



**BROUGHT TO YOU BY**  
**YTP CHAIRPERSON**  
**Dr. Neharika Malhotra**  
 MD(obgyn), DRM Germany  
 Rainbow IVF, Agra



**Author - Dr Amrita Tandon**  
 MS, DNB (OBGY) MRM (London), FMAS  
 Consultant Gynaec Endoscopic Surgeon,  
 Fertility & IVF Specialist,  
 Dr. Sudha Tandon Fertility, IVF, Endoscopy  
 and Maternity Centre, Mumbai and Navi Mumbai

## " YTP UPDATE 2020 "

### LAPAROSCOPIC TRANSABDOMINAL CERCLAGE

Cervical Insufficiency or Incompetence has an incidence of 0.1 - 1%, and is associated with a high risk of second trimester miscarriage and/or preterm delivery.

A cerclage, or a purse-string suture around the cervix, can be used to treat cervical insufficiency and prevent recurrent second-trimester loss and preterm delivery. Conventionally, a cerclage is placed vaginally; but, a cerclage may be placed abdominally in more severe cases such as a prior failed vaginal cerclage or an extremely short cervix<sup>1</sup>. The transabdominal cerclage procedure aims to strengthen the cervix by placing a suture at the level of the internal os.

#### INDICATIONS OF VAGINAL CERCLAGE :

Evidence supports placement of vaginal cerclage in women with prior spontaneous preterm birth, singleton gestation, and cervical length < 25 mm by transvaginal ultrasound.

#### INDICATIONS OF TRANSABDOMINAL CERCLAGE :

1. Congenital short or absent cervix
2. Amputated cervix, marked cervical scarring eg. previous conization, radical trachelectomy
3. Cervical defects
4. Previous failed elective vaginal cerclage

The transabdominal cerclage was first described by Benson and Durfee in 1965 and the laparoscopic approach was first reported in 1998 by Scibetta et al. and Lesser et al.

Compared to the open method, laparoscopic cerclage has the benefit of reduced blood loss, reduced postoperative pain, and fewer adhesions, as well as decreased length of hospital stay and overall faster recovery time

#### TIMING OF CERCLAGE

##### INTERVAL/PRECONCEPTION CERCLAGE

- Cerclage performed prior to pregnancy when there is a known history of repeated miscarriages or preterm delivery with a previous failed vaginal cerclage, or due to other indications like absent vaginal cervix, scarred or grossly disrupted cervix.
- Technically easier

##### POSTCONCEPTION/ NON INTERVAL CERCLAGE

- Pregnancy cerclage can be done electively at 12-14 weeks of gestation or as a rescue cerclage when the cervical length on transvaginal ultrasound is <25mm, with a history of prior failed vaginal cerclage.
- Manipulation of the gravid enlarged uterus is technically difficult.



- Easier manipulation of the uterus by use of a manipulator, which is not possible in a gravid uterus.
- Lower risk of bleeding complications, risks due to increased pelvic vascularity in pregnancy obviated.
- Thus associated with a reduced surgical and obstetric risk .

- Due to increased pelvic vascularity, bleeding complications can occur, with damage to the engorged uterine vessels and may be difficult to control.
- Minor Risk of damage to fetus , fetal demise and preterm birth in about 1.2% cases.
- Minor increased risk of surgical complications like bladder and bowel injuries.

## SURGICAL TECHNIQUE

Primary 10mm trocar insertion is done by direct trocar entry/ creation of pneumoperitoneum by Veress needle insertion or open technique just above the level of the umbilicus.

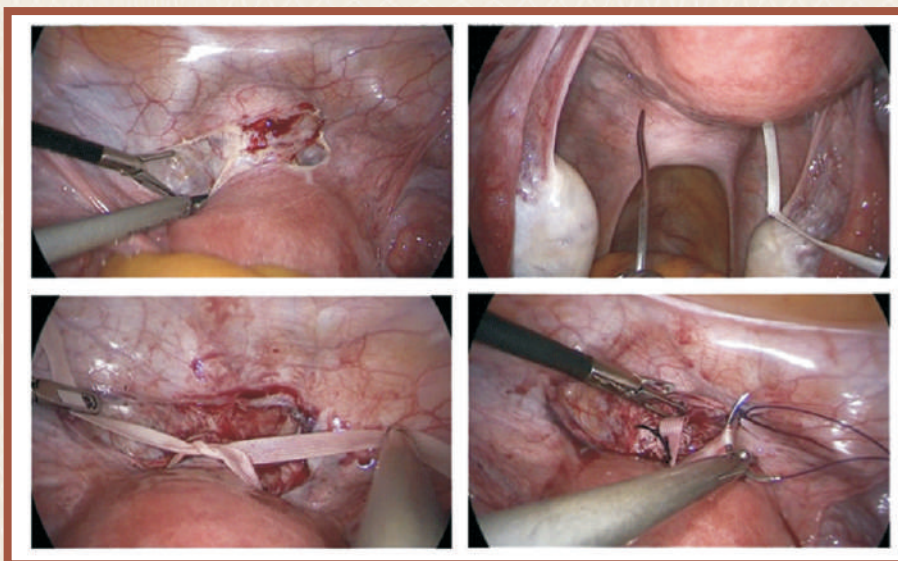
In the postconception period, the primary trocar should be placed high up above the level of the gravid uterus to avoid injury to it. Accessory 5mm trocars are usually placed in the bilateral lower quadrants and one suprapubic or ipsilateral port for dissection and knot tying.

In the non pregnant state, a uterine manipulator can be placed to help during dissection and passage of suture. In pregnancy the uterus is manipulated by blunt graspers.

