

Conservative Operations in Genital Prolapse

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About the Author



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Abstract This review article highlights the contributions of various gynecologists from India toward surgical management of pelvic organ prolapse. It will provide an

overview of the different sling operations for conservative treatment of genital prolapse. A new classification of the sling operations is put forth. The advantages and disadvantages of these operations will be discussed.

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Keywords Pelvic organ prolapse · Conservative treatment · Sling operations for genital prolapse

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Introduction

In India, nulliparous prolapse cases constitute 1.5–2 % of genital prolapse; the incidence is even higher (5–8 %) for young women who have just delivered one or two children making it one of the highest in the world. The prevalence is very high in India because Indian women, especially those

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with poor socioeconomic status, are anemic and malnourished ('maternal depletion syndrome') with poorly developed pelvic floor tissues and the additional insult of one or more vaginal deliveries at home is sure to bring down the cervix and uterus.

Gynecology is already replete with many and varied conservative operations for prolapse. Their very number indicates that no gynecologist in the past has been completely happy with the various operations at his/her disposal. The first conservative operation to be described for the treatment of genital prolapse was that devised by Archibald Donald and William Fothergill: the Manchester operation. The Manchester operation was later modified by VN Shirodkar who described uterosacral advancement operation; in this modification, cervix is not amputated [1].

In the evolution of conservative operations for prolapse, many sling operations were described in India that soon became very popular because of their simplicity and effectiveness.

Initially body tissues like fascia lata and rectus sheath were used, but later given up. Native fascia was replaced by synthetic slings that produce minimal tissue reaction and remain unabsorbed giving lifelong support. Surgical treatment of genital prolapse in young women creates two problems:

- The repair method can jeopardize future childbearing
- There can be recurrence of prolapse following subsequent vaginal delivery

This is what happens with the traditional Fothergills operation. The inert slings, however, do not create these problems. There has been a paradigm shift in the type of material used to create new support for the prolapsed uterus. Traditional operations like Fothergills use native fascia for repair, the same endopelvic fascia that was the cause of the prolapse: this falls over time resulting in recurrence, whereas modern sling operations use a prosthetic material like Mersilene which gives lifelong support. This is also the reason why the rectus sheath used in original cervicopexy was replaced by prosthetic tape. Thus, in modern gynecology, native fascia has been abandoned in favor of prosthetic materials.

Since India has the largest prevalence of nulliparous prolapse, it is no surprise that Indian gynecologists have devised most of the conservative operations for genital prolapse. The various conservative sling operations for genital prolapse in young women who want to preserve fertility are:

- Shirodkar sling: 1958
- Purandare cervicopexy: 1965
- Khanna sling: 1972
- Soonawalla sling: –

- Joshi sling: 1993
- Virkud sling: 1999

Classification of Sling Operations

When comparing the various sling operations, it is important to look at certain important aspects of the supporting sling: My classification of sling operations is based on the following criteria:

- Position of support: whether the support is coming from the anterior aspect or posterior aspect or is neutral or both anterior and posterior. Anterior support will cause retroversion which is bad whereas posterior support is good because it anteverts the uterus.
- Type of support: whether it static like the sacral promontory/anterior superior iliac spine or dynamic like the anterior abdominal wall (comes into action only when required)
- Type of Loop formed: whether it is closed loop sling operation or open sling operation. Closed loop sling has one drawback: Should the loop be very narrow, there is a potential risk of postoperative intestinal obstruction; hence, open sling is better.

Based on these criteria, my classification of sling operations is summarized in Table 1 [2]:

Selection Criteria for Sling Operations

In order to decide which patient is suitable for a sling operation, certain selection criteria must be followed. These are:

- Young women with second or third-degree uterocervical prolapse
- Uterocervical length of less than five inches
- Absent or minimal cysto/rectocele
- If moderate to large cysto/rectocele is present, it should be repaired from below at the same sitting before performing the sling
- Not suitable for hypertrophied, lacerated and infected cervix

An overview of the different sling operations for conservative surgical treatment of pelvic organ prolapse is given in the following paragraphs.

