Management of uterovaginal prolapse in women with medical comorbidities: a prospective case series of vaginal cerclage procedure

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ABSTRACT

Introduction: Vaginal Cerclage is an alternative treatment procedure for uterovaginal prolapse. It is performed on those women who are regarded to be surgical candidates for vaginal hysterectomy but are unsuitable due to medical comorbidities. The purpose of this study was to determine the preliminary effectiveness of Vaginal Cerclage procedure at six months postoperative follow-up.

Methods: This is a prospective case series of Vaginal Cerclage treatment done on 31 women. The study was conducted at Chitwan School of Medical Sciences from April 16, 2009 to July 30, 2010. The effectiveness of Vaginal Cerclage was measured by standardized Pelvic Floor Distress Inventory Questionnaire (PFDIQ).

Results: Out of 31 women, 30 had significant improvement in their quality of life. A significant difference in mean from 241 to 81.2 (p value 0.0000) was observed before and after Vaginal Cerclage treatment respectively.

Conclusion: Vaginal Cerclage is an effective treatment procedure for the women with uterovaginal prolapse who are at risk for vaginal hysterectomy under general as well as regional anesthesia due to medical comorbidities.

Key words: Obliterative surgical procedure, Medical comorbidities, Vaginal Cerclage.

INTRODUCTION

Uterovaginal prolapse is one of the commonest reproductive health problems with high prevalence in Nepal. A study identified there are about 600,000 women with uterovaginal prolapse who need to be treated. However families and communities still refuse to speak about the problem and it is often a secret kept within the family¹,². Vaginal hysterectomy is still the popular surgery for the treatment of prolapse. However such major surgery in rural settings is not free from risks.

Women with uterovaginal prolapse having preexisting medical comorbidities are at risk for vaginal hysterectomy under general and spinal anesthesia. So they are usually referred to well equipped hospitals from rural areas.

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However referred cases rarely reach the hospital to get treatment because most of the women are home workers and their prime concerns are the cattle which they have to take care of. For this reason an alternative treatment technique was developed for the treatment which can be performed even in rural hospitals with proper training to the health workers.

In Vaginal Cerclage (VC) technique, operator makes 2-3 small rings by permanent threads inside the vaginal canal just beneath the fibromuscular layers of vaginal canal. These rings are made one finger in diameter with permanent suture material which does not allow the cervix and uterus along with the vagina to come down. The first ring is made just below the cervix and the second ring is just above the hymen level. (Figure -1; Figure-2). If operator thinks two rings are insufficient s/he can put a 3rd ring which is placed midway between the 1st and 2nd ring.

So, the aim of this study was to determine the preliminary effectiveness of Vaginal Cerclage procedure, which is an alternative treatment procedure to vaginal hysterectomy in women with medical comorbiditis.

**Indication of VC**

- UVP of II degree, III and Precedentia with medical co-morbidities risk for General & spinal anesthesia.
- Older age group ≥65 yrs
- Sexually inactive

**Contraindication of VC**

- Active infection / lesion/ Ulcer inside vaginal canal
- UVP with cervical lesion
- Uterine bleeding
- Known allergy to Local anesthesia.
- Prolapse with an elongated cervix without cytocele and rectocele.

**Patient Preparation**

- Explanation of the procedure
- Perineal hygiene
- Single dose of ciprofloxacin 500 mg orally, 2 gram of tinidazole
and 1g of paracetamol orally one hour before cerclage application.

Materials and Instruments for single procedure
- Sponge holder-1set
- Sim’s speculum-1set
- Volsellum-1set
- D.Syringe 10 ml with needle-1 set
- Allies-2 sets
- Needle holder-1 set
- Tooth forceps-1set
- Artery forceps-4 sets
- Scissors-1set
- Blade holder/ blade-1set
- Kidney tray-1set
- Proline no -1 suture -1 pc.
- Gauze piece-5 pcs
- Cotton piece-3 pcs
- Betadine solution-50ml
- Vaginal Pack- 1pcs
- Foley catheter no 14/16-1 set
- Urobag-1 set
- Xylocain jelly -1pc.
- D.Syringe 10 ml
- Surgical blade

Post Operative Care
- Allocation of diet and drugs
- Analgesics
- Pericare and removal of vaginal pack and catheter 1day after procedure

Problems after cerclage
- Occasional Infection
- Pricking sensation due to knot (if it is exposed from vaginal skin)

Patient Positioning: After explaining the procedure, patient is placed in the dorsal lithotomy position, the prolapsed part is surgically prepared with antisepctic solution and a Foley catheter is placed.

