

A different approach to placenta previa accreta: intrauterine gauze compress combined B-Lynch uterine compression suture

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Summary

Objective: To retrospectively evaluate the effectiveness of intrauterine gauze compress combined B-Lynch uterine compression suture in placenta previa accreta cases. **Materials and Methods:** Five patients who experienced postpartum hemorrhage (PPH) due to placenta previa accreta between January 2009 and March 2013 in the present clinics, who were irresponsive to medical therapy, and that had applied intrauterine gauze compress combined B-Lynch uterine compression suture were analyzed retrospectively. **Results:** Intrauterine gauze compress combined B-Lynch uterine compression sutures were applied in patients in whom medical therapy failed. Intrauterine gauze compresses were removed under sedation. No patients required hysterectomy or any complications. **Discussion:** B-lynch suture in combination with intrauterine gauze compress can be applied easily in placenta previa accreta cases. This is considered to be a highly successful method.

Key words: B-lynch suture; Intrauterine gauze compress; Placenta previa; Placenta accreta.

Introduction

Postpartum hemorrhage (PPH) is still a significant cause of maternal mortality and morbidity worldwide despite advanced medical and surgical developments. Various uterine compression sutures using similar mechanisms with B-lynch suture which were first described in 1997 have been defined for PPH control. The preferred technique varies, depending on the patient's clinical condition and physician's experience [1].

Approximately 18% of all deliveries are complicated with PPH. Furthermore, it is the cause of 25-30% of all maternal deaths and 64.7% of birth-related maternal morbidity are associated with PPH-related pathologies [2, 3]. The most important etiologic factor is uterine atony with the ratio of 75-90% [4]. On the other hand, complication rates are higher in case of placental adhesion anomalies, particularly if they are associated with placenta previa. General antepartum condition of the patient is as important as total blood loss for the prognosis of the patient [5-7]. Another important issue is the knowledge of uterus-preserving approaches as all of the patients are fertile-aged women.

Surgical options are fertility and life-saving in patients with PPH irresponsive to conventional medical therapies. B-lynch suture which makes a bimanual uterine compression-like effect has been used successfully both alone or in combination with other methods. Uterine balloon and gauze compress application in combination with B-lynch suture

has been a successful alternative to hysterectomy particularly in placenta accreta-related PPH [8-10].

B-lynch suture application in combination with intrauterine gauze compress and its effectiveness have been evaluated retrospectively in placenta previa accreta-related PPH.

Materials and Methods

Five patients who had applied B-lynch suture in combination with intrauterine gauze compress due to placenta previa accreta-related PPH between January 2009 and March 2013 were retrospectively analyzed. A total of 31,697 deliveries occurred in the present clinic within that time and 74 patients who met primary PPH criteria were determined when patient records were analyzed retrospectively. Five patients who had applied B-lynch suture in combination with intrauterine gauze compress were determined. Uterine massage, bimanual compression, and uterotronics (oxytocin, methyl ergonovine) were applied in all patients. Surgical methods were applied in patients who were irresponsive to medical methods.

All patients had a history of previous caesarean section and they had undergone immediate caesarean operations due to placenta previa accreta. Hemogram, renal, and hepatic function tests were performed preoperatively. For bleeding monitorization, coverings on the patient and on the floor were changed with clean ones following birth after intrapartum detection of an placenta adhesion anomaly. An infusion of 20 IU oxytocin in 500 ml saline was given. Intramyometrial 0.2 mg/ml methylergonovine was performed and rectal misoprostol was applied. Routine medications failed to control hemorrhage. Patients who did not respond well to bilateral uterine artery ligation performed

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Figure 1. — Uterine cavity filled with a gauze compress.

