

Colpocleisis and Tension-Free Vaginal Tape Sling for Severe Uterine and Vaginal Prolapse and Stress Urinary Incontinence under Local Anesthesia

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Abstract

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Study Objective. To describe the technique, complications, and outcomes of vaginal repair of concomitant advanced uterine and vaginal prolapse and stress urinary incontinence using colpocleisis and tension-free vaginal tape (TVT) and pubovaginal sling under intravenous sedation and local anesthesia in elderly and/or medically compromised patients.

Design. Retrospective analysis (Canadian Task Force classification III).

Setting. Large tertiary care hospital with university affiliation.

Patients. Thirty consecutive women.

Intervention. Colpocleisis and TVT-pubovaginal sling.

Measurements and Main Results. Data were obtained by retrospective chart review of office and surgical records and follow-up physical examinations. All 30 patients had the procedure completed without general anesthesia. Mean estimated blood loss was 56 ml (range 10–150 ml), mean operating time 97.3 minutes (range 65–135 min), and mean hospital stay 1.62 days (range 1–12 days). No intraoperative complications occurred, although one woman experienced a postoperative myocardial infarction. Average follow-up was 19.1 months. Three women required reoperation for minor prolapse (2 posterior repairs, 1 anteroposterior repair) and 94% were cured of stress incontinence.

Conclusion. Preliminary data suggest that surgical correction of concomitant severe pelvic organ relaxation and stress urinary incontinence using a proved procedure (pubovaginal sling) coupled with colpocleisis can be performed rapidly and safely with local anesthesia and mild sedation, thus limiting the potential risks of general anesthesia and more invasive surgical procedures.

Genuine stress urinary incontinence (SUI) and vaginal prolapse appear to be commonly related to aging, obstetric trauma, and chronic increases in intraabdominal pressure. Trauma to ligaments and fascia and loss of tone in muscular components of the pelvic floor probably contribute to various forms of prolapse, such as anterior or posterior vaginal wall prolapse (cystocele, rectocele), enterocele, and apical prolapse (uterine or vaginal vault prolapse), as well as urethral hypermobility, resulting in SUI. These conditions are most often seen in elderly women, many times concomitantly. These patients often have many other diseases in addition to general deterioration of their health, putting them at high risk for surgical correction.

Surgery for severe uterine and vaginal prolapse and genuine SUI was traditionally performed under general anesthesia, which can lead to complications, especially in the elderly and physiologically fragile. Risks of general anesthesia in the elderly include intraoperative cardiovas-

cular compromise as well as postoperative atelectasis, pneumonia, stroke, and cognitive changes. Successful surgical repair of severe pelvic organ prolapse was performed rapidly and safely under local anesthesia without the need for general anesthesia, thus limiting such risks.¹ However, correcting prolapse alone with common vaginal procedures such as colpocleisis or anterior and posterior repair does not adequately address the patient with genuine SUI. Although some advocate adding Kelly plication to the procedure to address this issue, this procedure has a poor long-term cure rate.^{2,3}

Tension-free vaginal tape (TVT; Gynecare Corp., Somerville, NJ) with pubovaginal sling was introduced as a minimally invasive technique performed under local anesthesia for surgical correction of SUI. First described in Sweden in 1995, it has been performed extensively in Europe since clinical trials established its safety and effectiveness as an ambulatory surgical procedure.⁴ The TVT

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procedure is associated with high success rates, comparable with those of traditional suburethral sling procedure, yet may lower the frequency of intraoperative and postoperative complications.⁵

Materials and Methods

Thirty sexually inactive women (mean age 79.2 yrs, range 65–93 yrs; mean parity 2.8, range 0–8) were surgically treated for severe pelvic organ prolapse and genuine SUI with colpocleisis and TVT suburethral sling under intravenous sedation and local anesthetic. They all desired surgical correction of pelvic organ relaxation with an obliterative surgical technique and surgical repair of SUI. Their office and hospital charts were reviewed and assessed for age, parity, severity of prolapse, incontinence type, operating time, estimated blood loss, intraoperative and postoperative complications, and length of hospital stay.

Patients underwent preoperative assessment of the urogenital tract including pelvic examination and multichannel urodynamic studies with the prolapse reduced. Based on the International Continence Society quantification system, all patients had at least stage III prolapse. They were offered nonsurgical management consisting of local estrogen therapy and pessary placement, but they either refused or had already failed a trial of pessary placement.

