ORIGINAL RESEARCH PAPER

Gynaecology

INTERNAL ILIAC ARTERY LIGATION IN CONTROLLING PPH-SINGLE CENTRE STUDY

KEY WORDS: PPH, IIA, Tranexamic acid

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ABSTRACT

OBJECTIVE: To study the efficacy of bilateral internal iliac artery ligation in controlling postpartum hemorrhage (PPH).
METHODS: It's a retrospective study, of patients, who underwent emergency bilateral internal iliac artery ligation to control postpartum hemorrhage (PPH), during the recent 3 months period October 2018 to December 2018 at Government Kilpauk Medical College Hospital, Chennai. Total deliveries for the above period is of 2134 and 42 patients of them developed primary postpartum hemorrhage.
ETIOLOGY FOR PPH: Uterine atony 38 patients and Placenta previa 4 patients.
TREATMENT: Medical management in 35 patients with uterotonic drugs, fibrin stabilizing drug tranexamic acid and Mechanical therapy by intrauterine balloon tamponade using Foleys catheter in one patient and Surgical management by bilateral internal iliac artery ligation in 6 (14.28%) and bilateral uterine artery ligation in one patient (2.38%) .Adjuvant procedures such as uterine compression suturing also practiced along with.
RESULTS: Out of 6 patients who underwent emergency bilateral internal iliac artery ligation 3(50%) of them required immediate life saving on table subtotal hysterectomy to control PPH. Remaining 3 (50%) patients in whom bilateral internal iliac artery ligation alone done, responded well and PPH was controlled.

INTRODUCTION

Post partum haemorrhage (PPH) is the leading cause of maternal mortality and morbidity world wide.PPH contributes for 19.9% of maternal death in india.PPH occurs in over 10% of all birth ,being 2-4% after vaginal delivery and 6% after caesarean delivery, leading to mortality with an average interval from onset of delivery to death, being 2-4hours.PPH can also occur with no pre-existing risk factors.PPH is defined as the loss of more than 500 ml or 1000ml of blood within the first 24 hours following child birth. Signs and symptoms include tachycardia, tachypnea, hypotension, oliguria, cold peripheries and becoming restless or unconscious. Uncontrolled haemorrhage leads to lethal triad of hypothermia ,acidosis and coagulopathy each of which exacerbates other . PPH can occur up to 6 weeks following delivery. In developing countries 1.2 % of deliveries are associated with PPH.

Primary PPH: Blood loss in excess of 500 ml following vaginal delivery or 1000ml following LSCS in the first 24 hours following birth.

Secondary PPH: This occurs after the first day and upto six weeks after child birth.

The most common etiology for PPH is uterine atony 70%, trauma to lower uterine segment 20%, retained tissue with placental abnormality 09% and coagulopathy 01%.

MEDICAL MANAGEMENT:

1. Resuscitation with rapid blood transfusion.
2. Uterine massage is the simple first line treatment with simultaneous slow infusion of 20 units of oxytocin in 100ml of Ringer lactate proved effective.
3. Slow Intravenous Injection of Tranexamic acid, a clot stablilizing drug can be given in the dose of 1 gm diluted in normal saline.

Non pneumatic anti shock garments for patients with PPH who delivered outside and being referred to higher centre. NASG – reversers shock by compressing the lower body vessels so that circulating directed mainly to core organ such heart, lung, brain, kidney and adrenals.

4. Intra uterine Balloon tamponade using Foleys catheter, which provides pressure over the placental detachment site of uterus in controlling bleeding.

SURGICAL MANAGEMENT:

If medical managements fail or in case of cervical laceration or uterine rupture, stepwise devascularisation as follows,

1. B-Lynch suturing or A-A stitch
2. Uterine artery ligation and ovarian artery ligation
3. Bilateral internal iliac artery ligation
4. Sub total hysterectomy

Christopher B Lynch in1997 introduced compression sutures exerting mechanical compression of the uterine vascular sinus without occluding either uterine artery or uterine cavity.
Uterine artery ligation involves taking large purchases through the uterine wall to ligate the artery at the cervical isthmus above the bladder flap after pushing down the bladder to avoid ureter.

