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Research Article

Effectiveness of Bilateral Internal Iliac Artery Ligation in the Management of Refractory Post Partum Haemorrhage

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Abstract

Background: Postpartum haemorrhage (PPH) is a common and lethal emergency leading to thousands of causalities. It can cause life threatening complications which necessitate urgent management. Refractory PPH can be managed surgically. Bilateral Internal Iliac Artery Ligation (IIAL) is sometimes used for this purpose.

Aims and Objectives: To analyze efficacy of bilateral IIAL in refractory PPH

Study Design: Prospective case series analysis of women requiring bilateral IIAL due to refractory PPH

Duration: January 2015 to December 2018

Centre: DHQ teaching hospital, Gujranwala, a tertiary care centre with referral from whole district Gujranwala

Sample size: 30 patients

Methodology: All the patients meeting the inclusion and exclusion criteria were included in the study after obtaining informed consent. All underwent hysterectomy followed by BIIAL. In all the cases, surgery was performed by experienced obstetricians and gynecologists. Patients were observed for post operative complications during hospital stay and were followed up for 3 months. The collected data was analyzed using SPSS 20.

Results: Maternal survival rate was 100%.Uterine atony (70%) was the most common indication. Fifteen (50%) patients developed no postoperative complications. Pneumonia was observed in 5 patients. Three (10%) developed disseminated intravascular coagulation and acute renal failure, with all surviving.

Conclusion: Bilateral IIAL was considered to be effective in managing refractory PPH.

Keywords: Refractory Post-Partum Haemorrhage, Bilateral Internal Iliac Artery Ligation,

Introduction

Postpartum hemorrhage (PPH) is defined as "loss of more than 500ml of blood after delivery"[1]. PPH is a very common emergency accounting upto 18% in all births [2]. PPH accounts for 13-34% of maternal mortality depending on availability of facility and faculty [3]. It also causes morbidity fortwenty million women in a year [4].

The common causes of PPH includes atonic uterus, trauma to genital tract, retained tissue, placental abnormality (placenta praevia ,accreta, increta) and bleeding disorders [5-8]. Among all these causes, uterine atony is the most common cause of PPH [9]. There are several risk factors of PPH, including macrosomia, polyhydrominas , instrumental deliveries, and previous history of PPH [6,10-12]. Also, PPH can occur without any risk factor [13].

PPH can cause multiple complications, includinganemia, orthostatic hypotension, fatigue, depression, pituitary necrosis , myocardial ischemia, shock and death [14-17].: prompt treatment is mandatory. Uterine massage, use of uretotonic agents (oxytocin, prostaglandins and ergot alkaloids), anti-coagulopahty treatment, suturing the bleeding site [18-26].

Refractory PPH is one not responding to all conservative measures. After failure of aggressive medical treatment, surgical intervention is needed to stop bleeding. Bilateral Internal iliac Artery ligation (IIAL) is reported to be the life-saving procedures

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in refractory PPH. IIAL has proven effectiveness ranging from 40 -100% of such cases [27,28]. This also averts the removal of uterus, which preserves fertility [28,29]. However, this process has a drawback: reopening of abdomen might be needed in few cases due to inability to stop haemorrhage [28, 30]. Here, we report a case series of refractory PPH at a tertiary care centre in which bilateral IIAL and hysterectomy was done to manage bleeding and outcome was measured.

Methodology

Aims and Objectives: To Analyze efficacy of bilateral IIAL in refractory PPH

Study Design: Prospective case series analysis of women requiring bilateral IIAL due to refractory PPH

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Centre: DHQ teaching hospital, Gujranwala, a tertiary care centre with referral from whole district Gujranwala

Sample size: 30 patients meeting inclusion and exclusion criteria were studied.

Inclusion and Exclusion Criteria

Included were: all the patients who were refractory to conservative measures (i.e.,uterine massage, uretotonics, balloon tamponade, suturing, removal of retained products, placental separation) and required hysterectomy and IIAL. Those who responded to conservative treatment or died during treatment were excluded from the study.