The decision to use a vaginal approach to treat the prolapse and incontinence, as well as an obliterative surgical procedure under local anesthesia, was made after discussion with the women regarding their desire for future sexual activity as well risks associated with general anesthesia and more invasive surgical procedures.

Operative Technique

Patients received intravenous sedation (monitored anesthesia care) and local anesthetic infiltrate with 0.25% lidocaine with epinephrine (1:400,000); specific techniques are described elsewhere.^{1,4} No patients required ventilation, and although consciously sedated, they were arousable and able to obey the command to cough during the TVT portion of surgery.

Surgical technique to correct severe prolapse was organ dependent. Lefort colpocleisis was performed in women with uterovaginal prolapse and total colpocleisis in those with vaginal eversion. In all patients the TVT sling was performed after surgical correction of prolapse using the technique described elsewhere.⁴

Vaginal prolapse was repaired before completing the TVT suburethral sling procedure (Figure 1). Colpocleisis and TVT suburethral slings were performed in a conventional manner. If an enterocele was encountered, the

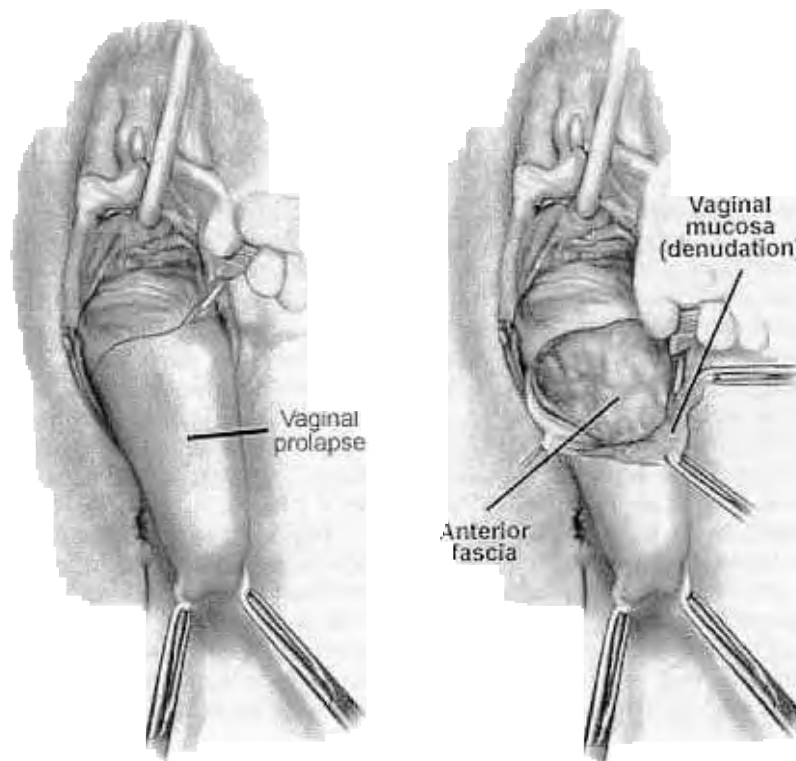


FIGURE 1. Technique of colpocleisis in woman without uterus (previous hysterectomy). (Figures © John R. Miklos.)