Shirodkar's Sling Operation

VN Shirodkar was the first to describe a conservative sling operation [3, 4]: His aim was to recreate the uterosacral ligaments because he realized that they have a more

Table 1 Vir kud classification of sling operations

Shirodkar's sling	Static, closed loop, posterior sling operation
Purandare's cervicopexy	Dynamic, closed loop, anterior sling operation
Khanna's sling	Static, open, neutral sling operation
Vir kud's composite sling	Static + dynamic, open, anterior + posterior sling operation
Sonawala's sling	Static, open and unilateral posterior sling
Joshi's sling	Static, closed loop, anterior sling operation

important role in prevention of genital prolapse that the cardinal ligaments. In his sling operation one end of tape is attached to the anterior longitudinal ligament and then passed subperitoneally along the right pelvic wall between the two leaves of broad ligament and transfixed to isthmus posteriorly. It passes posteriorly through left broad ligament; it is then passed through a psoas loop, through the sigmoid mesentery back to the sacral promontory where it is fixed. See Fig. 1.

Shirodkar sling has following advantages:

- Anatomically it is the most correct operation as it maintains the uterus in its correct anatomical position.
- It provides a strong static bony support.
- No tendency to enterocele formation

Disadvantages of the sling operation are:

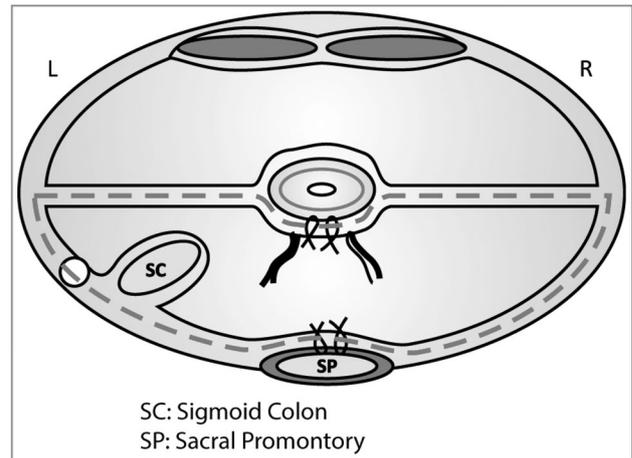
- Technically very difficult to perform
- The degree of difficulty is more on the left side where the sling has to pass through the Psoas loop and then under the sigmoid mesentery
- There is risk of injuring the nerves passing through the psoas muscle while making the Psoas loop.
- Since it is a closed loop sling, should it become tight, there is a risk of bowel obstruction.

Purandare's Sling Operation

Purandare cervicopexy was first described by Dr. B. N. Purandare in 1965 [5]. He used rectus sheath strips as sling material. Purandare cervicopexy was later modified by Dr. V. N. Purandare and Pravin Mhatre; they used Mersilene tape and attached the tape to the isthmus posteriorly instead of anteriorly. See Fig. 2.

Advantages of Purandare sling are:

- Technically very easy to perform
- Provides dynamic support to uterus

**Fig. 1** Shirodkar's Sling Operation (tape path)

Disadvantages are:

- The uterus becomes retroverted
- There is a tendency to enterocele
- Since the tape is anchored to the isthmus anteriorly, it may be damaged at subsequent cesarean section (LSCS) operation.
- Advancement of bladder on uterus may make exposure of lower uterine segment difficult.
- Since it is a closed loop sling, should it become tight, there is a risk of bowel loops being trapped between uterus and anterior abdominal wall

Khanna's Sling Operation

In 1972, during Maternal Mortality Conference in Mumbai, Brigadier SD Khanna made a video presentation of his technique for conservative treatment of nulliparous prolapse. The principle aim of the sling is to strengthen the cardinal ligaments. The ends of the tape are attached to the anterior superior iliac spines.

Advantages of Khanna sling are:

- Technically fairly easy to perform
- Does not retrovert the uterus
- No risk of bowel obstruction

Disadvantages are:

- If the tape is very superficial, it can be very easily felt by the patient
- If skin wound gets infected, periostitis results which is very painful and there is a risk of the tape getting detached.

