

The Effect of B - Lynch Compression Suture on Fertility Potential

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OBJECTIVE: To investigate the potential complications like intrauterine synechia and tubal occlusion following B- lynch suture which was used to control the postpartum hemorrhage.

STUDY DESIGN: Between December 2010 and December 2011 at the Department of Obstetrics and Gynecology, Rize Education and Reseach Hospital, 8 patients underwent B lynch suture for postpartum hemorrhage that was intractable to medical treatment and needed blood transfusion. These patients were called at 3. month of postpartum period. Uterine cavity and tubal patency was evaluated with hysterosalpingography and hysteroscopy.

RESULTS: Early postpartum hemorrhage was controlled with B- lynch suture in all patients. In hysterosalpingographic and hysteroscopic inspection; uterine cavities were normal with bilateral tubal free passages in all patients.

CONCLUSION: B- lynch suture was found to be an effective fertility preserving alternative to emergency postpartum hysterectomy in reproductive age women.

Key Words: Postpartum hemorrhage, B- lynch suture, Hysterosalpingography, Hysteroscopy

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Introduction

Postpartum haemorrhage (PPH) is a major cause of maternal mortality worldwide ranging from 13% in developed countries to 34% in developing countries.¹ The most common definition of PPH is estimated blood loss ≥ 500 mL after vaginal birth, or ≥ 1000 mL after cesarean delivery, which is encountered in 1 to 5 percent of deliveries.^{2,3} Established risk factors for PPH include preeclampsia, prolonged / augmented or rapid labour, an over distended uterus and chorioamnionitis.⁴ However, atony can occur in the absence of any of these risk factors. Today, hysterectomy is the most common procedure to achieve arrest of severe PPH,⁵ but it is associated with a significant morbidity (postoperative infection, urologic injury) and loss of fertility.

Several surgical techniques of uterine compression sutures have been developed to preserve the uterus and avoid associated morbidity. Uterine compression sutures are successful in avoiding hysterectomy in 82% of these women.⁶ Of these procedures reported in literature, B- Lynch suture,⁷ which was firstly described in 1997, gained the most popularity. There is no doubt of its efficacy, but there are concerns about potential

risks as occlusion of the uterine cavity resulting in endometritis, sometimes Asherman syndrome and necrosis resulting from poor perfusion.^{8,9}

The aim of the present study was to evaluate the potential complications like intrauterine synechia and tubal occlusion following B- lynch suture which was used to control the postpartum haemorrhage.

Material and Method

B- Lynch suture was used in eight cases of PPH between 2010 and 2011 at the Department of Obstetrics and Gynecology, Recep Tayyip Erdogan University Education and Research Hospital. Our maternity ward performs approximately 1600 deliveries per year. Haemostatic sutures were placed for major and medically uncontrolled PPH. These 8 patients were called at 3. month of postpartum period. Uterine cavities and tubal passages were evaluated with hysterosalpingography and hysteroscopy.

A 5-mm diameter hysteroscope was used with glycine solution. We examined the cervical channel, uterine cavity and the tubal ostiums. Then a water soluble, hyperosmolar iodinated contrast agent was instilled and images obtained with portable roentgenogram. All procedures were performed under general anesthesia. Patients discharged from the hospital in the same day, with an uneventful postoperative period. All patients were given a prescription for prophylactic oral antibiotics.

Results

Eight patients underwent B- lynch suture for major PPH between December 2010 and December 2011;1782 deliveries

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were performed in this period. Data including patients' age, parity, gestational age, indication of cesarean delivery, cause of PPH, newborn weight were obtained from hospital records (Table 1). The mean age of the patients was $30,13 \pm 7,18$ years. Five of the 8 patients were nulliparous. The mean gestational age at delivery was $272,75 \pm 10,94$ days. The mean birth weight of newborn was $3297,22 \pm 718,12$ grams. All patients given birth with cesarean section. Cesarean sections were performed because of previous cesarean section in 3 cases, arrest of labor in 3 cases, suspected macrosomia in 1 case and ablatio placenta in 1 case. Enough compression of the uterus was achieved and haemostasis was established in all cases with only B lynch suture.

The postoperative course was uncomplicated in all the cases after cesarean section, women were discharged from the hospital at the 3. postpartum day in good conditions. All the women undergoing B Lynch suture had normal lochia.

These 8 patients were called at 3. month of postpartum period. Uterine cavity and tubal passages were evaluated with hysterosalpingography and hysteroscopy. In 8 of 8 patients, the uterine cavity and the cervical channel were normal in hysteroscopy. Only thin synechiae that were easily removed with pressure of fluid was observed. Following hysteroscopy, hysterosalpingography was performed to evaluate the fallopian tubes, which revealed no pathology. Bilateral tubal passages were observed without any difficulty.

Discussion

The results from this case series suggests that B- lynch compression suture is an effective and safe conservative measure for the surgical treatment of PPH with preservation of fertility.

Major postpartum haemorrhage is a significant obstetric emergency requiring prompt management to prevent maternal mortality. The traditional surgical techniques to achieve haemostasis include internal iliac artery ligation or cesarean hysterectomy. However, both of them are difficult, time con-

suming and require a high degree of surgical skill and training. Timing of postpartum emergency hysterectomy is pivotal as the probability of survival decreases sharply after the first hour, if the bleeding persists and the patient's vital signs remain unstable.¹⁰ The ease and quick applicable nature of B lynch suture made it a preference to us. We could come over the major bleeding intra operatively, which prevent triggering of a cascade namely; disseminated intravascular coagulation. It is noteworthy that neither of our patients required hysterectomy.

