Speed Dating with your UroGyne: Advances in Prolapse Management

39th Annual Contemporary Issues in Obstetrics and Gynecology
Sandestin, Florida
July 21, 2025

Tanaz Ferzandi, MD, MBA, MA
President, American Urogynecologic Society
Vice Chief of Staff, Keck Hospital of USC
Service Line Chief of Obstetrics & Gynecology, Keck Hospital of USC
Director, Division of Urogynecology and Reconstructive Pelvic Surgery
Associate Professor of Obstetrics and Gynecology

Keck School of Medicine of USC

THE UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER

USC University of Southern California

DISCLOSURES

- Juniper BioMedical - Medical Advisory Board
- Aqua Therapeutics - Scientific Advisory Board
- Origyn Solutions - Clinical Advisory Board
- Esch Holdings, LLC – Consultant
- FemTherapeutics – Consultant

- ABOG - General Gyn and Urogynecology board examiner; travel honoraria
- Defense Expert Witness for Medical Malpractice (General Gyn and Urogyne)

OBJECTIVES

1. Discuss definition and prevalence of prolapse
2. Understand basic patient selection and options
3. Know the available non-surgical and surgical options
    a. When to refer
    b. Complications of procedures

PELVIC ORGAN PROLAPSE (POP)

- Definition: POP is the descent of one or more aspects of the vagina and uterus: the anterior vaginal wall, posterior vaginal wall, the uterus (cervix), or the apex of the vagina (post hysterectomy).
  - affects an estimated 3.3 million women, with projected 46% increase by 2050

- Per the WHI – prevalence of POP is ~40%
- Peak incidence of symptoms in women aged 70-79 years. However, most women remain asymptomatic
- Prevalence across all ages is 3-6% when defined by symptoms
  - Up to 50% when defined by vaginal exam
  - In one review, the prevalence of POP based on reported symptoms was much lower (3–6%) than the prevalence identified by examination (41–50%)
- Lifetime risk of having at least one surgery for POP by age 80 is 11.1%
  - US women have a 13% lifetime risk of undergoing surgery for POP
  - Approximately 300K surgeries for POP are performed annually (2010 data)

Wu *et al.* Lifetime risk of stress urinary incontinence or pelvic organ prolapse. Obstet Gynecol 2014; 123: 1201-6
Luber *et al.* The demographics of pelvic floor disorders: current observations and future projections. Am J Obstet Gynecol 2001;184:1496–501
Haylen *et al.* An IUGA/ICS joint report on the terminology for female pelvic floor dysfunction. Neurourol Urodyn 2010;29:4–20
Smith FJ *et al.* Lifetime risk of undergoing surgery for pelvic organ prolapse. Obstet Gynecol 2010;116:1096–100
Wu *et* al. Forecasting the prevalence of pelvic floor disorders in U.S. Women: 2010 to 2050. Obstet Gynecol. 2009;114(6):1278–83
Barber MD, Maher C. Epidemiology and outcome assessment of pelvic organ prolapse. Int Urogynecol J 2013;24:1783–90.
Hendrix, SL *et al.* 2002. Pelvic organ prolapse in the Women's Health Initiative: gravity and gravidity. *American journal of obstetrics and gynecology*, *186*(6), pp.1160-1166.
Olsen, AL *et al.* 1997. Epidemiology of surgically managed pelvic organ prolapse and urinary incontinence. *Obstetrics & Gynecology*, *89*(4), pp.501-506.

