

SACROUTERINE LIGAMENT AUGMENTATION (SULA) WITH ANTERIOR TRANSOBTURATOR TAPES (ATOTs) FOR CORRECTION OF APICAL AND ANTERIOR VAGINAL PROLAPSE: A VAGINAL APPROACH

Lužnik M 1, Lužnik J 2

1. General Hospital Slovenj Gradec, Department of Gynecology and Obstetrics,
2. Faculty of Medicine University of Maribor

HYPOTHESIS / AIMS OF STUDY

New minimally invasive surgical techniques for the reconstruction of pelvic organ static and pelvic floor function with individually designed tape implants may minimize postoperative complication rates and lower recurrence risk of pelvic floor dysfunction and/or prolapse. Herein, we present our first results of female pelvic organ prolapse correction with a new modification of surgical technique.

STUDY DESIGN, MATERIALS AND METHODS

The study included 38 women (median age, 60 years [range: 42-79 years]) with apical and anterior vaginal wall prolapse that was managed by Sacrouterine Ligament Augmentation (SULA) with Anterior Transobturator Tapes (ATOTs) by the same experienced surgeon.

The preoperative vaginal status was assessed with POP-Q as stage II-IV by the International Continence Society (ICS) system.

Polypropylene non-absorbable mesh (60g/m2; 10 cm x 15 cm) was used to individually design tape implants.

Two pairs of tape implants were inserted transobturatorly (suburethral and subvesical) through two dermal incisions with Tunneller (Tyco). For sacrouterine ligament augmentation two apical tape implants were inserted completely tension free in the direction of both sacrouterine ligaments (1-3).

SULA with ATOTs were used with or without vaginal hysterectomy (27 (median age, 62 years [range: 48-79 years]) and 7 cases (median age, 49 years [range: 42-62 years]), respectively). In 4 cases (median age, 65 years [range: 54-77 years]) ATOTs was used for correction of vaginal cuff prolapse. The postoperative ICS stage was assessed on day 5, at 3 and 12-months after surgery.

ATOTs + SULA	With hysterectomy	Without hysterectomy	Vaginal cuff prolapse	Together
N	27	7	4	38
Median age	62	49	65	60
Range	48 - 79	42 - 62	54 - 77	42 - 79

RESULTS

On postoperative day 5 and at 3 months after surgery all patients (38/38 patients) had an ICS stage 0. 25 of 38 patients (65%) have already completed 1 year of follow up and had remained ICS stage 0. Of the 25 patients 2 were diagnosed with small vaginal erosion at the upper vaginal incision during the first year of follow up. The denuded mesh part (<1 mm2) was excised under local anaesthesia and left open to heal spontaneously (no vaginal sutures were used). One patient developed de-novo overactive bladder (OAB) symptoms with borderline urine retention (60 ml). The OAB symptoms and urine retention was successfully managed by mechanically cutting the suburethral tape. After intervention, urine incontinence symptoms did not reccour.