B- lynch et al,⁷ were the first to propose the principle that a compression suture running through the full thickness of both uterine walls is an effective measure to control the bleeding due to uterine atony. Since that time many modifications^{11,12} have erupted demonstrating the efficacy in controlling PPH. The rationale behind compression sutures are decreasing the pelvic blood pressure and the pulse pressure and decreasing the placental surface rapidly.¹³ The original method of B lynch suture involved the use of 2 chromic catgut, however the production of this was discontinued, so synthetic absorbable sutures such as Vicryl are commonly used.

The potential risks reported in literature by the compression sutures (i.e. Hayman stitch, Cho technique of multiple square sutures) are pyometra,¹⁴ uterine synechia,¹⁵ uterine necrosis¹⁶ and partial ischemic necrosis.⁹ While uterine compression sutures are useful in the containment of postpartum haemorrhage due to uterine atony and have prevented many immediate hysterectomies, complications are likely to be reported as their use increases.¹⁶

Crossing the uterine cavity to oppose the anterior and posterior walls could result in endometritis and synechia by blocking the drainage of blood. The trapped blood in the uterine cavity may cause intrauterine infection resulting in synechia. We think that the reason that we did not observe endometritis or synechia is that B lynch suture, unlike the other compression sutures do not oppose the anterior and posterior uterine walls or block drainage of lochia. The suture runs within the either side of the uterus, not affecting the passage.

Table 1: Patients' characteristics

Age (years)	Parity	Gestational age I (week)	Indication for C/S	Cause of PPH	Newborn weight (gram)
41	G ₁	41	Suspected macrosomia	Uterine atony	4600
37	G ₃ P ₂	39 ⁺²	Previous C/S	Uterine atony	3200
21	G ₁	40 ⁺⁵	Labor arrest disorder	Uterine atony	3400
28	G ₂ P ₁	38 ⁺⁵	Previous C/S	Uterine atony	3600
26	G ₁	39	Labor arrest disorder	Uterine atony	3000
31	G ₃ P ₂	38	Previous C/S	Uterine atony	3000/ 2800
35	G ₁	39	Labor arrest disorders	Uterine atony	3975
22	G ₁	36	Ablatio placenta	Uterine atony	2100

G: gravity, P: parity, C/S: cesarean section

Uterine necrosis and partial ischemic necrosis reported in literature by compression sutures was not observed in our case series. We think that use of continue and evenly distributed pressure might have prevented such an outcome. In Hayman stitch, Cho technique of multiple square sutures and parallel vertical compression sutures each suture have its own pressure unevenly distributed depending on the uterine thickness which is not uniform on isthmus and the fundus.

In this study the long term follow-up information is lacking. Although the results of this preliminary study are encouraging, more case series are necessary to confirm the results.

Conclusion

B- Lynch suture was found to be an effective fertility preserving alternative to emergency postpartum hysterectomy in reproductive age women. This suture is a level up approach to PPH by conserving the fertility potential and avoiding the morbidities associated with hysterectomy or internal iliac artery ligation.

B-Lynch Sütürünün İlerideki Fertilité Potansiyeli Üzerine Etkisi

AMAÇ: Yüksek oranda maternal morbidite ve mortaliteye sahip postpartum kanama kontrolünde kullanılan B-Lynch sütürüne bağlı potansiyel komplikasyonlardan intrauterin sineşi ve tubal oklüzyonun ilerdeki fertilité üzerine etkisinin histerosalpingografi (HSG) ve histeroskopi (H/S) ile postpartum araştırılması.

GEREÇ VE YÖNTEM: Aralık 2010- Aralık 2011 tarihleri arası Recep Tayyip Erdoğan Üniversitesi Eğitim ve Araştırma Hastanesi, Kadın Hastalıkları ve Doğum bölümünde doğum sonrası medikal tedaviye yanıt vermeyen ve kan transfüzyon ihtiyacı oluşan erken postpartum kanamalı 8 hastaya B-Lynch sütürü uygulandı. Bu hastalar postpartum 3. aylarında, son menstürel periyotlarının ilk 10 günü içinde çağırıldı. HSG ve H/S ile uterin kavite ve tubal geçiş açısından değerlendirildi.

BULGULAR: Çalışmamızda erken postpartum kanamalı hastaların tamamında kanama kontrolü B- Lynch sütürü ile sağlandı. B- Lynch sütürü postpartum kanama kontrolünde histerektomiye alternatif bir metod olarak etkili idi. Hastaların tamamında uterin kavite normaldi, bilateral tubal akım mevcuttu. B- Lynch sütürü fertil çağda olan ve ilerde çocuk istemleri olabilecek bu hastalarda fertilité koruyucu bir alternatif olarak bulundu.

SONUÇ: B-Lynch sütürünün postoperatif dönemde kavitede adhezyon ve tubal oklüzyona yol açmadığı görülmüştür. Fertilité isteği olan hastalar için histerektomiye alternatif güvenli bir metoddur.

Anahtar Kelimeler: Postpartum kanama, B-Lynch sütürü, Histerosalpingografi, Histeroskopi

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