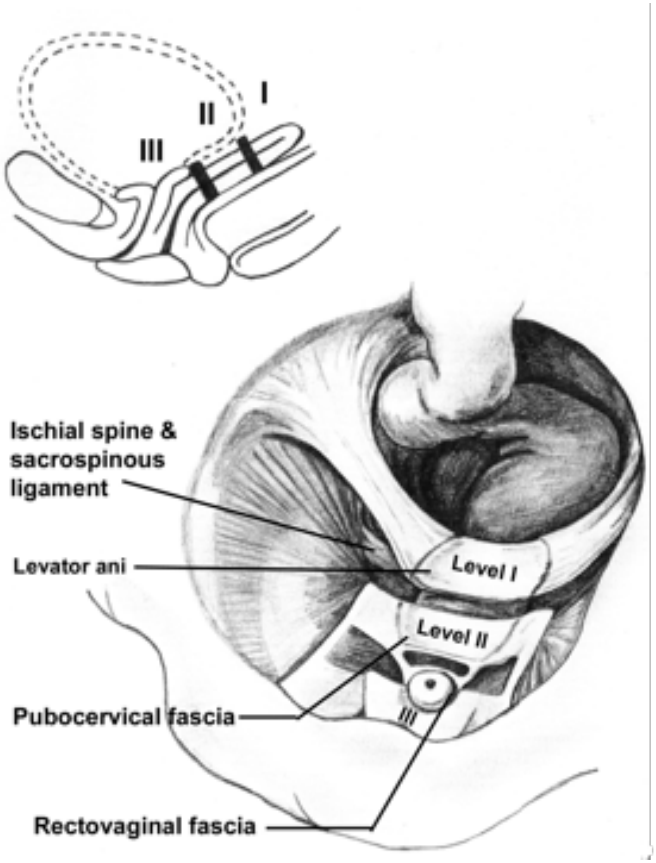
RISK FACTORS for POP

Obstetric Risk Factors	Non-Obstetric Risk Factors
Vaginal parity	Shape and orientation of bony pelvic
Advancing age	Family history of POP
Obesity	Age/menopause
Pregnancy (regardless of mode of delivery)	Race/ethnic origin
Forceps-asst delivery	Heavy lifting (career or exercise related)
Young age at first delivery	Chronic constipation
Prolonged 2nd stage of labor	Previous hysterectomy/pelvic surgery
Infant birthweight > 4500g	Smoking
	Chronic illnesses that result in constant stress and strain on the pelvic floor
	Genetic factors, such as connective tissue weakness (hypermobility), and genetic collagen deficiency disorders (Marfan syndrome, Ehlers–Danlos syndrome)

Cadena, M. and Dunivan, G., 2023. Obliterative Surgery for Vaginal Prolapse: An Update. Current Geriatrics Reports, pp.1-6.
Hendrix, S.L., Clark, A., Nygaard, I., Aragaki, A., Barnabei, V. and McTiernan, A., 2002. Pelvic organ prolapse in the Women's Health Initiative: gravity and gravidity. American journal of obstetrics and gynecology, 186(6), pp.1160-1166.