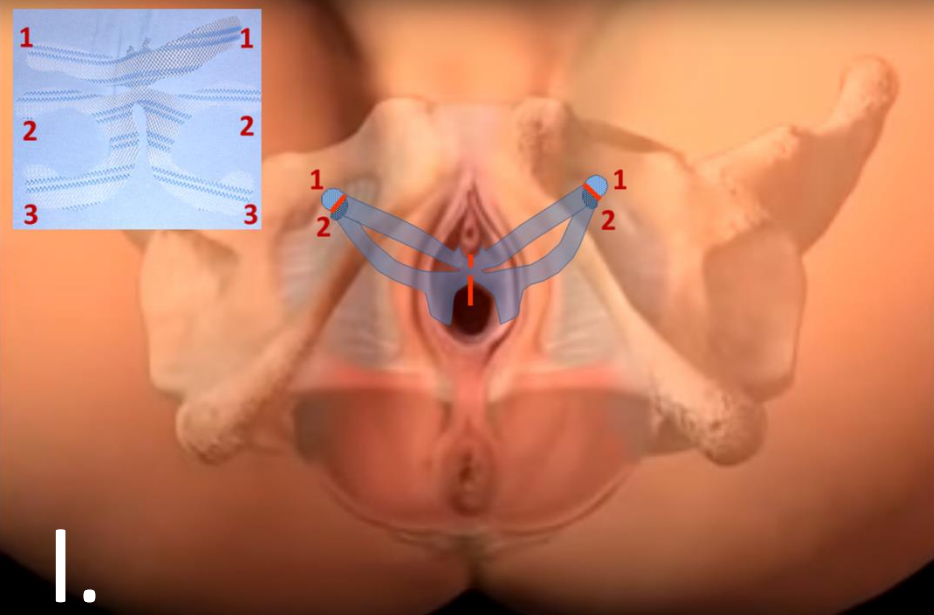
INTERPRETATION OF RESULTS

In contrast to other currently used methods for the treatment of pelvic organ prolapse, where apical tapes are attached directly, around or through the sacrospinous ligament, SULA enables **completely tension free insertion** of two apical tapes **in the direction of both sacrouterine ligaments**. Therefore, during sexual intercourse tape implants stay **far away from the sacrospinous ligaments** (out of the penetration line), which not only **successfully minimizes the risk of postoperative dyspareunia**, but may also **lower the rate of postoperative complications** (such as tape material extrophy) **to the level of TVT-O procedures**. Secondly, aesthetic advantage is provided by placing only one surgical incision access on each thigh, (hiding the incision in skin folds). Both pairs of transobturator tapes are **separately inserted** through the same surgical incision. Importantly, **suburetral** and **subvesical** part of the tapes **stay medially connected**, but **remain flat**, so that they do not twist into a string until passing transobturatorly. Transobturator tapes connect both tendieus archs and serve as good anchors for apical tapes, which individually move laterally into the paravesical space before being inserted **tension free** in an upward direction parallel to the sacrouterine ligaments. SULA with ATOTs can also be used **to support** the pelvic organs in case of lateral **pubocervical fascia defect** and **apical cardinal** and **sacrouterine ligament defects**.

CONCLUDING MESSAGE

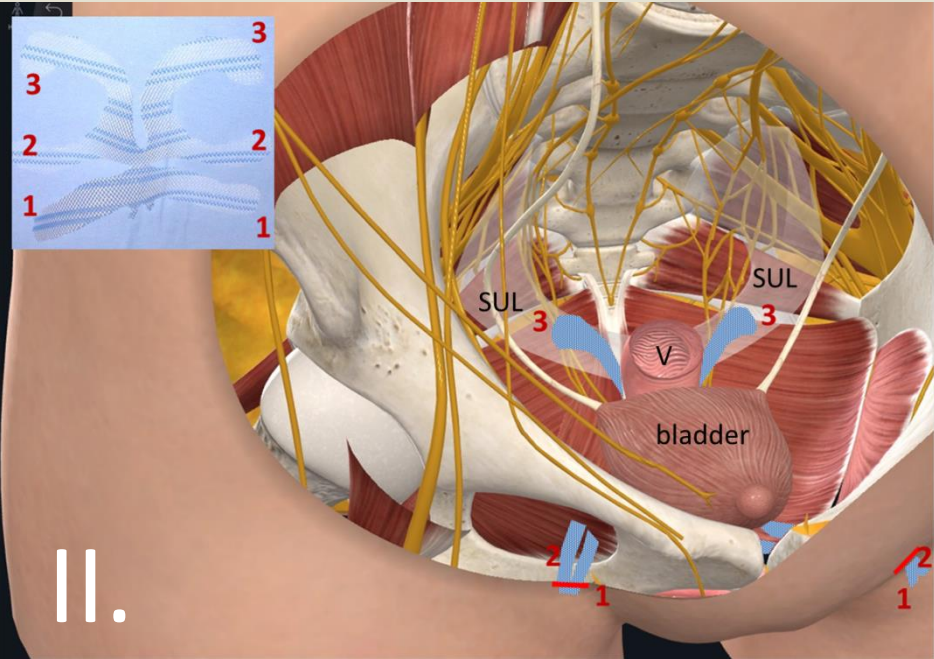
Normal vaginal axis and volume with preservation of healthy uterus is especially desirable in younger women. As presented herein, this new modification of surgical technique may allow pelvic floor reconstruction without total or partial hysterectomy. Pelvic floor function has markedly improved. SULA with ATOTs procedure may promise good long-term results.