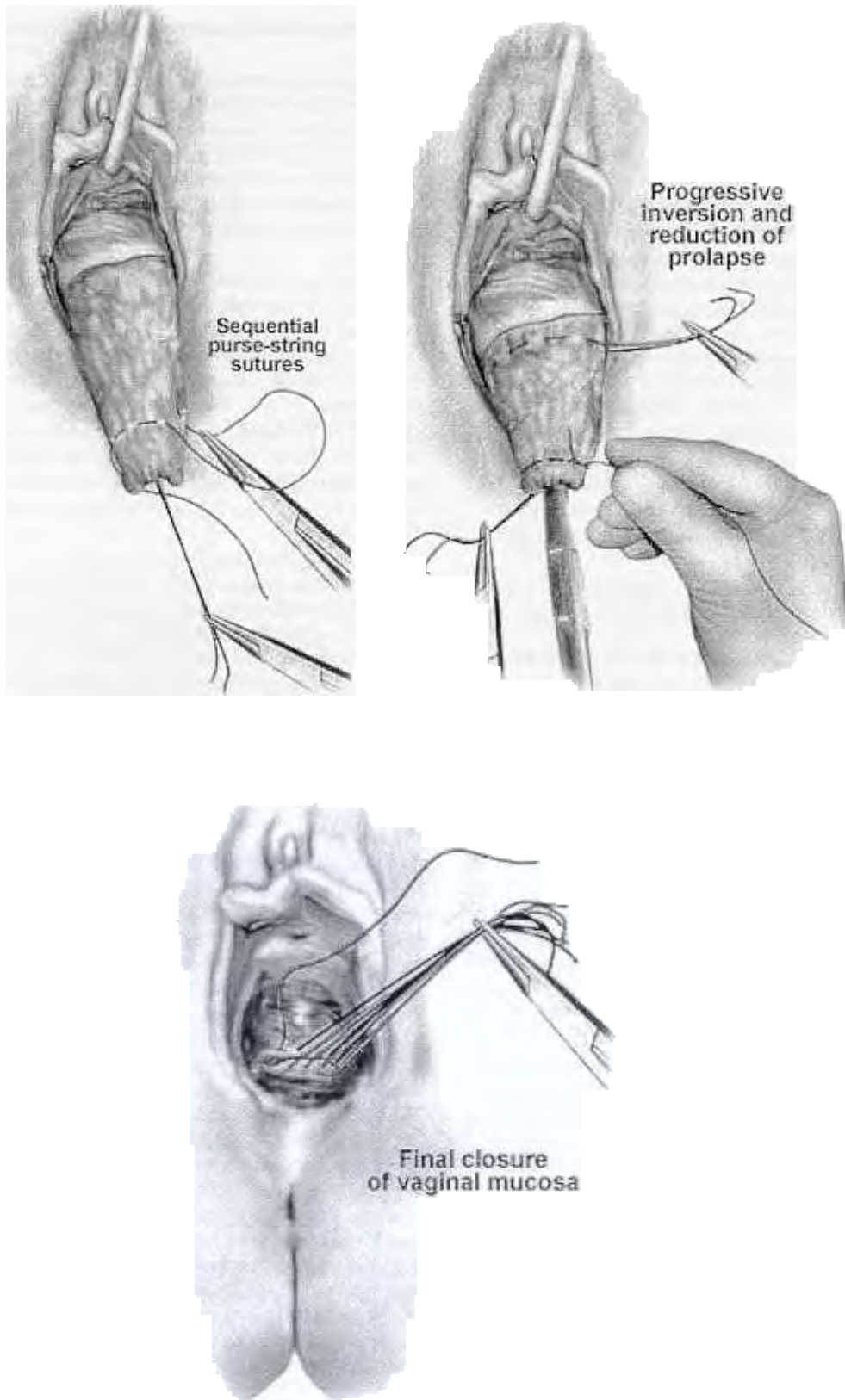


FIGURE 1 (continued). (Figures © John R. Miklos.)

