(e) ISSN Online: 2321-9599
(p) ISSN Print: 2348-6805
SJIF (Impact factor) 2017= 6.261
Index Copernicus value = 80.90

ORIGINAL ARTICLE

Management of patients with uncontrolled bleeding using internal iliac artery ligation

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ABSTRACT:
Background: Various surgical techniques have been described in PPH patients refractory to massage and uterotonic therapy. The present study was conducted to manage patients with uncontrolled bleeding using IIAL. **Materials & Methods:** 46 patients with uncontrolled bleeding, who had been undergoing LSCS and hysterectomy were included in the study. Obstetrical and demographic characteristics of the patients including age, parity, risk factors, duration of the operation and complications, blood loss and transfusion, hospital stay, morbidity- mortality information were recorded. **Results:** Risk factors for IIAL were PIH in 18, Prior CS/ Prior scar in 12, anaemia in 7, forceps delivery in 4, abruption placenta in 3 and placenta praevia in 2 cases. The difference was significant (P< 0.05). Indications for IIAL were Placenta praevia in 2, abruption placenta in 3, uterine atony in 22, broad lig. Hematoma in 10 and uterine rupture in 9 cases. The difference was significant (P< 0.05). Associated procedures performed was subtotal hysterectomy in 13, B-Lynch sutures in 9 and ovarian a. ligation in 8 cases. The difference was non- significant (P> 0.05). **Conclusion:** When performed by skilled professionals, internal iliac artery ligation is a simple, safe, and efficient way to treat life-threatening obstetrical bleeding, such as postpartum atony.
Keywords: Internal iliac artery ligation, placenta praevia, Postpartum hemorrhage

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This article may be cited as: Jain S. Management of patients with uncontrolled bleeding using internal iliac artery ligation. J Adv Med Dent Scie Res 2017;5(9):170-172.

INTRODUCTION

Postpartum hemorrhage (PPH) is traditionally described as bleeding more than 500 milliliters following the end of the third stage of labor. Typically, 25% of maternal morbidities—and 60% in developing nations—are caused by irregular postpartum bleeding that is not treated in a timely manner.[1] One of the top five causes of maternal death globally is PPH. An increase in chronic morbidities such as severe anemia, respiratory tract disorders, and renal failure is another problem.[2]

Various surgical techniques have been described in PPH patients refractory to massage and uterotonic therapy.[3] Uterine compression sutures, bilateral uterine or internal iliac artery ligation and as a last resort subtotal or total hysterectomy can be performed.An emergency IIAL is a straightforward, safe, and very effective surgical technique for managing pelvic hemorrhages in obstetric and gynecological patients.[4] By preventing hysterectomies in certain circumstances, it is a life-saving operation that maintains the ability to reproduce. When postpartum hemorrhages are caused by uterine atony rather than obstetric trauma, an immediate IIAL is recommended.[5] IIAL, however, has been shown to be beneficial in patients with placenta accreta and uterine ruptures. Instead of a hysterectomy, IIAL is advised for a supra-levator hemorrhage that does not improve with conservative therapy. The literature has provided a thorough description of the surgical methods and their efficacy.[6,7]The present study was conducted to manage patients with uncontrolled bleeding using IIAL.

MATERIALS & METHODS

The study was carried out on 46 patients with uncontrolled bleeding, who had been undergoing LSCS and hysterectomy. All gave their written consent to participate in the study.

Data such as name, ageetc. was recorded. Obstetrical and demographic characteristics of the patients including age, parity, risk factors, duration of the operation and complications, blood loss and transfusion, hospital stay, morbidity- mortality information were recorded. Our treatments involved two approaches to the internal iliac artery: opening the peritoneum between the ovarian ligament and the Round ligament, then reaching the Common Iliac Artery bifurcation. Through a straight peritoneal incision across the common iliac artery bifurcation. Both methods prevented damage to the internal iliac veins by medially retracting the ureter. Two ties, positioned firmly and gently 0.5 cm apart and 1–1.5 cm below the bifurcation, were used to ligate the artery with 1-0 vicryl. We checked for pulsations in the femoral and dorsalis paedis arteries to rule out unintentional external iliac artery ligation. Results thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table IObstetric risk factorof patients

Risk factor	Number	P value
PIH	18	0.02
Prior CS/ Prior scar	12	
Anaemia	7	
Forceps delivery	4	
Abruption placenta	3	
Placenta praevia	2	

Table I shows that risk factors for IIALwere PIH in 18, Prior CS/ Prior scarin 12, anaemiain 7, forceps delivery in 4, abruption placenta in 3 and placenta praevia in 2 cases. The difference was significant (P< 0.05).

Table II Indications of IIAL

Indications	Number	P value
Placenta praevia	2	0.05
Abruption placenta	3	
Uterine atony	22	
Broad lig. Hematoma	10	
Uterine rupture	9	

Table II, graph I shows that indications for IIAL were Placenta praevia in 2, abruption placenta in 3, uterine atony in 22, broad lig. Hematoma in 10 and uterine rupture in 9 cases. The difference was significant (P< 0.05).