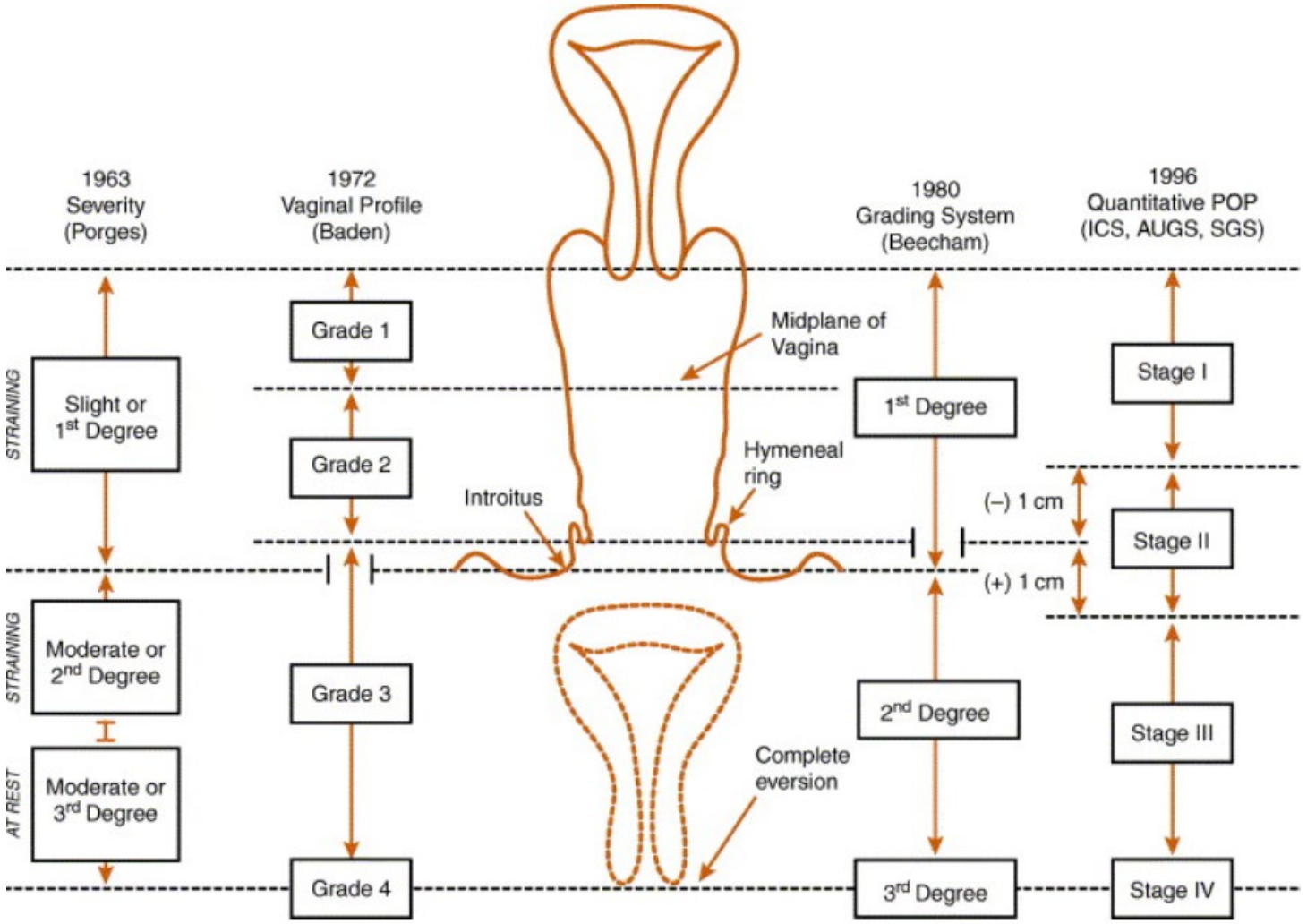
LEVELS OF SUPPORT

- Apical
  - Uterine / Vaginal Vault
- Anterior Vaginal Compartment
  - Cystocele
- Posterior Vaginal Compartment
  - Rectocele
- Perineal Deficiency
- Procidentia
- Rectal Prolapse



DeLancey JO. Anatomic aspects of vaginal eversion after hysterectomy. American journal of obstetrics and gynecology. 1992;166:1717–24

LANGUAGE MATTERS



Mouritsen, L., 2005. Classification and evaluation of prolapse. Best Practice & Research Clinical Obstetrics & Gynaecology, 19(6), pp.895-911

POP-Q

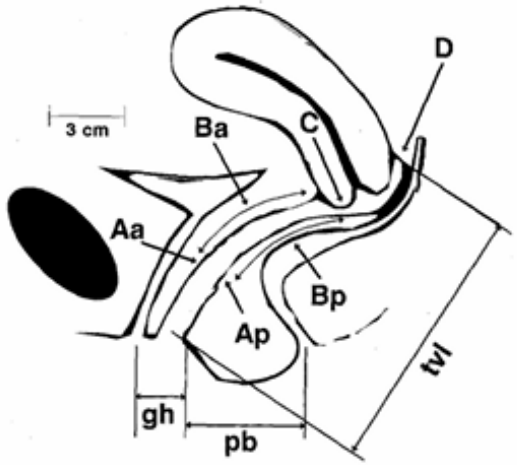


Fig. 1. Six sites (points *Aa, Ba, C, D, Bp,* and *Ap*), genital hiatus *(gh)*, perineal body *(pb)*, and total vaginal length *(tvl)* used for pelvic organ support quantitation.