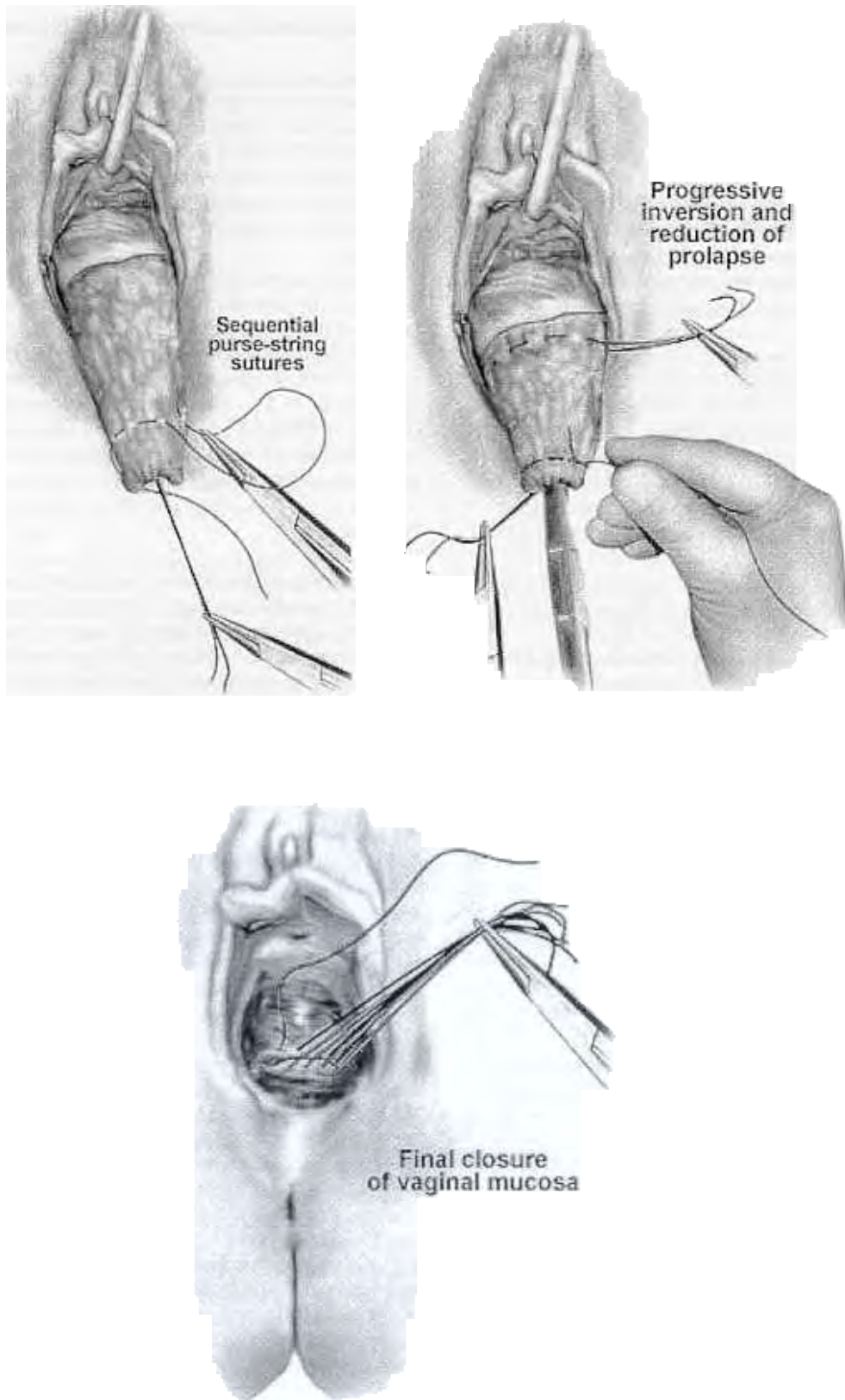


FIGURE 1 (continued). (Figures © John R. Miklos.)

peritoneal sac was not opened but reduced, and the potential space closed with approximation of endopelvic fascia as part of colpocleisis.

Follow-up

Patients were assessed by objective and subjective evaluations at office visits 1, 3, and 6 months postoperatively and then at 6-month intervals. They were also contacted for follow-up telephone interviews. Prolapse was assessed subjective questioning and by POP-Q physical examination. Incontinence was assessed by subjective questioning for urinary leakage. If a patient complained of leakage, a cough stress test was completed with 300 ml of saline in the bladder in supine and standing positions. Patients were considered cured of prolapse if they had no evidence of prolapse of the obliterated vagina beyond the introitus by physical examination, and of SUI if they had no subjective complaints of leakage or tested negative on the cough stress test.

Results

All 30 patients had successful completion of surgery without general anesthesia. Table 1 shows patients' concomitant medical conditions. The average dose of lidocaine used in the procedures was 117 ml (range 95–150 ml). The amount of local anesthetic used in the TVT portion of the case was consistently 75 ml. The amount used for colpocleisis varied depending on the amount of prolapse and the patient's comfort level. Mean operating time for both procedures was 97.3 minutes (range 65–135 min); average operating time for the TVT portion was 19 minutes (range 16–26 min). Mean estimated blood loss for the entire procedure was 56 ml (range 10–150 ml); average blood loss for the TVT portion was 22 ml (range 10–90 ml). No patient required blood transfusion for excessive blood loss. The average hospital stay was 1.62 days (range 1–12 days). All but two women were discharged home in less than 24 hours after overnight observation; one remained longer because she was from out of state. No patient required readmission for postoperative complications.

Average follow-up was 19.1 months (range 2–36 mo). Postoperatively one patient suffered a myocardial infarction and congestive heart failure, and required a hospital stay of 12 days. She was 91 years old and had been admitted 3 weeks before surgery with urosepsis secondary to ureteral obstruction caused by severe prolapse. She was discharged

in stable condition and recovered well without further incident.

Nineteen women voided spontaneously by postoperative day 1, seven by day 3, and three by day 7; one required urethral catheter drainage for 12 days. One patient was spontaneously voiding by day 3, however, she experienced acute urinary retention 5 weeks postoperatively. She ultimately required suburethral release of the sling, which allowed her to void without difficulty and to remain continent.

