Research Article

Role of internal iliac ligation in PPH

Vijay Chandrakant Pawar[1*], Chandrika S Kodla[2], Mangala Shinde[3]

[1]Assistant Professor, [2]Medical Officer cum Lecturer, [3]Professor and HOD, Department of Obstetrics and Gynecology, Dr. V M Government Medical College, Solapur, Maharashtra, INDIA.
Email: drvijaypawar@gmail.com

Abstract

PPH is major cause of worldwide mortality, 13% in developed & 34% in developing countries. Retrospective cross-sectional study was carried out at the department of obstetrics and gynecology at Dr.VM government medical college Solapur over a period of one year (2013). All diagnosed PPH cases who required exploratory laparotomy were included and those who were diagnosed PPH and were treated by medical therapy excluded. During study period of one year 240(3.9%) patients were diagnosed as PPH, 188 (78.3%) of them responded to uterine massage & uterotonics. 52 (21.6%) required surgical intervention. IIAL was performed on 34(65.4%) patients. Among these uterine salvage rate was 60%(21 patients) . Bilateral ligation of internal iliac artery is a safe, rapid and effective way of controlling obstetric and gynecological hemorrhage .Success rate of our study 65.4% including 34 patients.
Keywords: Vaginal Birth after previous LSCS, VBAC.

[*]**Address for Correspondence:**
Dr. Vijay Chandrakant Pawar, T-16, Arjun Tower, Kotnis nagar, Vijapur Road, Solapur-413004, Maharashtra, INDIA.
Email: drvijaypawar@gmail.com
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INTRODUCTION

PPH is major cause of worldwide mortality, 13% in developed and 34% in developing countries.[1] Known risk factors for occurrence of atonic PPH include a history of PPH, history of retained placenta, placental abruption, placenta praevia, uterine fibroids, hydramnios, multiple pregnancies, augmentation of labour, prolonged labour and instrumental delivery. Although an assessment of risk factors is important, PPH typically occurs unpredictably and no parturient is exempt from the risk of PPH. Howard Kelly first pioneered ligation of the internal iliac (hypogastric) artery in the treatment of intraoperative bleeding from cervical cancer prior to this technique being applicable to postpartum hemorrhage[1]. Any obstetrician who attends and experiences a case of severe postpartum hemorrhage clearly understands the risk of losing a patient from hemorrhage[2]. The memory will last forever. Modern methods offer the likelihood of resuscitation and survival through competent management by medical means or conservative surgery before such patients reach the point of exsanguinations. However, when it becomes obvious that conservative methods have failed, unilateral or bilateral internal iliac artery ligation should be considered urgently[2,3], Choice of patient depends on Parity, her desire for childbearing, extent of haemorrhage and experience and judgement of surgeon. Rationale for IIAL based on hemodynamic studies of Burchell have shown that, in postpartum hemorrhage, the reduction of pulse pressure may only be achieved in 48% of cases[4]. Reported complications include nerve injury, inadvertent ligature of the common iliac artery, prolonged blood loss and prolonged operative time. It has also been reported that there is a high rate of complication and low rate of success for hemostasis if the procedure is not done correctly[5]. Therefore, this procedure should be reserved for hemodynamically stable patients of low parity in whom future child-bearing itself is of paramount concern ANATOMY OF INTERNAL ILIAC ARTERY The pelvic vasculature is arranged in such a manner that there is ample collateral circulation. The common iliac artery bifurcates into two main branches – the external iliac artery (which becomes the femoral artery at the inguinal ligament) and the internal iliac (hypogastric) artery which descends into the true pelvis. The latter divides into anterior and posterior branches. It is essential to identify this division because the uterine artery branches off from the anterior division.

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Physiology of internal iliac artery ligation

There is excellent collateral circulation in the pelvis so vascular compromise does not occur when one or both internal iliac arteries are ligated. At one time, ligation of the hypogastric system was regarded as equivalent to shutting off all the blood to the area. There virtual abolition of the arterial pulse pressure. This is associated with reduced mean blood pressure and rate of blood flow in the collateral system. As a result, the trip-hammer effect of arterial pulsations is abolished[6]

METHODS AND METERIALS

Study Design: Retrospective cross-sectional study
Study Setting: Dept of OBGY, VMGMC, Soapur.
Study Duration: 1 jan 2011 to 31 dec 2013

Inclusion Criteria

all diagnosed PPH cases who required exploratory laprotomy

Exclusion Criteria

Diagnosed PPH cases who treated by medical therapy. Therapeutic IIAL was performed in women with PPH either at caesarean section or at laparotomy performed at a variable time after vaginal or caesarean delivery. IIAL was also performed prophylactically at caesarean section in women with a high-risk factor for developing PPH, such as coagulopathy, placenta praevia or placental abruption, in the absence of any evident haemorrhage.