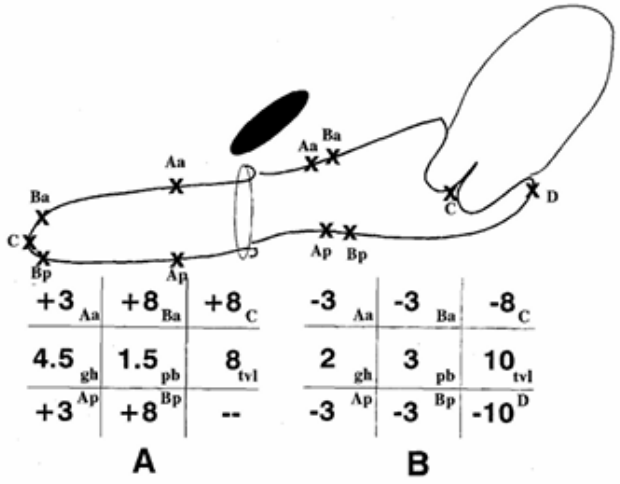


Fig. 3. A, Grid and line diagram of complete eversion of vagina. Most distal point of anterior wall (point *Ba*), vaginal cuff scar (point *C*), and most distal point of the posterior wall (point *Bp*) are all at same position (+8) and points *Aa* and *Ap* are maximally distal (both at +3). Because total vaginal length equals maximum protrusion, this is stage IV prolapse. **B,** Normal support. Points *Aa* and *Ba* and points *Ap* and *Bp* are all −3 because there is no anterior or posterior wall descent. Lowest point of the cervix is 8 cm above hymen (−8) and posterior fornix is 2 cm above this (−10). Vaginal length is 10 cm and genital hiatus and perineal body measure 2 and 3 cm, respectively. This represents stage 0 support.

UROGYNECOLOGY

EDITORIAL

Is POP-Q II Now Overdue?

John O. L. DeLancey, MD
From the Department of Obstetrics and Gynecology, University of Michigan Medical School, Ann Arbor, MI.
Correspondence: John O. L. DeLancey, MD. E-mail: delancey@med.umich.edu.

