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Avascular Necrosis of Uterus – A Sequela of B-Lynch Sutures.

Blessy David*, Shashikala, and K Saraswathi.

¹Department of Obstetrics and Gynaecology, Sree Sree Balaji Medical College and Hospital, Chennai, Tamil Nadu, India.

ABSTRACT

Postpartum hemorrhage (PPH) is an obstetrical emergency and one of the leading causes of maternal mortality. It can be managed with conservative methods, the failure of which often mandates surgical intervention. Hysterectomy is the last resort. The B-Lynch sutures have been widely used in cases where conservative methods fail and to prevent hysterectomy thereby maintaining the fertility.. Here we describe a case of a healthy 25-year-old woman, primi gravida, who underwent Caesarean section at 39 weeks 2days gestation after failure to progress in labour. To control intractable atonic postpartum hemorrhage B-Lynch sutures were applied. Patient developed fever and abdominal distension. MRI revealed subinvolution and ischaemic necrosis of the uterus. Laparotomy proceeded with Subtotal hysterectomy done on 19th postoperative day. There is still a need for understanding the effectiveness and complications of the B-Lynch sutures, though it is a simple and easy technique which effectively controls Atonic postpartum hemorrhage and maintains fertility. It is therefore encouraged to carefully follow up women with B-Lynch sutures and report failures and short term and long term consequences of B-Lynch sutures if encountered.

Keywords: B-Lynch sutures, compression sutures, avascular necrosis, postpartum hemorrhage

* *Corresponding author*



INTRODUCTION

Postpartum hemorrhage (PPH) is an obstetrical emergency and one of the leading causes of maternal mortality. Over 1,25,000 women are a victim to postpartum haemorrhage each year which accounts to 25-43% of all maternal deaths in the developing countries. The incidence of PPH has been estimated to be 3.9% in vaginal deliveries & 6.4% in cesarean deliveries [1]. Uterine Atony is the commonest cause (75–90%) of primary PPH (within 24hrs of delivery). It can be managed with conservative methods such as bimanual uterine compression, medical therapy with uterotonic agents like oxytocin, ergot alkaloids, and prostaglandins, uterine balloon tamponade, the failure of which often mandates surgical intervention. Surgical measures such as ligation of the major pelvic vessels demand skill. Hysterectomy is usually the final resort if there is intractable haemorrhage not responding to the above measures. In 1997, Christopher B-Lynch [2] devised an innovative technique as an alternative to hysterectomy, where a continuous suture was placed vertically as “belt and braces” to envelope and mechanically compress the uterus thereby arresting the bleed. Since then the B-Lynch sutures have been widely used in cases of primary PPH due to uterine atony. Here we describe a case where B-Lynch sutures was applied to control primary PPH and it led to avascular necrosis of the uterus.

Case Report

25 yr old, Primi, married for 1 yr with 39 weeks 2 days of gestation was admitted with spontaneous rupture of membranes since 1 hour, appreciating FM well. She was a booked and immunised case and her antenatal course was unremarkable. On examination, clear liquor was draining PV and Cervix was 25% effaced and os admitted one finger. Admission test was reactive. Hence labour was induced with Cerviprime Gel. IV antibiotics were started. Labour was accelerated with diluted Inj. Oxytocin 5 units. After 12 hours of labour, the cervix was 6cm dilated and presenting part Vertex was still in -1 station with formation of caput. In view of failure of progression of labour, an emergency LSCS was performed and a healthy Boy baby was delivered with good APGAR scores. Routine Inj. Oxytocin 10 units IM was given after delivery. After uterine wound closure, uterus which was firm and well contracted started relaxing. The uterine atony did not respond to intravenous Oxytocin, intramuscular and intra-myometrial injection of Prostin and 800mcg Misoprostol PR. Hence B-Lynch sutures were applied. Uterus started contracting and became firm. The bleeding was controlled after an estimated blood loss of 700ml. 2 units of packed cells was transfused postoperatively. Patient was apparently normal till POD – 8. From POD- 8, patient started developing abdominal distension and fever not responding to any antibiotics. USG showed subinvolved uterus. On POD-19, MRI was done and showed evidence of ischaemic necrosis of Uterus. Hence after obtaining informed written consent, emergency laparotomy was done. Intra-op findings - uterus was 24 weeks size, edematous, ecchymotic and unhealthy. Left tube and ovary was unhealthy. Therefore subtotal hysterectomy with Left Salphingo-oophorectomy was done and specimen sent for histopathological examination which confirmed the diagnosis of avascular necrosis of the uterus.

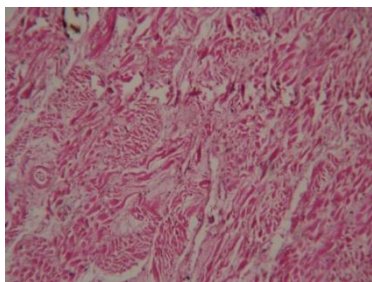
DISCUSSION

Known risk factors for Atonic Postpartum Hemorrhage include nulliparity, uterine overdistension (fetal macrosomia, multiple pregnancy, hydramnios), prolonged or augmented labour, precipitate labour, maternal obesity, operative delivery, chorioamnionitis, and a history of PPH [3]. Almost one third of women with PPH are unresponsive to uterotonic agents and will need a hysterectomy. The B Lynch sutures are simple to perform, requiring only less skill and less operating time than uterine and hypogastric artery ligation. Hence it is accepted all over the world as a measure to control Atonic PPH unresponsive to other medical therapy thereby preventing hysterectomy and maintaining fertility.