Tapes and their position - schematic representation (Figure I-IV)



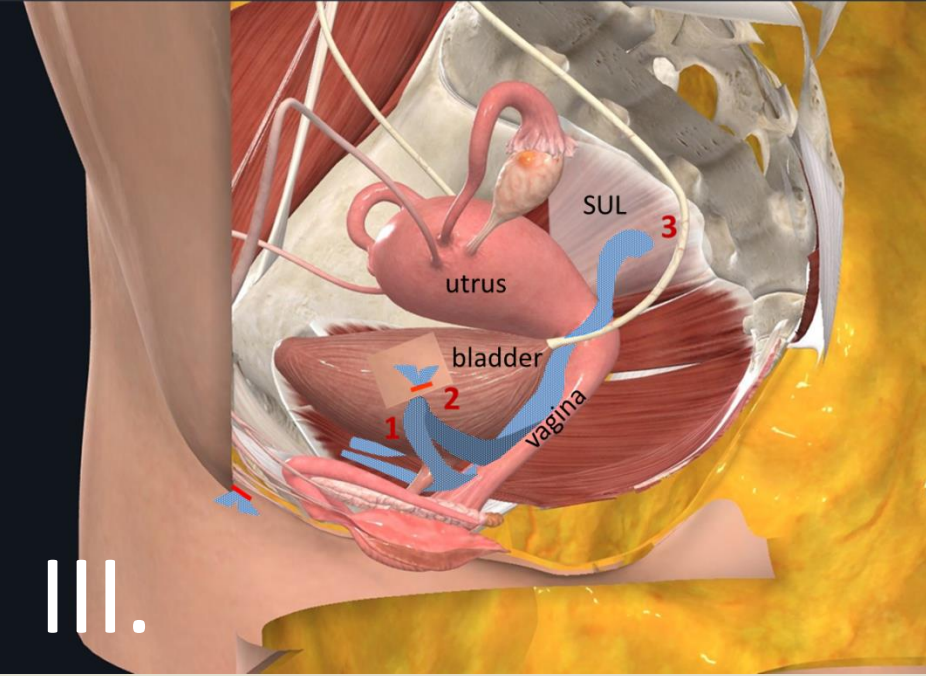
I.

Two pairs of tape implants were inserted transobturatorly (suburethral and subvesical) through one dermal incision access on each thigh. Two red lines in the anterior wall of the vagina depict two separate incisions (anterior median colpotomies). Transobturator tapes connect both tendieus archs and serve as good anchors for apical tapes.