Urogynecology 2025;31:71–73
DOI: 10.1097/SPV.0000000000001650

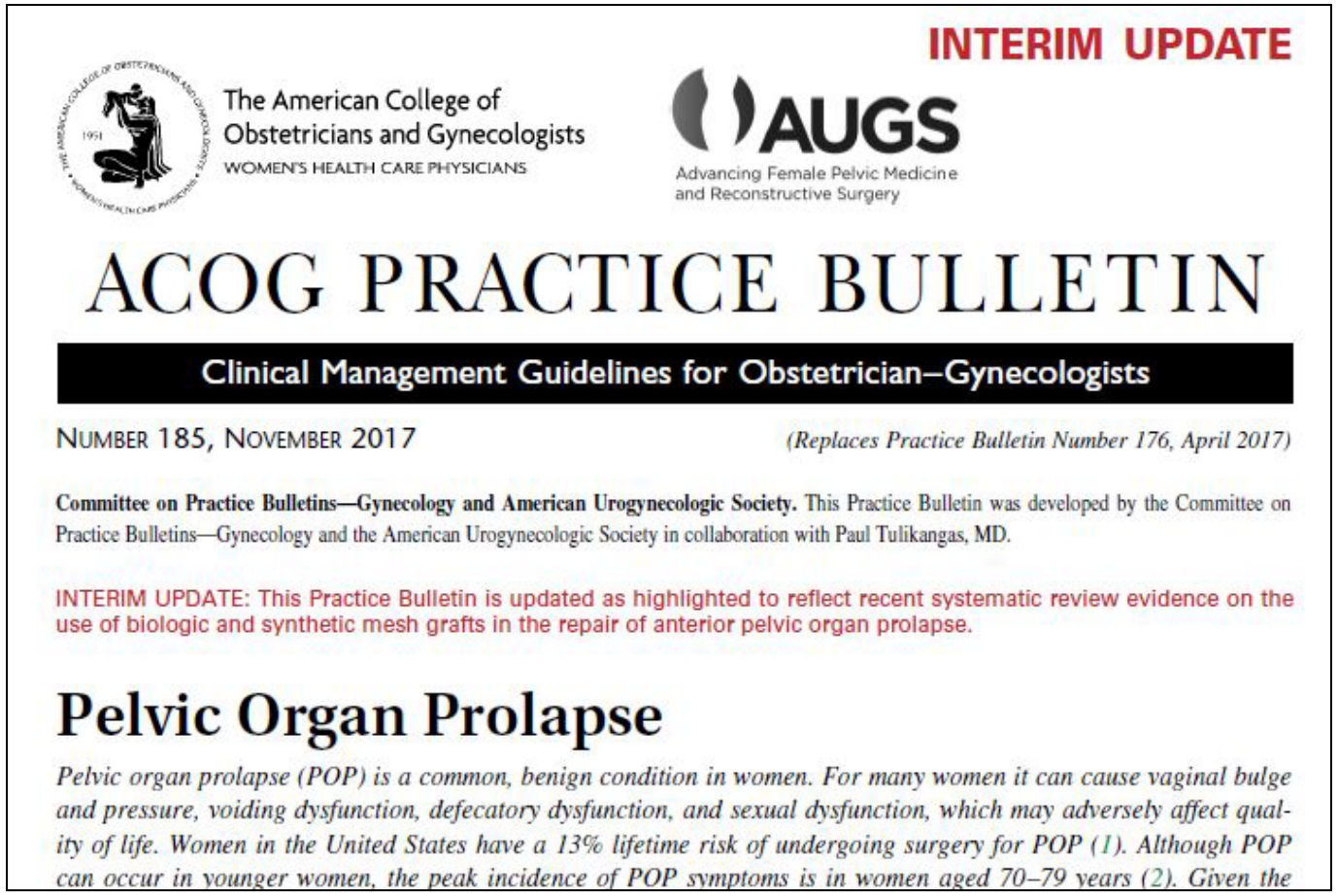
The author has declared that there are no conflicts of interest.

The POP-Q system to evaluate prolapse was published 28 years ago, and it is time to consider POP-Q II. Staging systems for cancer or endometriosis are revised and improved over time as new data become available to improve their ability to predict outcomes and target treatment.[1] Changes can be important and substantive. For example, in breast cancer staging, the addition of biomarkers (estrogen and progesterone receptor and HER2 status) was added to the traditional TNM system because these biomarkers add significant prognostic information and drive therapy decisions.

Three areas should be considered when improving the POP-Q system. First, POP-Q stage definitions are not evidence-based and do not conform to the internationally recognized definition of prolapse, or to what the public understands about disease stages. Second, urogenital hiatus size is now clearly established as a factor influencing both surgical outcome and prolapse development after birth, yet it is not currently used in assigning stages. Third, the way in which the POP-Q examination is conducted is not standardized.

Bump, RC et al. 1996. The standardization of terminology of female pelvic organ prolapse and pelvic floor dysfunction. American journal of obstetrics and gynecology, 175(1), pp.10-17.
DeLancey, J. (2025). Is POP-Q II Now Overdue?. Urogynecology, 31 (2), 71-73.

ACOG PRACTICE BULLETIN No. 185



INTERIM UPDATE

The American College of Obstetricians and Gynecologists
WOMEN'S HEALTH CARE PHYSICIANS

AUGS
Advancing Female Pelvic Medicine and Reconstructive Surgery

ACOG PRACTICE BULLETIN

Clinical Management Guidelines for Obstetrician–Gynecologists

NUMBER 185, NOVEMBER 2017

(Replaces Practice Bulletin Number 176, April 2017)

Committee on Practice Bulletins—Gynecology and American Urogynecologic Society. This Practice Bulletin was developed by the Committee on Practice Bulletins—Gynecology and the American Urogynecologic Society in collaboration with Paul Tulikangas, MD.

