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RESEARCH ARTICLE

ROLE OF UTERINE COMPRESSION SUTURES IN MANAGEMENT OF ATONIC POST PARTUM HAEMORRHAGE

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Abstract

Post partum hemorrhage (PPH) is an obstetric emergency that occurs in 1to 5% of both vaginal and cesarean deliveries. PPH is a major cause of maternal mortality morbidity, with sequela such as hemodynamic shock, renal failure, acute respiratory distress syndrome, coagulopathy, and sheehans syndrome. Uterine atony is the most common cause of PPH,accounting for 80% of PPH cases. Treatment of PPH due to uterine atony comprises medical and noninvasive treatment. Failure of medical treatment occurs in less than 1% of patients, and surgical methods combined with resuscitative measures will be the line of treatment in them. The prevention and treatment of PPH are therefore vital steps towards improving health care of women during childbirth. The purpose of the uterine compression sutures is to exert persistent mechanical compression to an atonic uterus as a measure to control massive hemorrhage before it results in further complications and ultimately maternal death.

Introduction:-

1. Post partum hemorrhage (PPH) is an obstetric emergency that occurs in 1to 5% of both vaginal and cesarean deliveries.
2. PPH is a major cause of maternal mortality morbidity, with sequela such as hemodynamic shock, renal failure, acute respiratory distress syndrome, coagulopathy, and sheehan's syndrome
3. Uterine atony is the most common cause of PPH, accounting for 80% of PPH cases.
4. Treatment of PPH due to uterine atony comprises medical and noninvasive treatment. Failure of medical treatment occurs in less than 1% of patients, and surgical methods combined with resuscitative measures will be the line of treatment in them.
5. The prevention and treatment of PPH are therefore vital steps towards improving health care of women during childbirth.
6. The purpose of the uterine compression sutures is to exert persistent mechanical compression to an atonic uterus as a measure to control massive hemorrhage before it results in further complications and ultimately maternal death.

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Aims and Objectives:-

1. To evaluate the role of uterine compression sutures as a conservative management of atonic PPH after failed medical management .
2. To evaluate outcome and complications of compression sutures.

Inclusion criteria

1. All patients of atonic PPH who required surgical management in the form of compression sutures.
2. Patient delivered vaginally or by cesarean section landing in atonic PPH who required compression sutures.

Exclusion criteria

1. Patient of traumatic PPH.
2. Patient of pph due to coagulation failure.

Methodology:-

1. Prospective observational study conducted at our tertiary care center over period of 1 year.
2. There were around 3600 deliveries per year.
3. Among which 40 patients landed in PPH ,in them 30 cases were due to atonic uterus, and among them 20 patient were managed by medical management
4. And remaining ten of atonic pph cases not responding to medical line of management required compression sutures.
5. We included all women who underwent uterine compression sutures after delivery during the study period.
6. The procedure was performed in the face of persistent uterine atony , refractory to uterine massage, oxytocin infusion and bolus, methylergometrine, carboprost injections using the maximum dosage.
7. We performed b-lynch suturein 9 patients and one hyman suture in one patient.
8. Most commonly applied compression was modified B-Lynch suture in 90% of cases because of the simplicity of the application , easy technique for beginners . • 10 % of cases hayman sutures were taken.

Techniques

B-Lynch suture (brace suture):

A lower uterine segment incision is made or CS suture removed. A needle punctures the site 3 cm below the uterine incision edge (point a), and then emerges 3 cm above this edge (point b).

With the thread being passed over to compress the fundus (curved arrow), the needle punctures the uterine posterior wall at the same level as the upper anterior entry point (point c). Then, the needle penetrates the opposite side from the luminal side to the outer surface of the uterus (point d).

Finally, the needle picks up the anterior wall at the same level as the initial entry point (points e and f), and the thread is tied.

Two longitudinal sutures look like a “brace- suspender,” and thus B-Lynch suture is sometimes referred to as the “brace suture.”

Characteristics Of B-Lynch Sutures

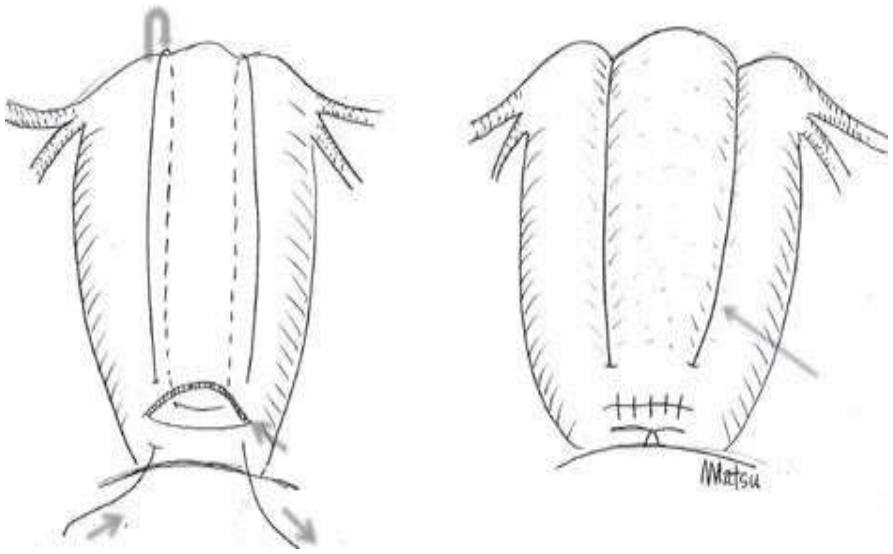
1. To incise the lower uterine segment (like a CS incision) even after vaginal delivery
2. Not to transfix the whole thickness of both (anterior and posterior) uterine walls.