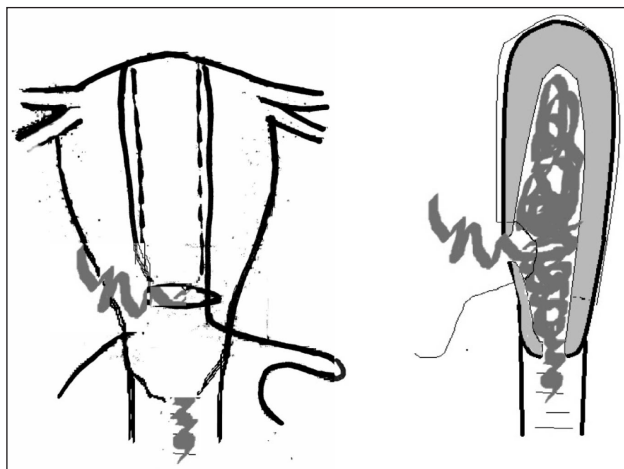


Figure 3. — Schematic representation of gauze compress with B-Lynch uterine compression suture before tying of B-Lynch uterine compression suture.

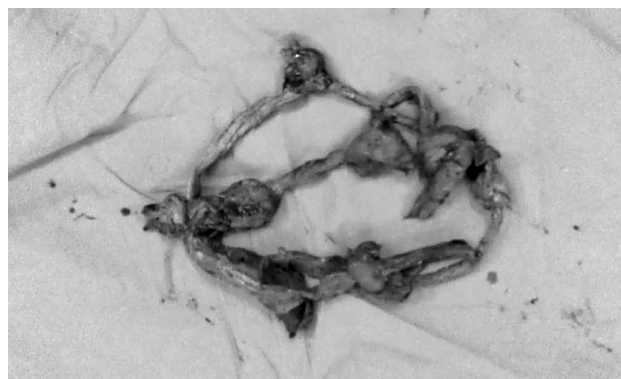


Figure 2. — Uterine gauze compress after its removal.



Figure 4. — Final result of the technique.

in accordance with bimanual compression and O'Leary technique [11] was first applied a conventional B-lynch suture using no. 2 vicryl sutures; however final knotting was not done in the uterine segment below the lower segment transverse incision line. Concurrently used compresses were joined to each other and soaked with saline. Tightness and number of the placed gauze compress laces were controlled carefully. After the first gauze compress was passed from cervix, primarily in the cervical region, and thereafter uterine cavity was filled with gauze compresses (Figure 1-3). Afterwards, B-lynch suture was tied and lower segment transverse incision line was sutured as a single line so as not to pass from the compress (Figure 4). Uterotonics were maintained also after the operation. Compresses were gathered on the nurse desk and on the sterile nylon on the floor and they were weighed and counted at the end of the operation. The patient was closely monitored. Hemogram controls were taken two and six hours after the operation. All gauze compresses after counting were removed after sedation in lithotomy

positions. Patients who were routinely monitored after the operation were discharged from the hospital. They were administered IV ceftriaxone one gr bid until discharge in postoperative period. Patients were scheduled for outpatient clinic follow ups one week and one month after the operation.

Results

Ratio of PPH was found to be 0.23% in the present clinic within the study period. All patients had the history of previous caesarean section and had undergone operation under urgent conditions due to placenta previa accreta. Ratio of the presented cases among PPH was found to be 6.75%. The common risk factor was considered to be the history of previous caesarean section. Preoperative hepatic and renal function tests were normal and mean he-

Table 1. — *Summary of patient characteristics and clinical outcomes of use of method for the treatment of PPH.*

