

B-Lynch Suture, Uterine Arterial Ligation and Foley Catheter Application as Fertility Sparing Treatment in Postpartum Atony

Postpartum Atoni Tedavisinde Uterus Koruyucu Cerrahi; B-Lynch Sütür, Uterin Arter Ligasyonu ve Foley Katater Uygulaması

Sezin Ertürk Aksakal¹, Nurettin Boran², Utkan Sağır¹

¹Department of Gynecology, University of Health Sciences Etlik Zubeyde Hanım Women's Health Training and Research Hospital, Ankara, Turkey

²Department of Gynecologic Oncology, University of Health Sciences Etlik Zubeyde Hanım Women's Health Training and Research Hospital, Ankara, Turkey

ABSTRACT

Postpartum hemorrhage (PPH) is one of the leading cause of maternal mortality. The majority of deaths due to postpartum hemorrhage are most commonly caused by atonia. We aimed to describe here a patient with early postpartum hemorrhage treated with the combination of B-Lynch suture, bilateral uterine artery ligation and foley catheter. The 27-year-old nullipara patient was at 38 weeks of gestation was performed an emergency cesarean section for fetal distress. Atony developed after the emergence of the placenta. After medical treatment, bleeding persisted from the lower segment of the uterus. Bilateral uterovarian artery ligation, B-Lynch suture were performed and foley catheter was placed in the lower uterine segment. The postoperative course was uneventful. In atony cases where medical therapy failed, uterovarian artery ligation and B Lynch suture is a successful combination. Also, foley catheter application should be kept in mind as an additional method with bleeding from the lower uterine segment.

Key Words: Postpartum hemorrhage, uterine atony, B-Lynch suture, Uterine artery ligation, foley catheter

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ÖZET

Postpartum kanama maternal mortalitenin önde gelen nedenlerinden biridir. Postpartum kanamaya bağlı ölümlerin en sık nedeni uterin atonidir. Bu olguda erken postpartum kanamalı hastada B-Lynch sütür, uterin arter ligasyonu ve foley katater kombinasyonu ile tedavi ettiğimiz hastayı sunmayı amaçladık. 27 yaşında nullipar, 38 hafta gebeliği olan hasta fetal distress nedeniyle acil sezayen seksio ile doğumu gerçekleştirdi. Plasentanın ayrılması sonrası atoni gözlemlendi. Medikal tedavi sonrası kanamanın devam etmesi üzerine B-Lynch sütür, bilateral uteroovarian arter ligasyonu uygulandı ve uterin alt segmente foley sonda yerleştirildi. Postoperatif takipleri sorunsuzdu. Medikal tedavinin başarısız olduğu atoni olgularında B-Lynch sütür, uteroovarian arter ligasyonu başarılı bir kombinasyondur. Alt uterin segmentten kanamalarda foley katater uygulaması akılda tutulmalıdır.

Anahtar Sözcükler: Postpartum kanama, uterin atoni, B-Lynch sütür, uterin arter ligasyonu, foley katater

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ORCID IDs: S.E.A. 0000-0002-4418-7319, N.B. 0000-0002-0367-5551, U.S. 0000-0002-9939-9386

Address for Correspondence / Yazışma Adresi: Sezin Ertürk Aksakal, MD Department of Gynecology, University of Health Sciences Etlik Zubeyde Hanım Women's Health Training and Research Hospital, Ankara, Turkey E-mail: drsezert@gmail.com

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INTRODUCTION

Postpartum hemorrhage (PPH) is defined as bleeding more than 500 ml after vaginal delivery, and more than 1000 ml after cesarean section during the first 24 h following delivery of the fetus (1). It is the second most common cause of maternal mortality in developing countries. The majority of deaths due to postpartum hemorrhage occur within the first 24 hours and are most commonly caused by atony (2). 80-90% of maternal deaths due to PPH can be prevented by early diagnosis and timely interventions (2). When uterotonic agents fail in treatment, tamponade methods (Bakri Balloon, Foley probe, Sangstaken Blackmore tube, etc.) are recommended. In case of failure of the tamponade methods, surgical techniques such as uterine artery ligation, B-Lynch suture and hypogastric artery ligation are recommended, although no order of priority is set due to the scarcity of randomized controlled trials. Hysterectomy is recommended as the last option in the absence of a desire for fertility and when other treatment methods fail (3,4).

In this article, we aim to present a case in which, prioritizing fertility sparing surgery, we stopped atony related bleeding by B-Lynch suture, ligated bilateral uterine arteries and placing a foley catheter in the uterine lower segment.

CASE REPORT

The 27-year-old patient, who had her first pregnancy and was at 38 weeks of gestation, was hospitalized upon observing 150/100 mmHg blood pressure in two repeated measurements during the polyclinic control. Complete blood count, complete urinalysis and biochemistry tests did not show any abnormality. Ultrasonography revealed a single live fetus with measurements consistent with 35 weeks.