The preferred suture is the double-armed 5-mm Mersilene polyester tape with taper-point CTX or blunt-tip BP-1 needles . The needles are straightened extracorporeally before passing through the trocars. The main steps of cervical cerclage are as follows :

1. Opening the peritoneum over the anterior uterine isthmus and dissecting the bladder.
2. Creating “lateral windows” bilaterally, by opening the left and right broad ligament . However, some techniques described in literature do not consider this step necessary.
3. Passing the Mersilene tape needle on the left side medial to the uterine vessels, at the cervicoisthmic junction at the level of the internal os.
4. Passing the Mersilene tape on the right side medial to the uterine vessels at the cervicoisthmic junction
5. Tying the Mersilene tape anteriorly. The knot can be tied posteriorly as well.
6. Closure of the uterovesical peritoneum with 2-0 vicryl/ 2-0 monocryl suture.

When a uterine manipulator is used in the non - pregnant state, it is important to remove the manipulator before tying the knot.



Laparoscopic abdominal cerclage technique. Top left: Opening the peritoneum to reveal the cervicoisthmic junction. Top right: Inserting a straightened needle of the double-arm Mersilene polyester tape at the internal cervical os. Bottom left: Securing the cerclage knot anterior to the cervix. Bottom right: Closing the overlying peritoneum. <sup>1</sup>Clark. Laparoscopic abdominal cerclage. Fertil Steril 2020.



## DELIVERY AND CERCLAGE REMOVAL :

Patients with a transabdominal cerclage require a caesarean delivery. The delivery can be electively performed between 37 to 38 weeks of gestation or earlier in case of decreased cervical length on ultrasound or signs of preterm labour. The cerclage stitch is left in situ for future pregnancies. In case of completed child bearing, the stitch can be cut. No attempt should be made to remove the merselene tape from the substance of the uterus. In case of previable fetal loss, a dilatation and curettage can be done without removal of the cerclage in the first trimester. In case of second trimester loss or preterm labour prior to viability , the cerclage stitch can be cut laparoscopically.

## OUTCOMES :

Moawad published a systematic review including 41 studies and 1844 patients, 1116 submitted to an open method and 728 to laparoscopic abdominal cerclage. In terms of obstetrical outcomes, the laparoscopic group showed a higher rate of deliveries beyond 34 weeks (82.9 vs 76%) and a lower rate of deliveries at gestational age of 23 to 33 weeks. Besides, Laparoscopic Abdominal Cerclage has fewer second trimester losses when compared to laparotomy (3.2% vs 7.8%). Authors concluded that laparoscopic approach offers not only the benefits of minimally invasive surgery, but also better obstetrical outcomes.<sup>2</sup>

In another study, of 19 women, who underwent laparoscopic transabdominal cerclage in pregnancy, at 6-11 weeks gestation, the perinatal survival rate was 100%. There were no complications. The average gestational age at delivery was 37.1 weeks. Sixteen women delivered after 34 weeks.<sup>3</sup>

In another study among women who underwent laparoscopic transabdominal cerclage, the outcomes of 121 pregnancies were presented resulting in 125 babies. The perinatal survival rate of viable pregnancies was 98.5%, with a mean gestational age at delivery of 35.2 weeks; 79.7% of babies were delivered at  $\geq 34.0$  weeks gestation<sup>4</sup>

In a systematic review, Zaveri and associates<sup>5</sup> compared 117 women with transabdominal cerclage and 40 women with vaginal cerclage. The transabdominal approach was associated with a lower risk of perinatal death or delivery at  $< 24$  weeks of gestation, but a higher risk of serious operative complications (3.4% vs 0%).

The outcomes in the transabdominal cerclage group were significant for increased gestational age at delivery and reduced incidence of preterm delivery and preterm premature rupture of membranes.

## CONCLUSION :

Laparoscopic transabdominal cerclage is a safe and effective procedure resulting in favourable obstetric outcomes in women with a poor obstetric history particularly for refractory cervical insufficiency. Current evidence is in favour of abdominal cerclage over a repeat vaginal cerclage in patients who have had one previous failed vaginal cerclage. Laparoscopic procedure has similar or improved neonatal survival rates compared to the open method along with offering benefits of a minimally invasive surgery.

For optimal success the procedure requires the correct surgical expertise, equipment and appropriate patient selection.

## REFERENCES :

1. Clark NV, Einarsson JI. Laparoscopic abdominal cerclage: a highly effective option for refractory cervical insufficiency. *Fertil Steril*. 2020;113(4):717-722. doi:10.1016/j.fertnstert.2020.02.007
2. Gaby N Moawad, Paul Tyan, Tracey Bracke, Elias D Abi Khalil, Vicky Vargas, Alexis Gimovsky, Cherie Marfori, Systematic Review of Transabdominal Cerclage Placed via Laparoscopy for the Prevention of Preterm Birth, *The Journal of Minimally Invasive Gynecology* (2017), <http://dx.doi.org/doi:10.1016/j.jmig.2017.07.021>.
3. Ades A, Aref-Adib M, Parghi S, Hong P. Laparoscopic transabdominal cerclage in pregnancy: A single centre experience. *Aust N Z J Obstet Gynaecol*. 2019;59(3):351-355. doi:10.1111/ajo.12848
4. Ades A, Parghi S, Aref-Adib M. Laparoscopic transabdominal cerclage: Outcomes of 121 pregnancies. *Aust N Z J Obstet Gynaecol*. 2018;58(6):606-611. doi:10.1111/ajo.12774
5. Zaveri V, Aghajafari F, Amankwah K, Hannah M. Abdominal versus vaginal cerclage after a failed transvaginal cerclage: a systematic review. *Am J Obstet Gynecol*. 2002;187:868-872.