Sites of local anesthesia: Ten milliliters of 1% lignocaine is sufficient for local anesthesia. Six ml of 1% of lignocaine is infiltrated circumferentially i.e. anteriorly, laterally and posteriorly at the level of sub urethral sulcus of the prolapsed part, about 3 ml of 1% lignocaine is also injected at 3, 5, 7, 9, and 12 o’clock position at paracervical areas 2.5 cm above from exocervix at the level of the internal os.

Level of Vaginal Cerclage: The permanent no 1 proline sutures is placed circumferentially at two levels of the prolapsed part. The first cerclage is placed at the level of suburethral sulcus which lies approximately 3 cm below the urethral meatus. Second cerclage is placed at the level of internal os approximately 3 cm above the exocervix (Figure 1, Figure 2)

First Cerclage Suture Placement: Each of the two lips (Anterior and Posterior) of the cervix should be held by the Allies forceps. Four small incisions, 2 cm in length longitudinally are given at 10, 2, 4 and 8 o’clock positions just 3 cm below from the urethral meatus (Figure 3).

Figure 5, demonstrates the sites of small incision anteriorly.
The incisions are bluntly dilated and lifted up with artery forceps at the plane of the fibromuscular layer (Figure 4).

![Image](image1)

Figure 6, demonstrates incision sites posterior and than dilatation of wound.

Suturing is started from any one of these incisions and ended at the same incision. The vaginal skin with underlying fibromuscular layer is lifted up by a needle circumferentially avoiding bladder pricks. The needle with suture is advanced from one incision to the next and taken out (Figure 5).

![Image](image2)

Figure 7, demonstrates advancement of suture from one incision to the next anticlockwise.

Sufficient length of the suture is left to make a knot. The two ends of the suture are clamped and fixed on drapes with artery forceps.

Second Cerclage Placement: The second is placed 2.5-3 cm above the exocervix where the vaginal skin is loosely attached. There is no need for giving incision at this level (Figure 6).

![Image](image3)

Figure 8, demonstrates the second cerclage placement.

First bite is taken from the 2 o’clock position and the needle is advanced circumferentially. In order to make the threads invisible, the needle is introduced at the same point from which it is taken out. A sufficient length of suture is left and clamped.

Placement of prolapsed part: The prolapsed vaginal canal with uterus & cervix is placed inside the pelvic cavity with the help of sponge holding forceps. The prolapsed part is gently pushed upwards. The assistant stabilizes the sponge holder by pushing upward.

Cerclage tie: First, the second cerclage placed at the cervical level is tied just as tightly as it holds the sponge holder which is used to place the prolapsed part inside the pelvic cavity and the knot is secured sufficiently. The patient is asked to cough and if a mass comes out the next or third cerclage is applied between the two cerclages. Secondly, the first cerclage placed at the sub urethral sulcus is tied (Figure 7).
The vaginal canal is left one finger breadth open. The knots are secured and buried underneath the vaginal skin with 2.0 catgut inorder to avoid irritation. Vaginal packing is done with ribbon gauze using soaked Betadine. A course of antibiotic and some analgesics are given. The effectiveness is assessed the next day after surgery and six months post-surgery. Vaginal pack and urinary cather is removed after 12 hours of cerclage application.

**RESULTS**

Vaginal Cerclage was performed in 31 women with advanced uterovaginal prolapse. The age of the women ranged from 65-90 years in which the mean age was 71 year. Parity ranged from 1-7. About 55% (17) women had third degree, 26% (8) had procedentia and 19% (6) had second degree uterovaginal prolapse(Table 1).

Most of the women 39%(12) had chronic obstructive airway disease, 29%(9) cases had high blood pressure, 16%(5) had heart diseases, 10%(3) had thyroid problems and 6%(2) had other medical comorbidities. Only 4 women had history of stress incontinence of urine.