Surgical Technique

An incision is made inferolaterally and parallel to the ureter, The peritoneal flap under which the ureter runs is displaced medially and retracted away The internal iliac at the point of its bifurcation into the anterior and posterior divisions seen and palpated with its vein and the obturator nerve. The main arterial branch of the internal iliac ligated by passing a right angle, suture passed btw the artery and the vein. Since the posterior division is given off within 3 cm from the bifurcation, most of the times what is ligated beyond 3 cm from bifurcation is the anterior division of internal iliac artery.

RESULTS

During study period of three years 5812 deliveries were occurred, 240(3.9%) of these patients were diagnosed as PPH, 188 (78.3%) of them responded to utrine massage and uterotonics. 52 (21.6%) reguired surgical intervention.
IIAL was performed on 34(65.4%) patients. Among these uterine salvage rate was 60% (21)

BASE LINE CHARECTERISTCS

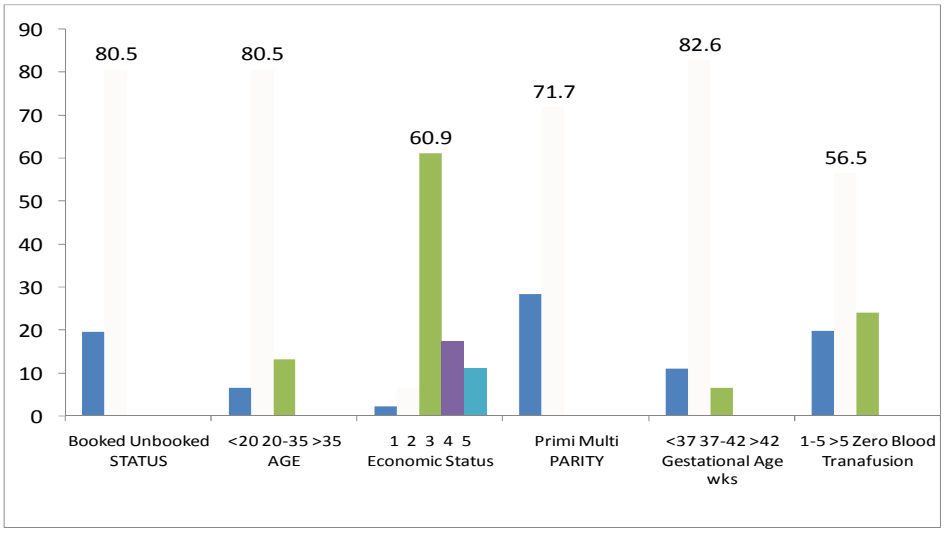

Table 1: Women with uterine haemorrhage

Indication	IIAL	Hysterectomy even after iial	Uterine salvage rate	P valve
Uterine atony	11	3	8 (77.7%)	<0.03
Abruptio pacenta	7	3	4(57.4%)	<0.05
Placenta praevia	9	4	5 (55.6%)	<0.04
Uterine rupture	4	2	2 (50%)	<0.1
HELLP syndrome	3	1	2 (66.6%)	<0.05
Total	**34**	**13**	**21(60%)**	

Table 2: Women who underwent prophylactic IIAL

Indication	IIAL	HYSTERECTOMY	UTERINE SALVAGE RATE
Pacental abruption	4	0	100%
Placental praevia	5	0	100%
coagulopathy	3	0	100%
Total	**12**	**0**	

DISCUSSION

Bilateral ligation of internal iliac artery is a safe, rapid and effective way of controlling obstetric and gynecological hemorrhage .Success rate of our study 65.4% including 34 patients Bilateral internal iliac artery ligation is an effective life saving method to control obstetrical and gynaecological hemorrhage and a hysterectomy can often be avoided. Ligation of internal iliac artery was first performed by Kelly[2] with a success rate 95% and without any major complication. Mukherjee *et al* performed 36 cases of internal artery ligation with a success rate of 83.3% in 6 years. In their recently conducted study including 58 patients[7,8] Unal *et al*. reported effectiveness of the method as 87.9 percent. Similarly, in their review of the results of retrospective studies encompassing 52 patients who had undergone internal artery ligation[9], Chelli *et al* indicated a 82.45 % success rate (10. Within the frame of literature findings, and results of our study, we think that BIIAL is a life-saving method with smaller number of side effects in obstetrical bleedings refractory to medical treatment.

Potential failures and consequences

Occasionally, ligation of the hypogastric arteries fails to stem pelvic hemorrhage. The reason for this is not clear, but some suggestions are:

1. Massive necrosis after infection with destruction of the vessels;
2. The presence of large, aberrant branches feeding blood to the area;
3. Dislodgement of clots when blood pressure rises;
4. Concomitant severe venous bleeding; however, this is rare;
5. Coagulopathy with deranged hematological indices.

CONCLUSION

- Internal iliac ligation is easily applicable, safe and effective method in experienced hands for management of life threatening obstetrical haemorrhage
- IIAL effectively prevents hystrectomy in women with atonic PPH
- In traumatic PPH it facilitates hystrectomy or repair as indicated and prevents reactionary haemorrhage.

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