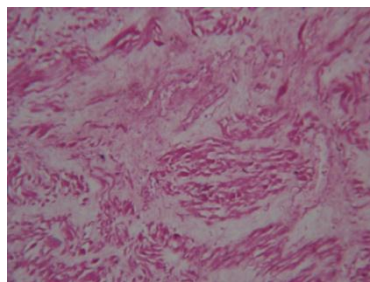
There are no reported studies describing the long-term follow-up regarding maternal morbidity in patients where B-Lynch suture was applied to control Atonic PPH. Since there is only a small number of reported cases it is difficult to estimate its overall success rate. Allahdin et al [4], in 2006, in a case series of 11 patients who underwent the B-Lynch suture reported that three required hysterectomy, resulting in a 72% success rate whereas Grotegut et al [5]. in 2004 reported three failures in 35 patients, which is a success rate of 91.4%. In a seven-year prospective case series of 28 patients, Baskett [6] reported a success rate of 82%. Some investigators have reported cases of severe uterine necrosis following the use of the B-Lynch suture. Treloar et al [7] reported the use of the B-Lynch suture to control severe PPH in a 33-year-old multigravida. Over the following three postpartum weeks, the woman experienced persistent vaginal bleeding and was found to have a tender subinvolved uterus of 18-weeks' size. Multiplanar multisequence magnetic resonance

imaging with and without intravenous Gadolinium contrast demonstrated an avascular uterus, except at the peripheral rim of the uterine wall. Joshi [8] described a case of B-Lynch suture for severe postpartum hemorrhage in a 26-year-old primigravida following Caesarean section who underwent a laparotomy in the immediate postpartum, period due to suspicion of intraabdominal bleeding and found that the B-Lynch suture had cut through and become embedded in the uterine wall, causing ischemic congestion and distension of the mid-section of the uterus between the B-Lynch vertical braces, giving the uterus a lobulated appearance. Similar to our patient, these two women were symptomatic in the postpartum period and underwent hysterectomy. Few authors have attributed this complication to the delayed absorption suture used and therefore recommend the use of rapidly absorbable suture materials [9].

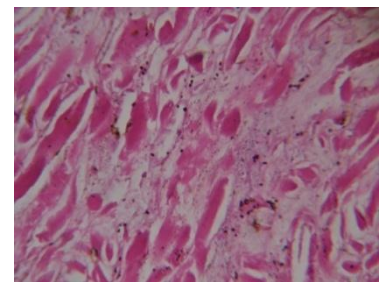
Excessive folding of the uterine wall produced by the compressive forces of the suture could conceivably produce unpredictable effects on the myometrial and endometrial vasculature. For example, it is possible that the B-Lynch suture, in our case, applied enough external pressure to interrupt the blood supply to the uterus, causing necrosis. Furthermore, it is possible that the atonic postpartum uterus has a reduced supply of blood or has an intrinsic cellular dysfunction that makes it more susceptible to pressure necrosis.



Picture 1

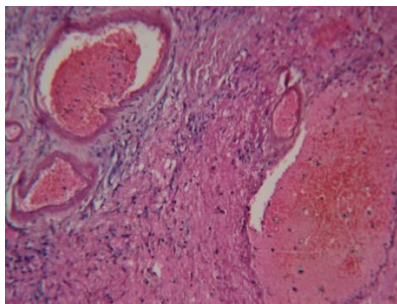


Picture 2

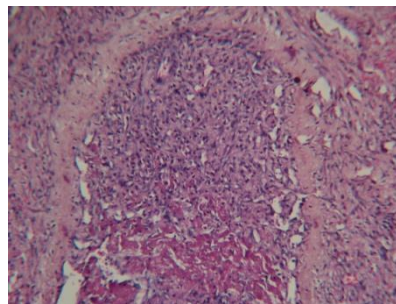


Picture 3

Pictures 1,2 and 3 shows bundles of smooth muscles in wavy and fragmented forms with absent nuclei – Avascular necrosis of myometrium



Picture 4



Picture 5

Picture 4 shows thrombosed myometrial vessels

Picture 5 shows organizing thrombus in a myometrial vessel

CONCLUSION

Patients who continue to have uterine tenderness or persistent vaginal bleeding following the application of the B-Lynch suture should be investigated to rule out the possibility of uterine wall necrosis. There is still a need for understanding the effectiveness and complications of the B-Lynch sutures, though it is a simple and easy technique which effectively controls Atonic postpartum hemorrhage and maintains fertility. It is therefore encouraged to carefully follow up women with B-Lynch sutures and report failures and short term and long term consequences of B-Lynch sutures if encountered.



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