Procedure

All the patients meeting inclusion and exclusion criteria were included in the study after obtaining informed consent. All the patients were operated by consultant gynecologists having at least 3 year experiences in this department. Patients were observed for post operative complications during the stay in the hospital and were followed up for 3 months. The collected data was analyzed using SPSS 20.

Results

Mean age was 28.9 ± 4.32. Of 30, 16 (53.3%) had vaginal delivery and 14 (46.7%) underwent c_ sections (CS) Pre-operative assessment for risk factors and USG findings revealed following findings (Table 1).

Regarding the causes of PPH, uterine atony (70%) was the most common and was present in 21 patients. Five patients had placental abnormalities which caused PPH. Pre-operative assessment for risk factors and USG findings revealed following findings (Table 2).

Table 1: Pre-operative assessment for risk factors and USG findings revealed following findings

Normal USG with single Baby	13 (43.3%)
Polyhydrominas	2(6.7%)
Twin Pregnancy	3(10%)
Placenta Preavia	7(23.3%)
Placenta Accreta	3(10%)
Placenta increta	1(3.3%)
Placenta percreta	1(3.3%

Table 2: Relative distribution among the causes which was observed in our study is given below

CAUSES OF PPH	Frequency
Uterine Atony	21(70%)
Placental Abnormality	5(16.7%)
Uterine Rupture	2(6.7%)
Coagulopathy	2(6.7%)

Table 3: Frequency of post-operative complications is shown in

Post-Operative Complications	Frequency
Pneumonia	5(16.7%)
Paralytic Ileus	2(6.7%)
DIC with Acute Renal Failure	3(10%)
Wound Infection	5(16.7%)
No post-operative Complication	15(50%)

In all the included patients, hysterectomy was first performed before bilateral IIAL. Outcome in term of maternal survival was 100% for this procedure. Average length of stay of patient at hospital was 7.76 (± **2.77) days.** 15(50%) patients did not develop any postoperative complication. Pneumonia was seen in 5 patients in postoperative period. 3 (10%) patients developed disseminated intravascular coagulation and acute renal failure post operatively. All three survived. Frequency of post operative complications is shown in (Table 3).

Discussion

We performed hysteretomy + bilateral IIAL in 30 patients with refractory PPH. All 30 patients survived, meaning that survival rate being 100%.

Post-operative complications (POC) included pneumonia, paralytic ileus, DIC with ARF and wound infection. It was found that POC were observed more frequently with SVD's. All the 3 cases who developed DIC with acute renal failure were delivered normally. More over it was also seen that POC were more frequently observed in uterine atony than any other cause of PPH. This suggests that we must be cautious for PPH after vaginal deliveries. This may be due to the general tendency that physicians and care-givers may lessen their attention for women after vaginal deliveries, compared with those after CS. Earlier detection of severe PPH may give us time to prepare the surgery, whereby increasing the chance of survival.

IAAL with uterine salvage is also an effective and a safe procedure with preservation of fertility. [31, 32, 33]. This led to success rate ranging from 40% to 100%.However, they are not comparable to our results: in the present study, we performed hysterectomy followed by IIAL. We do not study which is better, IIAL alone or hysterectomy+IIAL, in this study. IIAL alone procedure sometimes requires re-laprotomy, which increases maternal mortality and morbidity, especially in a resource poor situation. In this regard, IIAL with hysterectomy may be safer and effective in terms of survival of mother. Drawbacks of our study were impairment of fertility, more time requiring lengthy procedure resulting in more POC and increased morbidity than IIAL only .we do not intend to claim the superiority of our present procedure over IIAL alone procedure; however, this may lead to better haemostasis, and thus may become an option especially for women who do not wish fertility.

Declarations Section

Ethics approval and consent to participate

The study protocols and informed consent documents were approved by the Institutional Bioethics Review Committee (IBRC).

Consent to publish

Informed written consent for publication was obtained from each participant.

Availability of data and materials

The datasets used and/or analyzed during the study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

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