Graph I Indications of IIAL

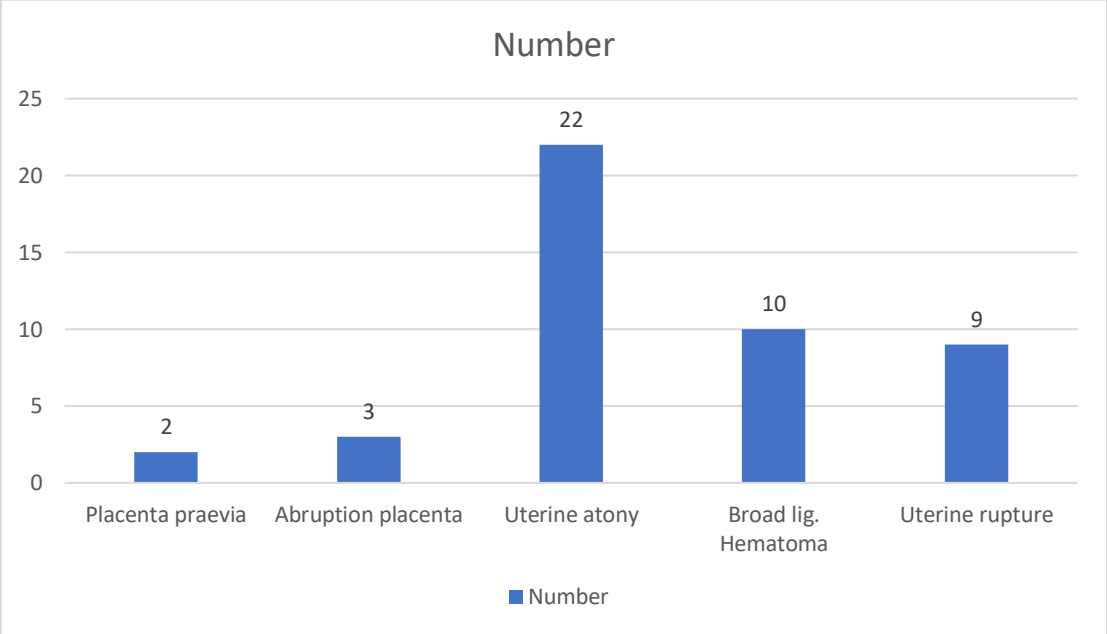

Table III Associated procedures

Associated procedures	Number	P value
Subtotal Hysterectomy	13	0.47
B-Lynch sutures	9	
Ovarian a. ligation	8	

Table III shows that associated procedures performed was subtotal hysterectomy in 13, B-Lynch sutures in 9 and ovarian a. ligation in 8 cases. The difference was non- significant (P> 0.05).

DISCUSSION

India is among those countries which have a very high maternal mortality and the major cause according to the 2001-2003 SRSSurvey, is haemorrhage (38%). The single most common cause which accounts for a quarter of all the maternal deaths is an obstetric haemorrhage.[8]Among them, Internal iliac artery ligation (IIAL) is a surgical approach which causes a drop in arterial pressure and virtual elimination of the Trip-hammer effect and also preserves fertility.[9] It is not used routinely due to the disadvantages like careful dissection of the retro peritoneum, closeness of the ureter to the iliac vessels and inadvertent ligation of the external iliac artery.[10]The present study

was conducted to manage patients with uncontrolled bleeding using IIAL.

We found that risk factors for IIAL were PIH in 18, Prior CS/ Prior scar in 12, anaemia in 7, forceps delivery in 4, abruption placenta in 3 and placenta praevia in 2 cases. Nizard J et al[11]studied parameters in women who required hypogastric artery ligation for severe post-partum haemorrhage in our institution over a 13-year period.A total of 68 patients required hypogastric artery ligation during the study period. Seventeen patients had 21 pregnancies with 13 term deliveries, two ectopic pregnancies, three miscarriages, and three abortions. Twenty-eight patients did not want a new pregnancy and one patient refused the interview. Twenty-three (34%) patients were lost to follow up. None of the patients suffered subsequent infertility and pregnancy was achieved in <12 months once planned. Pregnancy outcomes were normal. Fifty-four percent had vaginal deliveries. Three patients suffered a threatened post-partum haemorrhage that was easily treated medically.

We found that indications for IIAL were Placenta praevia in 2, abruption placenta in 3, uterine atony in 22, broad lig. Hematoma in 10 and uterine rupture in 9 cases. Kalburgi et al[12]described the indications, the surgical techniques and the effectiveness in controlling the pelvic haemorrhages in the obstetrics and the gynaecology cases. 16 patients could be successfully treated and two patients died due to delays in performing the surgery (an increased interval between the primary surgery and the BIIAL).

We found that associated procedures performed was subtotal hysterectomy in 13, B-Lynch sutures in 9 and ovarian a. ligation in 8 cases. Camuzcuoglu H et al[13]evaluated the effect of internal iliac artery (IIA) ligation performed for severe postpartum hemorrhage (PPH).The 33 women underwent IIA ligation due to uterine atony (n = 22), placenta previa accreta/increta/percreta (n = 5), uterine rupture (n = 4), and placental abruption (n = 2). Twenty-four women underwent IIA ligation as the primary surgical intervention. IIA ligation resulted in control of bleeding in 18/24 women (75%), and only 6/24 women (25%) showed unsuccessful management of bleeding with IIA ligation. In the six women for whom the bleeding was not controlled with IIA ligation, hysterectomy was urgently performed before closure of the abdomen. After obtaining adequate hemostasis with IIA ligation, no women required relaparotomy in the postoperative period. Nine women with persistent bleeding following hysterectomy were also treated with IIA ligation. In our study, there were no intraoperative or postoperative complications related to the procedure.

The shortcoming of the study is small sample size.

CONCLUSION

Authors found that when performed by skilled professionals, internal iliac artery ligation is a simple, safe, and efficient way to treat life-threatening obstetrical bleeding, such as postpartum atony.

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