Out of 31 women, 30 women had a significant decrease in Pelvic Floor Distress Inventory after vaginal cerclage. One woman had spontaneous release of vaginal cerclage. There was a significant difference in the mean (241vs. 81.2; P=0.0000); 95% confidence interval for the mean was 233.4 -248.5 vs. 70.55 - 91.83 and standard deviation was 29 vs.
28 before and after vaginal cerclage treatment respectively. The mean post cerclage treatment procedure period was 19.8 hours.

Three women attended the outpatient department with the complaint of an irritation by threads, 1 case presented with a spontaneous release of cerclage and 1 case had minor perineal infection. No complications, such as intra-operative hemorrhage, cardiovascular complications and pneumonia were observed.

**DISCUSSION**

In one series done by Heisler CA reported that 4.2% had cardiovascular disease and prior myocardial infarctions (1.9%) in referred patients from the community. Referral patients also had higher American Society of Anesthesiologists scores (ASA) (score of 3 or 4, (12.6%) So a significant number of women (18.6%) with comorbid conditions...
condition with uterovaginal prolapse are referred to equipped hospital from rural areas. The highest comorbidity in the Nepalese context is chronic obstructive pulmonary diseases followed by moderate to severe hypertension and heart diseases. These women are helpless and usually single and socially discriminated. Vaginal Cerclage would be the choice of treatment procedure for such women.

There are two options, conservative and surgical treatments for the management of uterovaginal prolapse. Use of ring pessary is described as a conservative treatment of uterovaginal prolapse. Women usually neglect the pessaries inside or forget its need of periodic changes which causes chronic infection and ulceration. For this reason, Pessary is losing its popularity. There is also a high chance of slipping of the pessary. In a large retrospective study, 71% of patients were found suitable to be initially fitted with a pessary, but three weeks later the overall success rate came only to be 41%.

The advantages of Vaginal Cerclage is that it does not promote infection in the vaginal canal and there is no need of periodic changes like ring pessary. Vaginal cerclage can even be applied after healing of the decubitus ulcer.

However there is definite role of pessary in ulcerative prolapse. People have used double pessaries or even triple pessaries for satisfactory healing of the ulcerative prolapse. Therefore, the advantage and use of pessaries become selective for a short period of time rather than longer period.

Vaginal hysterectomy with pelvic floor repair is the most popular traditional surgical treatment for uterovaginal prolapse. However it is not free from the risk of hemorrhage, infection and vault prolapse. The abdominal sacrocolpopexy with or without hysterectomy, trans vaginal sacrospinous ligament fixation are also effective treatment for massive vaginal vault or uterovaginal prolapse in aged women. However increased blood loss may elevate the risk of cardiovascular complications especially in elderly patients with a history of vascular disease. General or regional anesthesia is preferable for the aforementioned procedures. There is high risk of morbidity and mortality to do vaginal surgery under general/spinal anesthesia in preexisting medically comorbid women with severe prolapse but vaginal cerclage can be done under local anaesthesia in such women.

Other available surgical options are Leforts operation, partial or complete Colpoclesis but these operative procedures have also got complications such as hemorrhage and cardiovascular complications and are not so easy to be done under local anaesthasia.

There are some limitations of vaginal cerclage treatment procedure. Though there is low incidence of cervical cancer after the age of 65 years, the application of vaginal cerclage in this age group is not absolute. Ruling out of cervical cancer and endometrial cancer is ideal before the application of vaginal cerclage. Endometrial aspiration biopsy and pap smear are the important screening procedure to rule out those conditions. If women develop signs and symptoms of cervical cancer or endometrial cancer, the vaginal cerclage can be released and Pap smear test and cervical biopsy can be done. Re-application of the cerclage can also be done if the cancer test is negative.
CONCLUSION

Vaginal Cerclage is a very simple and safe procedure that can be done in an outpatient basis. Trained medical officer can easily perform this procedure.

Our understanding and concepts of pelvic organ prolapse and its treatments are constantly evolving. We, as pelvic surgeons, must continue to evaluate and apply new principles and techniques to extend our care to ruined lives.

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