

Emergency Bilateral Internal Iliac Artery Ligation – A Hospital Based, Cross Sectional Study

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ABSTRACT

Background: A pelvic haemorrhage is a life threatening complication in both gynaecology and obstetrics cases and it has to be controlled immediately. Bilateral Internal Iliac Artery Ligation (BIIAL) is a time tested and an easy method and it achieves this goal without compromising the rest of the pelvic blood supply.

Objective: This study was done to describe the indications, the surgical techniques and the effectiveness in controlling the pelvic haemorrhages in the obstetrics and the gynaecology cases.

Material and Method: A total of 18 emergency BIIALs were

performed between 2001-2010 in the obstetrics and gynaecology cases by the general surgeons and the gynaecologists.

Results: 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).

Conclusion: An emergency BIIAL is a safe, effective and a simple technique to adopt. A delay in performing the procedure increases the mortality and the morbidity. This technique should be performed more often when it is indicated by obstetricians and gynaecologists.

Key Words: Postpartum haemorrhage, Hysterectomy, Internal iliac artery ligation

INTRODUCTION

An emergency BIIAL is a highly effective, simple and a safe surgical procedure for controlling the pelvic haemorrhages in gynaecology and obstetrics patients. It is a life saving procedure which preserves the reproduction capacity by avoiding hysterectomies in such situations. An emergency bilateral IIAL is indicated mainly in the post partum haemorrhages which are due to the atony of uterus rather than due to an obstetric trauma. However, some have reported the useful use of bilateral IIAL in patients with ruptured uteri and placenta accreta [1]. For a supra-levator haematoma which does not respond to a conservative management, the recommended treatment is BIIAL and not hysterectomy [2]. The surgical techniques and their effectiveness have been extensively described in the literature [3,4].

MATERIALS AND METHODS

A total number of 18 emergency BIIALs were performed between 2001-2010 in the obstetrics and gynaecology cases by the general surgeons and the gynaecologists. Among the 18 patients in whom we did BIIAL, in 8 patients, the surgery was performed at a referral centre (a teaching hospital) and in the other 10, it was done in a private hospital.

Inclusion criteria: The patients with uncontrolled bleeding, who had been undergoing LSCS and hysterectomy,. 8 such cases were included in our study.

Exclusion criteria: The patients with normal intra operative blood losses were excluded from the study.

8 patients with atonic Post Partum Haemorrhages (PPHs) following vaginal deliveries were referred to the surgeon by obstetricians within 5 to 8 hours of the child birth, after there was a failure to

control the PPH by conservative methods. All the 8 patients were successively managed by doing BIIALs [Table/Fig-1].

5 women who developed post LSCS bleeding required emergency BIIALs. The indication for LSCS in three cases was foetal distress and in two cases, it was a Cephalo-Pelvic Disproportion (CPD). One patient died after 8hrs of doing the BIIAL due to a delay in performing the surgery.

Among 3 of 5 women who required BIIALs for pelvic haemorrhages following abdominal hysterectomies, one woman died due to a delay in performing the surgery (an increased time in between the primary surgery and the BIIAL). There was a huge pelvic haematoma and an irreversible shock.

THE SURGICAL TECHNIQUE

All the patients in this study underwent BIIAL by a transperitoneal approach under spinal anaesthesia through an existing incision for the primary surgery. The pelvic haematoma was evacuated and the puerperal uterus was moved anteriorly, away from the line of the incision in the retroperitoneum and it was incised in line with the ureter, after identifying both the ureters and after the bifurcation of the aorta into the right and left common iliac arteries on either side. The division of the common iliac artery into the internal and the external iliac arteries were dissected. Sutures were placed around the internal iliac artery, by working within the adventitia of the artery, to avoid damage to the veins which were in the vicinity of the artery. Before the ligation of the artery, it was confirmed again by palpating the pulsations at the level of the femoral artery, by the surgeon and the assistant. We used Vicryl no 1 for the ligature. The artery was tied without cutting the vessel. There were no pre-operative and post-operative complications. The time which was taken to perform the surgery was 30 minutes.

RESULTS

In the obstetric cases, the age group ranged from 18-30yrs and in the gynaecology cases, the age group ranged from 45-52yrs. Among the total 18 cases which underwent BIIAL, 13 underwent it for obstetric causes and 5 underwent it for gynaecological causes. Among the 13 obstetric cases, 9 were primis and only 4 were mults. For 10 women, the BIIAL was performed in a private hospital and for 8 women, it was performed in a medical college hospital (a tertiary care centre). One woman with post abdominal hysterectomy with a pelvic haematoma and another woman with post LSCS with PPH died due to a delay in performing the BIIAL (the time interval between the primary surgery and the BIIAL was 8 hours).