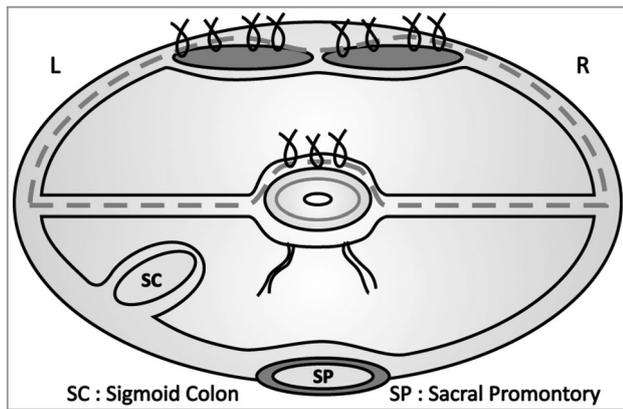


Fig. 2 Purandare's Cervicopexy (tape path)

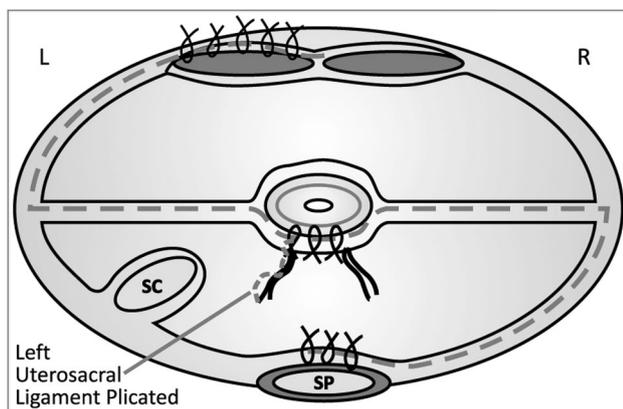


Fig. 3 Virkud's Composite Sling Operation (tape path)

Virkud's Composite Sling Operation

In 1999, I first reported my Virkud composite sling operation at 'Recent Advances in Obstetrician & Gynecology Conference' held in Mumbai [2, 6]. In my operation, the tape is fixed to anterior longitudinal ligament, passed subperitoneally along right side, and then transfixed to isthmus posteriorly at the level of the uterosacral ligaments. The tape is then passed between two leaves of left broad ligament, it then pierces the transversals fascia in the internal inguinal ring and passes medially between the anterior rectus sheath and rectus muscle where it is fixed to the rectus compartment. This operation has the advantages of Shirodkar and Purandare sling operations, and at the same time, it avoids the disadvantages of both these operations. See Fig. 3.

Advantages are:

- Technically the operation is easy to perform.
- Provides double support: Bony (sacral promontory) + Dynamic (rectus sheath)

- Uterus remains anteverted
- No tendency to enterocele formation
- No risk of injury to sigmoid mesentery/colon or the genitofemoral nerve
- No risk of bowel obstruction (open sling)
- No difficulty in subsequent LSCS: as tape is posterior

Only disadvantage is that it tends to dextrorotate the uterus: This is the reason why I advised plication of the left uterosacral ligament.

Soonawala's Sling Operation

Dr. RP Soonawala advises only a right sided posterior sling as in Shirodkar's sling operation to avoid the risks of passing the sling on the left side. Advantages of Soonawala sling are:

- No risk of bowel obstruction (open sling)
- No risk of injury to sigmoid mesentery/colon or the genitofemoral nerve

Disadvantages are:

- Position of uterus may be distorted

Joshi's Sling Operation

A technique described by Dr. Vivek Joshi from Pune is an extraperitoneal sling operation where the uterus is suspended from the pectineal ligaments on either side with Mersilene tape [7]. Actually, he devised the operation for treatment of vault prolapsed; however, it can be used for uterocervical prolapsed as well. According to Dr. Joshi, a simultaneous Burch colposuspension can be useful in selected cases. Advantages of Joshi sling are:

- Gives good static support.
- No risk of injuring the ureters, rectosigmoid, median sacral vessels.

Disadvantages are:

- Operating in the retropubic space requires experience
- Risk injury to vessels in the retropubic space
- The uterus becomes retroverted
- There is a tendency to enterocele
- Tape may be damaged at subsequent cesarean section (LSCS) operation.
- Risk of bowel loops being trapped between uterus and anterior abdominal wall [7]

Conclusion

Repair of cystocele and rectocele can be combined with sling operations but the repair must be done before the sling surgery. The above sling operations can also be performed endoscopically. Various sling operations can be performed endoscopically. Endoscopic fixation of the parvaginal fascia to the lateral pelvic wall and sacrospinous ligaments using extraperitoneal approach has also been described.

I would like to end the review article with a quote by Nobel Prize-winning Albert Szent Gyorgi:

“Discovery Consists of Seeing What Everybody Has Seen and Thinking What Nobody Has Thought”

Compliance with Ethical Standards

Conflict of interest The authors have no conflicts of interest.

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