During the continuous monitoring of the patient at the time of follow-up, late deceleration was observed and it was decided with the patient to perform an emergency operation. A 2400 gram male baby was delivered by cesarean section. Apgar scores were 5 and 8 at the 1st and 5th minutes, respectively. Total detachment was observed of the placenta and atony developed after the emergence of the placenta. While 30 unit oxytocin was given as intravascular (iv) infusion in 0.9% saline, fundal massage, hot application and 0.2 mg methylergobasin maleate intramuscularly (im) were performed. Bleeding persisted from the lower segment of the uterus, upon which bilateral uterine artery ligation was performed. Culvaller uterus status was observed and ovarian branches and unilateral cervicovaginal branch ligation of the uterine artery with B-Lynch suture were performed. Three units of erythrocyte suspension intraoperatively, 4 units of fresh frozen plasma and 4 grams of fibrinogen transfusion were applied postoperatively. The patient was followed-up in the intermediate intensive care unit, and a 80 cc foley catheter was placed in the lower uterine segment after vaginal bleeding continued. In the follow-up, the patient had no vaginal bleeding and the foley catheter was removed after 8 hours. Preoperative hemoglobin levels were 11.2 g / dl, intraoperatively 7.5 g / dl and 10.7 g / dl at the postoperative 8th hour. No increase in blood pressure or liver enzymes were observed in the patient, however urea and creatinine levels increased, which resulted in an early diagnosis of acute renal failure and thus on the 2nd postoperative day she was referred to another hospital where nephrology and obstetrics clinics are together. We were informed by this center that the patient was discharged with full recovery on the 21st postoperative day.

Prognosis and follow-up

There was no pathology at the postoperative 1st month and 3rd month follow-up. Approximately 2 years after the operation, the patient became pregnant again and no problems were observed in her follow-up. She completed her second pregnancy in our hospital with cesarean section and without any complication.

DISCUSSION

Postpartum hemorrhage develops in approximately 1-5% of all pregnancies (5). The management of postpartum hemorrhage varies according to the etiology of the bleeding, convenient treatment options, and the patient's desire for fertility. Medical treatment and minimally invasive approaches should be tried primarily and the hysterectomy option should be considered as the last option (4).

Because postpartum hemorrhage is an obstetric emergency and since there is no randomized controlled study on the approach, management and treatment vary mainly according to clinical experience, delivery type (vaginal, cesarean) and the patient (3).

B-Lynch suture was first described in 1997 by B-Lynch et al. and is the most commonly used uterine compression suture technique worldwide (6). In case reports and case series, postpartum hemorrhage has been reported to be successfully stopped in medical treatment failure (6, 7). One study detected only 7 of over 1000 B-Lynch sutures as unsuccessful. In a case series evaluating 47 patients, the success rate was found to be 91.4% and only 4 cases required additional surgical procedures (8, 9). Many compression suture techniques have been described (Hayman, Perreira, Cho, modified B Lynch, etc.), but no technique has been reported to be superior to another (10).

Bilateral uterine and ovarian vein ligation (O'Leary) is also frequently recommended in surgical management of postpartum hemorrhage (3). It takes precedence over hypogastric artery ligation due to its ease and speed (3). In a study evaluating 265 patients, a success rate above 90% was reported in preventing postpartum hemorrhage (11). In a series of 8 cases where bilateral uterine artery ligation and B-Lynch suture were applied together, only one patient had internal iliac artery ligation, and no patient required hysterectomy (12). In a study evaluating B-Lynch suture, artery ligation and Bakri balloon, the success rate of B-lych suture together with artery ligation was reported as 72.7% (13).

Bakri balloon or foley catheter application are often recommended for the treatment of bleeding. In a 15-series study in which a foley catheter was applied due to bleeding from the lower uterine segment, bleeding was stopped in all patients without additional treatment (14). In an observational study comparing compression suture and foley catheter, the success rate of suture was determined as 93.3%, with foley catheter 68.1%, and sutures were recommended as the primary application (15). In our case, primarily B Lynch suture and bilateral uterine artery ligation were performed and the bleeding was stopped substantially. However, on the continuation of some bleeding from the lower uterine segment, a foley catheter was applied and bleeding was successfully treated without hysterectomy.

Uncontrolled peripartum bleeding, resulting in disseminated intravascular coagulation (DIC), is one of the leading causes of maternal mortality worldwide (16). DIC represents a life threatening condition which is the endpoint of uncontrolled systemic activation of the hemostatic system, leading to a simultaneous widespread microvascular thrombosis, that can compromise the blood supply to different organs, and may lead to organ failure (17). The rate of DIC during pregnancy differ among cohorts and range from % 0.03 to % 0.35. A series of pregnancy complications have been associated with DIC including: 1) acute peripartum hemorrhage (uterine atony, cervical and vaginal lacerations, and uterine rupture); 2) placental abruption; 3) Pre-eclampsia/eclampsia/HELLP syndrome; 4) retained stillbirth; 5) septic abortion and intrauterine infection; 6) amniotic fluid embolism; and 7) acute fatty liver of pregnancy (18). The treatment of DIC consists of identifying and treating the underlying pathology and providing supportive care, especially administration of blood products (18). In our case, DIC was secondary to acute peripartum hemorrhage and treated with blood products. Because of acute renal failure and DIC, she was referred to another hospital for multidisciplinary approach.

As an emergency obstetric condition, postpartum hemorrhage requires early diagnosis and treatment. Although there are many different methods in the treatment, the most appropriate method should be selected according to the characteristics of the patient and the experience of the clinic-physician. In atony cases where medical therapy failed, uterovarian artery ligation and B Lynch suture is a successful combination. Also, foley catheter application should be kept in mind as an additional method with bleeding from the lower uterine segment.

Conflict of interest

No conflict of interest was declared by the authors.

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