Three patients (10%) required reoperation for prolapse, two for asymptomatic distal mild posterior wall prolapse and one for symptomatic anterior and posterior wall prolapse beyond the introitus. No patients regretted that they had an obliterative vaginal procedure completed. Only two women (6.6%) complained of occasional mild SUI (leakage of drops of urine <3 ×/week not requiring protection), and the rest were subjectively dry or had no SUI on follow-up cough stress test.

Discussion

In women with complete vaginal or uterovaginal prolapse, colpocleisis has many advantages, especially in the medically compromised elderly, such as short operating time, minimal blood loss, and ability to use local anesthesia.^{1,6,7} It is an established technique whose efficacy is documented,^{8,9} and when compared with vaginal hysterectomy and anteroposterior colporrhaphy, operating time was reduced by 50%.⁷ The risk of perioperative and postoperative morbidity is thought to be minimal due to short operating time, local or regional anesthesia, and early ambulation.

In many patients, SUI accompanies severe organ prolapse and may affect quality of life. In those who do not complain of incontinence, it may actually be unmasked after the prolapse has been reduced. Therefore a thorough preoperative assessment, including urodynamic evaluation with the prolapse reduced, is essential in the diagnosis of SUI.

Despite evolving knowledge of the pathophysiology and anatomy of the normal continence mechanism, the best surgical procedure for treating SUI remains controversial. Meta-analyses reported that suburethral sling and retropubic urethropexy procedures are associated with the best long-term surgical cure rates based on available data.^{2,3} Long-term surveys in the 1990s revealed a marked decline of postoperative continence over the years after vaginal needle suspension.^{11,12} It has also been known for some time that endopelvic fascial plication has poor long-term cure rates.

A review of colpocleisis series published since 1969 did not reveal any series in which SUI was addressed with a procedure that has proved effective over the long term (Table 2).^{6-8,13-16} In a 20-year series, of 33 women undergoing total colpocleisis, 17 underwent procedures to support the urethra: 14 fascial plications, 2 needle suspensions, and 1 pubovaginal sling for intrinsic sphincter deficiency.⁶ In 1998, one of the first reports of the combination of LeFort

TABLE 1. Patients' Concomitant Medical Conditions

Medical Condition	Number
Previous MI, cardiovascular disease	18
Pulmonary disease	7
Hypertension	14
Diabetes, thyroid disorders	8
History of cerebrovascular accident	2

MI = myocardial infarction.

TABLE 2. Colpocleisis Series with Procedures Completed for SUI

No. of Pts with Colpocleisis	SUI Procedures, Number and Type	Time Frame (yrs)
58 ⁸	0	23
288 ¹³	0	36
118 ¹⁴	0	
102 ¹⁵	0	15
38 ¹⁶	35 Kelly plication	11
21 ⁷	21 Kelly plication	8
33 ⁶	14 Kelly plication	20
	2 needle suspensions	
	1 sling	
1 ¹⁰	1 needle susp.	Not stated

procedure with a transvaginal needle suspension was published; the patient was an 80-year-old woman with stage IV prolapse and SUI.¹⁰

The TVT procedure is associated with high success rates comparable with those of the traditional suburethral sling procedure, with a significantly lower frequency of intraoperative and postoperative complications.^{17,18} Surgery is performed by the vaginal route, traditionally under local anesthesia, with a hospital stay of less than 24 hours. Thus it is ideally suited to patients with SUI and those who are elderly and at high risk for complications associated with general anesthesia. We also believe that it is an ideal procedure to be completed at the time of other vaginal repairs for prolapse, such as colpocleisis.

Regional anesthesia (epidural, spinal) is a reasonable option for these procedures to avoid general anesthesia; however, we traditionally perform the TVT sling, as well as many prolapse procedures, under local anesthesia. Addition of the TVT sling to colpocleisis resulted in a minimal increase in operating time and blood loss, and did not seem to increase overall morbidity of the procedure or postoperative course. Most patients were ready to be discharged from the hospital the day after surgery, and there were no tape rejections or defective healing. Only one patient suffered from voiding dysfunction after initially being able to void. This was easily resolved with suburethral release of the sling as an outpatient, and the woman remained continent.

To our knowledge, this is the first report in the literature describing a series of patients who underwent a proved antiincontinence procedure coupled with colpocleisis. Our study is limited by small numbers and relatively short follow-up; however, we believe the results justify the conclusion that TVT sling can be completed safely with effective results for SUI in patients undergoing colpocleisis.

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