Causes	Age	Parity	Time Interval	Units Of Blood Transfused	Out come
[1] Post partum haemorrhage following vaginal delivery. Atonic PPH-(8)	1) 20yrs	Primi	2 hrs	1	Survived
	2) 22yrs	Primi	3 hrs	1	Survived
	3) 18yrs	Primi	4 hrs	2	Survived
	4) 25yrs	Multi	4 hrs	2	Survived
	5) 27yrs	Multi	5 hrs	3	Survived
	6) 26yrs	Multi	5 hrs	3	Survived
	7) 23yrs	Primi	6 hrs	3	Survived
	8) 22yrs	Primi	6 hrs	4	Survived
[2] Post partum haemorrhage following LSCS-(5) a) Foetal distress-(3). b) CPD-(2).	1) 21yrs	Primi	8 hrs	4	Died
	2) 30yrs	Multi	On Table	-	Survived
	3) 26yrs	Primi	6 hrs	4	Survived
	4) 28yrs	Primi	5 hrs	2	Survived
	5) 23yrs	Primi	On Table	-	Survived
[3] Following abdominal hysterectomy (5). a) Fibroid uterus-(3) b) DUB-(2)	1) 45yrs	Multi	On Table	-	Survived
	2) 50yrs	Multi	8 hrs	3	Died
	3) 48yrs	Multi	On Table	-	Survived
	4) 46yrs	Multi	6 hrs	3	Survived
	5) 52yrs	Multi	5 hrs	2	Survived

[Table/Fig-1]: Different parameters studied in patients underwent BIIAL

	Total	Obstetric indications	Gynaecological indications	Complication rate
Dalvi et al	16	12	4	6.2%
Chattopadhyay SK8	29	29		15.7%
YS Nandanavar et al	46	46		8.69%
Present study	18	13	5	Nil

[Table/Fig-2]: Comparison of Complication Rates of Internal Iliac Artery Ligation

In the other 16 women, we were able to control the haemorrhage effectively. 2 patients who underwent BIIALs following LSCS and another 2 patients who underwent BIIAL following abdominal hysterectomies, who were on table i.e immediately following the primary surgery, did not require blood transfusions. Whereas, the rest of the 14 patients who underwent BIIALs with a significant time interval following the primary surgery, required blood transfusion.

DISCUSSION

India is among those countries which have a very high maternal mortality and the major cause according to the 2001-2003 SRS

Survey, is haemorrhage (38%). The single most common cause which accounts for a quarter of all the maternal deaths is an obstetric haemorrhage.

Reich and Nechtow [5] have emphasized that the bigger pitfall with BIIAL was waiting too long to perform it.

Some surgeons combine BIIAL with bilateral ovarian artery ligation to improve the haemostatic effect [6,7].

In the present study there were no complications noted as compared to the previous studies [Table/Fig-2].

The facilities in the private hospitals will be inadequate in terms of the availability of blood, the manpower and the equipments, which need to be corrected.

Though BIIAL is life saving, it also has some complications which one has to be aware of, while this procedure is performed. The reported complications with BIIAL are:

1. An inadvertent ligation of the external iliac artery. This can be avoided by the assistant by appreciating the femoral pulsations, when the artery is compressed manually by the surgeon before the ligation.
2. An injury to the internal iliac vein.
3. An injury to the ureter.

CONCLUSION

In spite of the availability of simpler and effective methods to control post-partum haemorrhages, the mortality and the morbidity are still higher. In certain situations, the surgical intervention and BIIAL saves lives. An early BIIAL has been emphasized, as a delay leads to an irreversible haemorrhagic shock and multiorgan failure, as it was observed in one of our cases. Bilateral ligation of the main trunk of the internal iliac artery is essential for an effective control of the haemorrhage.

IILAL is technically simple and safe and it has minimum operative complications and a short learning curve. Obstetricians and gynaecologists can adopt this operative technique to save lives in emergency situations in private hospitals. The post-graduates need to be trained in performing this life saving surgical procedure in medical college hospitals.

In spite of the bulky uterus and the big haematoma in the pelvis, the exploration of the retroperitoneum in the pelvis and the identification of both the internal iliac arteries and the in situ ligation were not difficult.

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