| Case | Age (years) | Parity | Mode of delivery | Initial medical Treatment | Outcome | EBL (ml) | Blood products | Tamponized time (hours) | Number of tampons |
|------|-------------|----------------------|------------------|---|--|----------|----------------------------|-------------------------|-------------------|
| 1 | 22 | G2P1 (one caesarean) | Emergency LSCS | IV oxytocin infusion 40 units; IV Methylergonovine Rectal misoprostol | Uterus conserved. Uneventful postoperative recovery. Discharge on third POD | 1,875 | 4 units PCT 2 units FFP | 12 | 12 |
| 2 | 32 | G3P2 (two caesarean) | Emergency LSCS | IV oxytocin infusion 40 units; IV methylergonovine Rectal misoprostol Intramyometrial methylergonovine | Uterus conserved. Uneventful postoperative recovery. Discharge on fourth POD | 1,450 | 4 units PCT 2 units FFP | 16 | 10 |
| 3 | 36 | G5P3 (two caesarean) | Emergency LSCS | IV oxytocin infusion 40 units; IV methylergonovine Intramyometrial methylergonovine | Uterus conserved. Uneventful postoperative recovery. Discharge on third POD | 2,100 | 4 units PCT 2 units FFP | 16 | 14 |
| 4 | 39 | G4P2 (two caesarean) | Emergency LSCS | IV oxytocin infusion 40 units; IV methylergonovine Intramyometrial methylergonovine | Uterus conserved. Uneventful postoperative recovery. Discharge on third POD | 1,050 | 2 units PCT 2 units FFP | 16 | 11 |
| 5 | 27 | G3P1 (one caesarean) | Emergency LSCS | IV oxytocin infusion 40 units; IV methylergonovine Intramyometrial methylergonovine | Uterus conserved. Uneventful postoperative recovery. Discharge on third POD | 1,275 | 2 units PCT 2 units FFP | 12 | 10 |

EBL: estimated blood loss; LSCS: low segment caesarean section; POD: postoperative day; PCT: packed cell transfusion; FFP: fresh frozen plasma.

moglobin was 9.9 mg/dl (range, 8 - 11.2). Mean operative time was 55 minutes (range, 45-65) and mean blood loss was 1,550 ml (range, 1,050 - 2,100). Combination technique was successfully applied in all patients and hysterectomy was not required. Results of the patients are summarized in Table 1. Patients were not detected to have additional postoperative problems. Mean duration of hospital stay was 3.2 days. Mean duration of postoperative follow up was 20.4 months (range, 6 - 32). Patients did not have any other surgical or medical problems.

Discussion

PPH is a significant cause of maternal mortality and morbidity worldwide. Early and effective interventions are life-saving. The most common cause is uterus atony. Today, increase in ratio of caesarean sections has led to a significant increase in postpartum hemorrhages developing due to placenta previa and accompanying adhesion anomalies [12]. PPH patients' occurring in reproductive age has made development of organ-saving surgery mandatory besides being life-saving. For this purpose, B-lynch and various modifications have been successfully used for treatment of hemorrhages related with uterine atony. Aim of this method is to avoid hysterectomy in patients irresponsive to medical treatment. Another advantage of B-lynch suture is that it may be used successfully in combination with surgical methods, like major pelvic artery ligation and intrauterine ballons like Sangstaken- Blackmore tube [13-17]. Main purpose is to obliterate the cavity with sutures applied to uterine walls [18]. This is useful particularly in atony-related PPH. Pyometra, uterine synechia, uterine necrosis,

and partial ischemic necrosis are the major complications of the procedure [19, 20].

Bleeding mainly arises from lower segment in placenta previa accreta cases. Therefore B-lynch uterine compression sutures which are in upper segments may be insufficient in these cases. Therefore the authors applied intrauterine gauze compression in combination with B-lynch suture in five cases who were detected to have placenta previa accreta-related PPH. Target of the procedure was direct compression on lower uterine segment which is the main source of hemorrhage and to obliterate uterine cavity. Additional procedures like iliac artery ligation which require surgical experience were not needed and not applied with this method. Uterine tampons were removed under sedation in operative room depending on general condition and mobilization of the patient. No bleeding or adhesion to uterus were encountered during removal.

Another key point of this method is the rapid recognition of the situation plus the quick preparation of gauze compression and sutures. In addition, initially inserted gauze compress should be absolutely pushed until it spans from the cervix to the vagina. This setting will facilitate the postoperative removal of the compress.

In conclusion, this method may be applied particularly in PPH arising from lower uterine segment. An additional surgical intervention like hysterectomy was not required as seen in the present patients. Its main advantages include being easily applicable and not requiring an advanced surgical experience. However infection risk due to intrauterine gauze compress should not be overlooked. Blood amount hidden by the gauze compress through absorption was tried to be avoided by soaking the compress with saline. Small

number of cases and short duration of follow up limit the suggestibility of this procedure. Therefore studies with large number of patients are required.

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