Internal iliac artery ligation is pioneered by Howard Kelly. If the abdomen is not already opened make quick lower midline incision or pfannensteil incision. Hold back abdomen contents and examine pelvic brim. We can see ureter crossing over Common Iliac Artery at the point of bifurcation. Peritoneum covering the iliac vessels opened and reflected. We must not damage the accompanying iliac vein. Lift up ureter and using right angle forceps passing lateral to medial under Internal Iliac Artery and ligate it with 2/0 silk sutures 2cm below its orgin so as to exclude the posterior division. Same procedure done on the opposite side. Avoid tying her Internal Iliac vein which is closely related posteriorly.

Doing so will increase the venous pressure in her uterus and makes bleeding worse. If needed tie the anastamotic vessel that connect her ovarian artery with the uterine artery. Find them in the broad ligament of uterus under the cornual end of fallopian tubes.

MATERIALS AND METHODS

- Study Design :Retrospective Study
- Study Centre: Govt. Kilpauk Medical College Hospital, Chennai, India.
- Study Duration : October 2018 to December 2018
- Total Number of deliveries in the study period: 2134
- Number of PPH in the study period: 42 (1.96%)
- Total number of B/L Internal Iliac Artery ligation : 6
- Number of mortality due to PPH in this study period: 2 (0.09 %)

RESULTS

TABLE 1

Sl no	Etiology for PPH (Total =42)	Numbers	%
1	Uterine atony	38	90.47
2	Placenta Previa	4	9.52
	Total	42	

TABLE 2

SL no	Management of PPH (n =42)	Numbers	%	Outcome
1	Medical management including Intra-Uterine balloon Tamponade	35	85.71	PPH controlled
2	Bilateral uterine artery ligation	1	2.38 %	PPH controlled
3	Bilateral internal iliac artery ligation	6	14.29	3 patients underwent subtotal hysterectomy

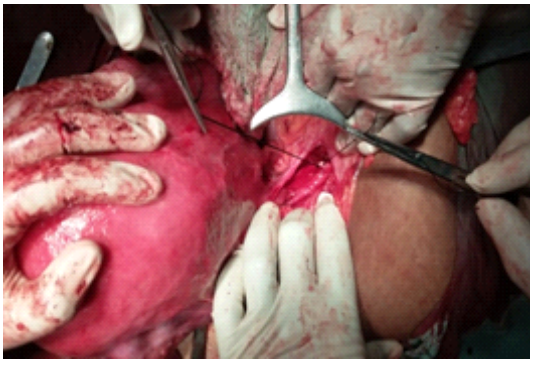

Figure 1. Internal iliac artery ligation for PPH

DISCUSSION

If a woman develops PPH following delivery, tie her both internal iliac artery (IIA) if medical management fails to control. The collateral circulation is so good particularly during pregnancy that tying both IIA is very unlikely to be harmful. IIA ligation helps by reducing 85% of arterial pulse pressure distal to ligation and converts pelvic arterial pressure system into one with pressure approaching those in a venous circulation there by promoting hemostasis.Incidence of PPH in our study is 1.96%.In our study the most common cause for PPH is uterine atony 90.4 % followed by Placenta previa 9.52 %.Placenta previa increase the Risk of PPH because the lower segment to which the placenta was attached contracts less well after delivery. Nearly 85.71% of PPH patients were managed successfully by uterotonics and intrauterine balloon tamponade.We practiced bilateral internal iliac artery ligation in 6 patients (14.29%) to control PPH ,with a success rate of 50% in controlling life threatening post partum hemorrhage.

CONCLUSION

Post partum hemorrhage is a common complication of pregnancy. Prompt intervention will minimize serious squeal of hemorrhage .The major pitfall associated with internal iliac artery ligation is delay. When hemorrhagic shock is irreversible this operation will not overcome it. It is easily performed and no need to divide the artery.Bilateral IIA ligation reduces the hemorrhage from uterine artery appreciably. Bilateral IIA ligation does not appear to interfere seriously with subsequent reproduction.In our study the success rate for bilateral IIA ligation in controlling PPH is 50 %.All obstetric surgeons should be fully aware of the technical aspects of internal iliac artery ligation.

Conflict of interest: Nil

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