution of cases according to Types of Interventions

Surgical management	Number of cases
B-lynch suture	1
Hayman suture	20
Modified B-Lynch +Bilateral uterine artery ligation	3
Modified B-Lynch +Bilateral Ovarian artery ligation	1

- Effective blood loss varied from 900 ml – 1.5 litres.
- Packed cell transfusion varied from 3-5 units. FFP were used in 3 patients of abruptio.
- Post-operative period in all these patients was uneventful except for fever and wound sepsis in 2 patients.

DISCUSSION

The results from this case series suggest that the hayman compression suture is an effective and safe conservative measure for the surgical treatment of major PPH. Compared with B-Lynch suture the Haymen technique is a much simpler procedure, which can easily applied by every obstetrician in an emergency situation. Comparing B-lynch suture with Hayman suture, B-Lynch is time consuming and there is bleeding from uterus due to multiple bites. Uterine opening is avoided with hayman suture. Cervical stenosis, haematometra partial necrosis and sloughing of uterine wall have been documented by various surgeons as a complication of original B-Lynch suture technique. Although uterine atony is the indication for use of B-Lynch suture, but it has been shown in many case reports that this suture is also useful in controlling bleeding in cases of placenta previa and placenta accreta. In our series none of the patients had any adverse outcome; on the contrary the success of the procedure came to be 100%. This procedure is easy and quick to perform

CONCLUSION

In our study Hayman suture was successful in controlling PPH and averting obstetric hysterectomy (OH) in 100% of cases. In our study 31% (4 patient) required selective devascularisation of arteries in addition to B-Lynch suture. There were no major postoperative complications. Modified B-Lynch suture is simple, less time consuming and very effective method of controlling life threatening hemorrhage especially due to uterine atony. It should be attempted as early as possible in order to maximize its success and prophylactic application should be considered in patients at high risk. It is very effective in compressing upper uterine segment but not much satisfactory in creating tamponade effect on lower uterine segment. It is a lifesaving, fertility preserving and cost effective method to control PPH. When conservative measures fail to control bleeding in post-partum haemorrhage, uterovaginal packing, and internal uterine tamponade and modified B-lynch sutures can be used before resorting to hysterectomy. These uterine preserving methods have been used in various countries and have proven to be effective, with minimal maternal morbidity. Successful management of PPH depends on a readily available trained team, experience and confidence of the surgeon and focused and timely decision making.

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