

Quilting Sutures in Postpartum Hemorrhage, Management Approach of Intractable Uterine Atony Case Report at MOI Teaching and Referral Hospital, Eldoret Kenya

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Abstract

Pregnancies that are term or are over 20 weeks of gestation are at risk of postpartum hemorrhage (PPH) and its consequences. In developed countries there has been a decrease in maternal mortality rates however postpartum hemorrhage remains among the major cause of morbidity and mortality in the developing and low resource setting countries.

In the control of bleeding in PPH, compression sutures are used such as B-lynch suture, recent studies have advocated for a fertility sparing procedures that do not entail hysterectomy where compression sutures are used to achieve hemostasis. One such compression suture is known as quilting sutures, where the anterior and posterior walls are compressed together using multiple 'U' shaped stitches from top to bottom of the myometrium This report is of a 20-year-old primigravida presenting in the 2nd trimester at 25 weeks gestation in active phase of labour, whose delivery complicated to a postpartum haemorrhage due to atony. The case was managed as per MTRH treatment protocol for PPH initially with uterotonic. Intractable PPH resulted in use of quilting sutures which spontaneously achieve a uterine tamponade that stopped the bleeding. Post-natal period was uneventful and patient regained her regular menses. Use of quilting suture as a fertility sparing method of compression sutures is beneficial in the reduction of morbidity and mortality in patients with PPH.

Keywords: Postpartum haemorrhage; Quilting sutures; Intractable uterine

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Introduction

Haemorrhage is the major cause of maternal death worldwide [1]. Postpartum hemorrhage (PPH) accounts for 34% of maternal deaths in Kenya [2]. The rate of PPH increased from 1.5% in 1999 to 4.1% 2009, and the rate of atonic PPH rose from 1% in 1999 to 3.4% in 2009. The risk of PPH with a morbidly adherent placenta is markedly higher [3]. Moi Teaching and Referral Hospital (MTRH) records indicate a maternal mortality of 0.19% from all causes. In recent times the use of compression sutures to control bleeding, such as B-lynch et al. [4] and Perreira et al. [5] have been described to be effective in curbing morbidity and mortality. Werner Stein and Ludwig Spätling, have described in their case series a procedure where multiple stitches passed transmural and tied anteriorly at various points over the uterine myometrium,

known as quilting sutures [6]. In the aforementioned case series the procedure, started at the top of the uterus then gradually down to the cervical segment, horizontally placed u-shaped sutures were used to compress the posterior wall to the anterior wall. Number-1-absorbable sutures (vicryl) were applied to compress the uterus completely. In cases where straight needles were unavailable, the technique utilized curved needles [7].

Case Report

A 20-year-old para 0+0 Gravida 1 at 25 weeks gestational age (GA) of a natural conception was admitted in our labour Ward (LW). Her gynaecological history was unremarkable. She had no any prior Antenatal clinic follow up. Patient was not on any prior medication. At admission, the patient was in active phase of labour, had no complains of per vaginal bleeding or drainage

of liquor, fundal height was at 26 weeks, cervix was fully dilated. Patient labour progressed uneventfully and delivered a live female infant weighing 750 grams that was admitted to our new born unit (NBU). Placenta and membranes were delivered via controlled cord traction (CCT) and were complete and normal. Active management of 3rd stage of labour was done. Estimated blood loss was 1500mls, blood pressure (BP) of 88/53 and a pulse of 122/min respiratory rate of 25/min and oxygen saturation were at 98%. Laboratory tests showed haemoglobin levels of 8.9 g/dl (12-16 g/dl), white blood cells of 19,600/mm³ (5,200-12,400/mm³) with neutrophils 17,100/mm³ (1900-8000/mm³), platelets 223,000/mm³ (130,000-400,000/mm³). Her renal and liver functions were normal.

A diagnosis of post-partum haemorrhage (PPH) was made. Upon which the patient received uterotonics, as medical management of PPH as per Moi Teaching and Referral Hospital (MTRH) protocol. Patient was stabilized by receiving whole blood transfusion 1 unit, intravenous fluids and uterotonics. However one hour later patient was noted to be having intractable PPH due to atony, upon which, a decision to take patient for examination under anaesthesia (EUA) was made. EUA had done revealed perineal tears and lacerations which were noted to have been bleeding and subsequently repaired. Bleeding was noted from the cervical OS, and a bimanual investigation reveals an atonic uterus with a fundal height above the umbilicus.

With these subsequent findings, a decision was made for an explorative laparotomy. An atonic uterus was found. The compression suture (quilting suture) technique was applied, where, multiple stitches were passed posteriorly and tied anteriorly at various points over the uterine body and myometrium, as shown in **Figure 1**. This procedure effectively produced hemostasis and effectively controlled and stopped the hemorrhage.

Patient had an uneventful post-operative period. Per vaginal bleeding was monitored via pads count and pads soakage which revealed minimal to nil bleeding. Her vital signs were within normal range with lowest recorded blood pressure was 100/57 millimeters of mercury; this was recorded 24 hours post operatively. No hypotension was noted in her vital charts for the rest of the post-operative period. Her pulse rate highest

recorded at 91 beats per minutes a single measurement reading on the third post-operative day, no tachycardia noted in her vital sign charts. Her highest recorded temperature post operatively was 37.3 degrees Celsius on fourth post-operative day no spike in fevers was noted. She continued to receive transfusion, her initial hemoglobin levels were 5.8 grams per deciliter on 1st post-operative day. On 3rd post-operative day after transfusion her hemoglobin levels were at 11.1 grams per deciliter. Patient was discharged on forth post-operative day in very stable condition. The patients was followed up at post-natal clinic where she was seen to be stable, reported no history of fevers, rigor or chills with nil per vaginal discharge and had regained her menses and were regular, no menstrual discomfort was reported.

Discussion

The studies done by Ludwig Spatling et al. concluded that the compression quilting sutures technique is a secure, safe, effortless, simple, and unforgettable fertility sparing technique in cases of PPH [8,9]. This conclusion is due to the fact that there was an increase in quilting sutures application promptly and effectively before the women were affected by anemia and clotting problems in the study [6]. Before the onset of massive blood loss, timely application of this compression suture technique reduced the need for blood transfusion [6]. Furthermore, there was a reduction in admission to the intensive care unit and prolonged hospitalization [6]. In other compression sutures technique, infection (pyometria) [9], ischemia (necrosis) [10], have been reported as a complication of those PPH controlling technique in the post-operative period. In quiltin suture these complications were unreported in the case series of Ludwig Spatling. This phenomenon could be due the U-shaped sutures, facilitating optimal oxygenation from both uterine arteries, and hence better healing [6]. In other compression suture like square stiches, b-lynch, and Cho there is a compression of a larger volume of myometrium which might hinder proper oxygenation of hence leading to the aforementioned complications [11]. By using quilting suture compression technique, it is possible to achieve good hemostasis by creating an artificial tamponade, achieve earlier myometrial contraction and recovery and healing.

Conclusion

PPH is a delivery complication that requires urgent intervention to prevent maternal mortality and morbidity. Using quilting suture to manage intractable atonic uterus that is unresponsive to medical management is beneficial, as it is easy and simple to perform even low resource setting and avoid hysterectomy and preserve fertility.

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Conflict of Interests

The authors declare no conflicts of interest.



Figure 1 Showing both anterior (a) and posterior (b) appearance after quilting suture compression technique application.

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