Hayman suture (simple brace):

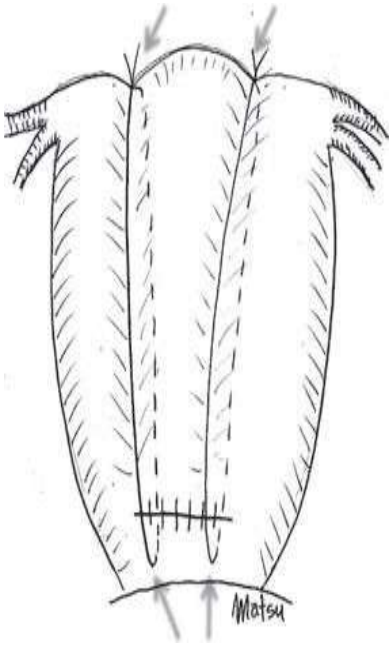
According to Hayman et al.(4), the B-Lynch suture has two drawbacks: (i) hysterotomy is necessary; and (ii) it is difficult to remember in an emergency.

In the Hayman suture, the needle transfixes the whole thickness of both uterine walls at the lower uterine segment level, with the thread being passed over to compress the fundus, and the thread tied at the fundus. The same is done on the opposite side.

If bleeding from the lower uterine segment co-exists, two transverse cervicoisthmic sutures should be made, transfixing both the anterior and posterior cervico-isthmic walls.



Although the woman initially received the B-Lynch suture, "the (B-Lynch) suture threatened to slide off the uterine fundus, like braces off a round-shouldered man."



They therefore added four vertical transfixing sutures.

Maternal Demographics And Characteristics

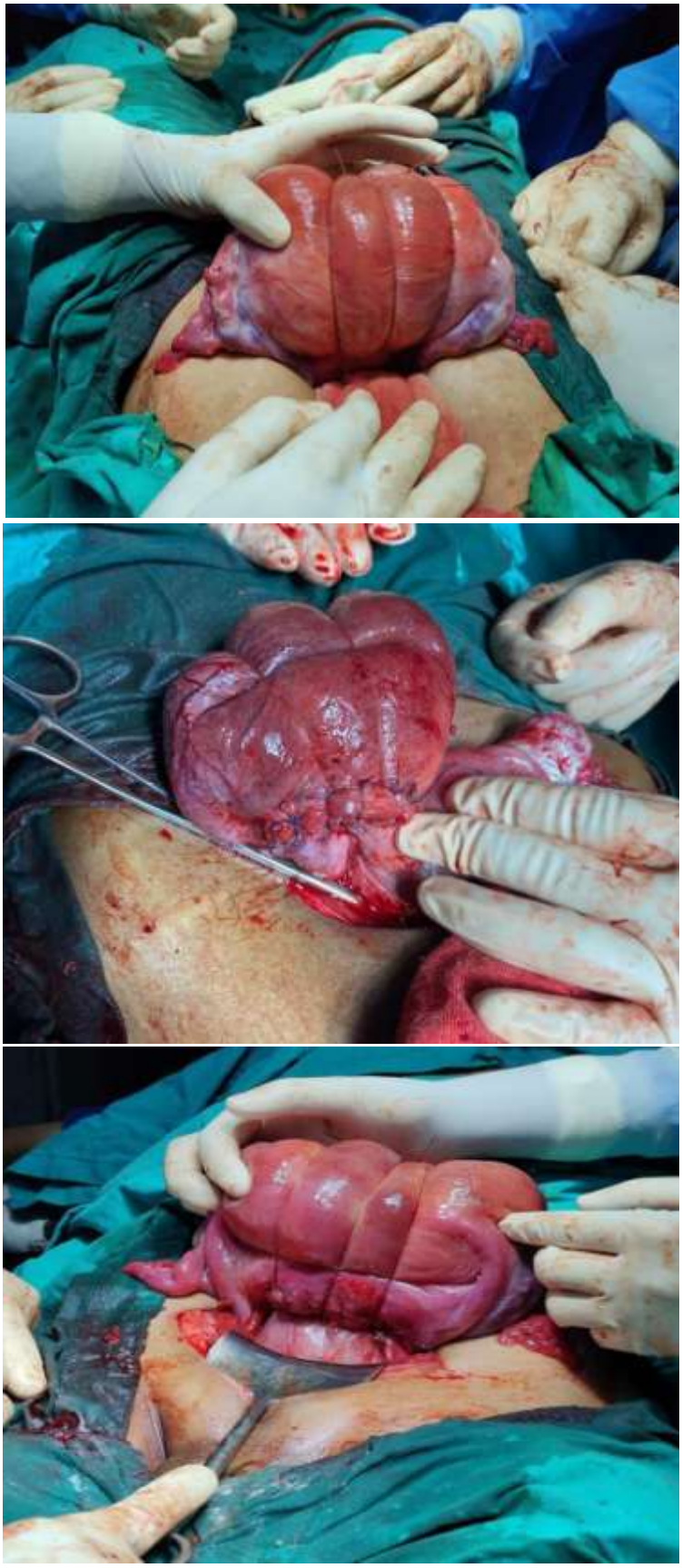
Characteristics	Mean(n=10)
Age	24.88±2.55
Gravidity	2.1±1.28
Singleton	7(70%)
Twins	3(30%)
Normal vaginal delivery	2(20%)
Cesarean section	8(80%)
Gestational age at delivery	34.33±10
Estimated blood loss	2.55±0.65
Predelivery hemoglobin	10.57±0.87
Postdelivery hemoglobin	6.94±0.89