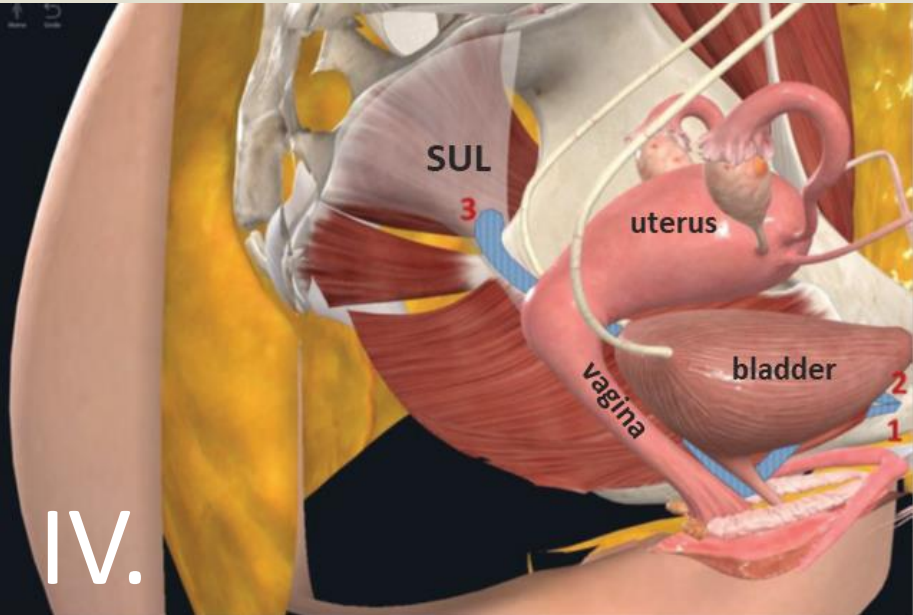
II.

For sacrouterine ligament augmentation two apical tape implants were inserted **completely tension free** in the direction of both sacrouterine ligaments far away from the sacrospinous ligaments (**out of the penetration line during sexual intercourse**). This minimizes the risk of postoperative dyspareunia and lower the rate of tape material extrophy to the level of TVT-O procedures.



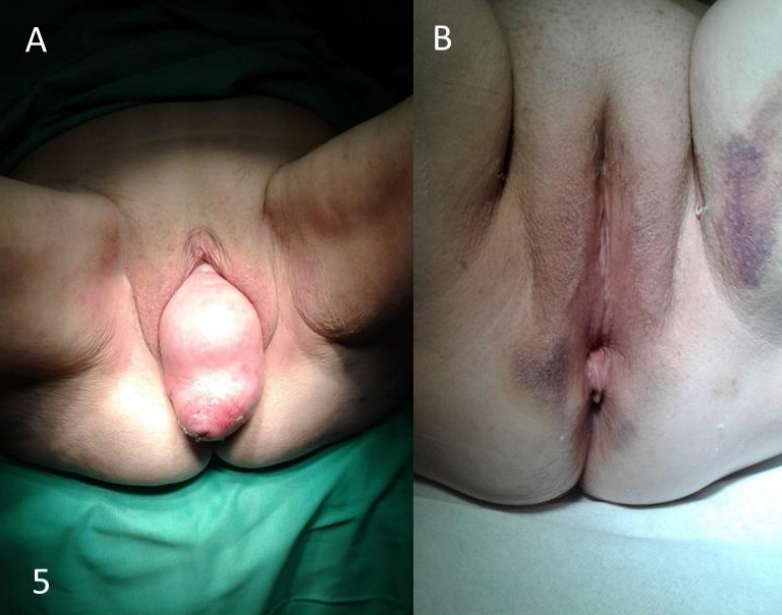
III.

Suburetral and subvesical part of the tapes stay medially connected, but remain flat, so that they do not twist into a string until passing transobturatorly. This fact is extremely important for good support of the urethra and of the bladder neck. Apical tapes, which individually move **laterally into the paravesical space** before being inserted tension free in an upward direction parallel to the sacrouteine ligaments.



IV.

Figure IV. Normal vaginal axis and normal volume of vagina.



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Figure 5. Patient with total utero-vaginal prolapse before (A) and after pelvic floor reconstruction (B) (total vaginal hysterectomy and SULA with ATOTs).

REFERENCES

1. Jenkins VR. Uterosacral ligament fixation for vaginal vault suspension in uterine and vaginal vault prolapse. Am J Obstet Gynecol 1997; 177: 1337–44.
2. Margulies RU, Rogers MA, Morgan DM. Outcomes of transvaginal uterosacral ligament suspension: systematic review and metaanalysis. Am J Obstet Gynecol 2010; 202(2): 124–34.
3. Goeschen K. Role of uterosacral ligaments in the causation and cure of chronic pelvic pain syndrome, Pelvi perineology, 2015; 34: 2-17.