



Original Article

The Hayman Technique: A Simple Method to Treat Postpartum Hemorrhage due to Placenta Praevia

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Abstract

Aim:

To assess effectiveness of Hayman suture to control postpartum haemorrhage due to placenta praevia during caesarean section

Methods: It is a cross sectional observational study performed in Rajshahi Medical College Hospital, tertiary level hospital, from January 2016 to December 2016. It included 32 patients with PPH following placenta praevia during elective & emergency caesarean section (C/S). All 32 patients underwent horizontal compression suture (bilateral anteroposterior compression) of lower uterine segment. Vicryl 0 tapercut needle was used. All patients were followed postpartum for evaluation of uterine cavity and menstrual cycles.

Results

Hayman suture was applied in 32 cases. In 27 cases Hayman suture was the only intervention. Hayman with uterine artery ligation required in 2 cases. In 1 patient along with Hayman B-lynch compression suture was given and 2 patients required total hysterectomy.

Conclusion:

The quick and simple Hayman technique seems to be effective, safe, lifesaving method in stopping hemorrhage due to placenta praevia.

Key words: Postpartum hemorrhage, Hayman suture, B-lynch suture, compression suture.

TAJ 2017; 30: No-1: 66-69

Introduction:

Postpartum hemorrhage defined as estimated maternal blood loss >500ml.¹ It has been estimated that worldwide over 125,000 women die of postpartum hemorrhage (PPH) every year.²

Placenta praevia occurs in approximately four of every 1000 pregnancies beyond 20th week of gestation³. Prompt diagnosis and effective action are the cornerstones of management and are

crucial to prevent fatal maternal hemorrhage. In cases of severe PPH occurring during a C/S or when intervention radiology facilities are not rapidly available, surgical uterine sparing procedures should be considered before resorting to hysterectomy. After removal of placenta during caesarean section, massive hemorrhage can occur in placenta praevia cases. Due to poorly contractile nature of lower uterine segment, this hemorrhage

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can't be controlled pharmacologically. So several modalities are suggested to reduce bleeding like packing of lower uterine segment with gauze⁴, oversewing the implantation site with interrupted sutures.⁵ Performing a step wise uterine vessels ligation⁶, compressing the uterus with an original or modified B-lynch procedure⁷, ligating internal iliac arteries,⁸ uterine artery embolization and finally haemostatic hysterectomy.⁴

Whereas uterine artery ligation is not difficult to perform few practitioners are familiar with internal iliac artery ligation that is associated with major complication.⁹ In 1997, Christopher B-lynch devised an innovative technique, where a continuous suture was used to envelop and mechanically compress the uterus in an attempt to avoid hysterectomy.¹⁰ Among the conservative surgical procedure to treat PPH, a simplification of B-lynch procedure has been proposed by Hayman et Al.¹¹ Hayman suture offers potential advantage that it can be applied faster and easier and could be effectively used to treat hemorrhage after removal of a placenta praevia. Our study reviews the cases in which Hayman suture was used for treatment of severe PPH caused by placenta praevia during cesarean section and their clinical outcomes are discussed.

Materials and methods:

From January 2016 to December 2016 the study was conducted in tertiary level hospital, Rajshahi Medical College Hospital. Protocol was approved by institutional review board.

All women with placenta praevia with other obstetric indication undergoing a LSCS (elective/emergency) were enrolled in the study. Placenta percreta or accreta was excluded. After PPH diagnosed protocol for management of PPH was used. Despite suturing obvious bleeder, when no effective control of bleeding was obtained, Hayman compressive suture was performed. The procedure was done with vicryl no-0 (polyglactin) in all cases.

The procedure was as follows:

1. Uterus was exteriorized and uterus was punctured at least 3cm below the level of

cesarean section (CS) incision, 2cm medial to edge of right uterine wall.

2. The needle was passed from anterior to posterior wall then back again to the anterior surface of the uterus, 1cm medial to previous entry point.
3. The suture was tightened with a classic surgical knot.
4. A second compressive suture was then passed to the opposite side of uterus using the same technique.

If above technique failed, ligation of uterine artery & B-lynch brace suture was performed. Decision of haemostatic hysterectomy was taken to save life of patient if above measures failed.

All women were clinically evaluated 2 weeks after hospital delivery by lochial discharge then 2 monthly up to 6 months. During follow up visits the subjects were interviewed about their menstrual cycle & menstrual flow.

Results:

Age distribution of women is shown in table 1.

Age	Number of patients (%)
< 20 years	2 (6.25%)
20-25 years	21 (65.62%)
26-30 years	6 (18.75%)
>30 years	3 (9.37%)

Table 1: Age wise distribution of cases (n=32).

Gestational weeks of cases shown in table 2

Gestational Age	Number of patients (%)
Term	26 (81.25%)
Preterm	6 (18.75%)

Table 2: Gestational age of cases (n=32).

12 cases had previous 1 C/S and 18 cases had no history of C/S. Table 3 shows distribution of cases according to CS.

Previous CS	Number of patients (%)
Previous 1 CS	12 (37.5%)
Previous 2 or more C/S	2 (6.25%)
No LUCS	18 (56.25%)

Table 3: Distribution of cases according to previous C/S (n=32).

Per operative placental location was as follows:

Placental localization	Number of patients (%)
Anterior	8 (25%)
Posterior	20 (62%)
Central	4 (13%)

Table 4: Placental localization (n=32).

Type of intervention of the cases was as follows:

Type of intervention	Number of patients (%)
Hayman suture	27 (84.3%)
Hayman + Uterine vessel ligation	2 (6.25%)
Hayman + uterine vessels+ B-lynch ligation	1 (3.12%)
Hysterectomy	2 (6.25%)

Table 5: Types of intervention

Discussion:

Placenta praevia occurs in approximately four of every 1000 pregnancies beyond 20th week of gestation³. Whereas normal implantation generally allows for natural haemostasis via myometrial contraction, this mechanism is minimally effective when the placenta is abnormally located on lower uterine segment.¹² So, heavy bleeding must be treated immediately to avoid its complications.

Suture of the obvious bleeding areas after placenta praevia removal is the first step of treatment. With the aim of retaining uterus B-lynch et al¹⁰ first

described a compressive suture to treat this life threatening clinical event. In many case reports the procedure was successful in preserving uterus in case of placenta praevia.¹¹ Recently a 13.3% failure rate of compression sutures (original and modified B-lynch procedure as well as other alternative technique) in treatment of severe PPH due to placenta praevia without myometrial infiltration has been reported.⁷ So, in case of PPH from lower uterine segment as in placenta praevia, Hayman technique is the rational choice. Indeed, ligation of the uterine artery is the third step of stepwise uterine devascularization for treatment of PPH due to placenta praevia.⁶ But it may modify implantation in subsequent pregnancies inducing an increased risk of placenta accreta.¹³

So we think, Hayman technique, suture of lateral part of lower uterine segment can be a quick, safe and simple procedure. We found no surgical complications and normal, painless menstrual function was reported.

But due to limited number of cases observed, possibility of hematometra, pyometra couldn't be ruled out, even in tertiary level hospital. A multicentre study should be done for comparison and long term follow up is needed to ensure good outcome for future pregnancy.

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