Case no.	Maternal age	Parity	Gestational age	Mode of delivery	Concomitant condition	Estimated blood loss	Inta op transfusions	Other procedures
1	22	2	37	CS	FAILED FORCEPS	2	2 PCV	B Lynch
3	24	2	38	VD	TWIN	3	2 PCV	B Lynch
4	26	0	36	CS	TWIN	3	3 PCV	B Lynch
5	22	4	39	VD			3 PCV	Hyman
6	25	0	14	Hysterotomy	communicating rudimentary horn of unicornuate uterus	2.5	2 PCV	DELAYED HYSTERECTOMY
7	23	2	35	CS	PLACENTA. PREVIA	3.5	4 PCV	HYSTERECTOMY
8	24	3	36	CS	TWIN	2	3 PCV	B Lynch
9	28	0	36	CS	PROLONGED LABOUR	1.4	2 PCV	B Lynch
10	30	3	38	CS	Abruptio placenta	3	2 PCV	B-lynch

Results:-

1. The mean age of the women was 24.88±2.55 years
2. Mean hemoglobin concentration before delivery was 10.57±0.87 g/dL and after delivery was
3. 6.94±0.89.
4. The mean gestational age was 34.33±10 weeks.
5. Among which primigravida were 3, multigravida were 7
6. Two women were delivered vaginally, Hayman suture was taken in one of them rest all underwent a cesarean section due to various obstetric indications in which B-lynch sutures were taken .
7. 7 women had B-Lynch sutures and The man operative time for performing the compression sutures was 9 minutes (range 5 to 14 minutes).
8. Other concomitant conditions : 3 cases of twin pregnancy, one case of placenta previa , one case of abruptio placenta, one case of prolonged labour and one ectopic pregnancy.
9. One patient with placenta previa, here the massive hemorrhage could not be managed by compression sutures hence hysterectomy was the last resort of management

B-Lynch Sutures



Atonic uterus managed by B-lynch sutures in a case of Abruptio placenta.

Discussion:-

1. PPH is a life threatening condition. Fortunately, medical management of PPH is quite successful, and surgical
2. interventions are not needed in the vast majority of the cases.
3. When surgical interventions are required, a procedure that is efficient and preserves fertility is preferable.
4. Most of our patients (80%) responded well to the procedure and no other surgical interventions were needed.
5. One patient underwent obstetric hysterectomy as a last resort to control atonic PPH.
6. Other types of suture –pereira described a technique in which series of transverse and longitudinal stitches of delayed absorbable multifilament suture are placed in each direction to completely envelope and compress the uterus .
7. Cho described another technique , where multiple square sutures is used to approximate the anterior and posterior uterine wall
8. Health care provider should be aware of the possible complications associated with compression sutures , and patient treated with uterine compression should have long term follow up postoperatively to ensure early identification of complication.
9. Some complication have been reported due to compression sutures including uterine necrosis, pyometra and uterine synechiae.

Uterine necrosis due to compression sutures.

Special Attributes and Features of Compression Sutures.

1. Simplicity.
2. Lifesaving potential.
3. Relative safety.
4. Capacity for preserving the uterus and thus subsequent fertility
5. Satisfactory hemostasis can be assessed immediately.
6. Its tensile strength is reduced in 48hrs, so its exerts no permanent damage to uterus. • When procedure fails, other radical procedure can always be considered.

Conclusion:-

1. Development of compression sutures techniques has proved to be effective in the control of massive atonic PPH.
2. One can adopt compression sutures as a mid step before resorting to uterine devascularization and hysterectomy when medical management fails and thus avoiding hysterectomy and preserving potential fertility.

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