INTERIM UPDATE: This Practice Bulletin is updated as highlighted to reflect recent systematic review evidence on the use of biologic and synthetic mesh grafts in the repair of anterior pelvic organ prolapse.

Pelvic Organ Prolapse

Pelvic organ prolapse (POP) is a common, benign condition in women. For many women it can cause vaginal bulge and pressure, voiding dysfunction, defecatory dysfunction, and sexual dysfunction, which may adversely affect quality of life. Women in the United States have a 13% lifetime risk of undergoing surgery for POP (1). Although POP can occur in younger women, the peak incidence of POP symptoms is in women aged 70–79 years (2). Given the

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https://www.acog.org/-/media/Practice-Bulletins/Committee-on-Practice-Bulletins----Gynecology/pb185

DECISION TREE

- Expectant Management
  - Patient's desires (aversion to surgery)
  - Pelvic Floor Muscle Training
  - Bladder emptying
  - UTIs
  - Vaginal atrophy, erosions
- Pessary
  - Patient's desires (aversion to surgery)
  - Sexual Activity
  - Dexterity
  - *Dependability* for routine exams
- Surgery
  - Overall health, time off work, type of job (exertion), etc

PESSARY

MILEX Products, Inc., Chicago, IL, USA

A. Ring
B. Shaatz
C. Gellhorn
D. Gellhorn
E. Ring with support
F. Gellhorn
G. Risser
H. Smith
I. Tandem cube
J. Cube
K. Hodge with knob
L. Hodge
M. Gehrung
N. Incontinence dish with support
O. Donut
P. Incontinence ring
Q. Hodge with support
R. Inflatoball (latex)

CONTRAINDICATIONS

- Chronic vaginal irritation
- Erosions or ulcerations
- Active infections / PID
- Sexually active women who cannot remove/reinsert device
- Marked vaginal atrophy
- Exposed foreign body (i.e. vaginal mesh, or prior procedure)
- Non-compliance or unable to present for periodic examinations
- Allergy to product / latex allergy

Viera, A.J., & Larkins-Pettigrew, M. (2000). "Practical use of the Pessary". American Family Physician, 61(9):2719-2726, 2729
Miller, D.S. (1991). "Contemporary Use of the Pessary". In: Sciarra JJ (Ed.), Gynecology and Obstetrics: Clinical Gynecology (Rev. Ed.) (pp. 1-13).
Contemporary Use of the Pessary. Lewicky-Gaupp, C, Glob. libr. women's med., (ISSN: 1756-2228) 2010; DOI 10.3843/GLOWM.1002

CAUTION WITH …

- Short vaginal length, < 6cm
- Wide vaginal introitus, ≥ 4 fingerbreadths
- Genital hiatus/total vaginal length ratio > 0.8
- Lower POPQ stage
- Prior hysterectomy
- Prior POP surgery
- Higher BMI
- Presence of SUI
- (distal prolapse – ant/post)*

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Clemons et al. Risk factors associated with an unsuccessful pessary fitting trial in women with pelvic organ prolapse. Am J Obstet Gynecol. 2004 Feb;190(2):345-50
Geoffrion et al. Clinical characteristics associated with unsuccessful pessary fitting outcomes. Female Pelvic Med Reconstr Surg. 2013 Nov-Dec;19(6):339-45AR
Vaginal Pessary Use and Management for Pelvic Organ Prolapse: Developed by the joint writing group of the AUGS and SUNA. Urogynecology (Phila). 2023 Jan 1;29(1):5-20

UROGYNECOLOGY

AUGS-SUNA JOINT CLINICAL CONSENSUS STATEMENT

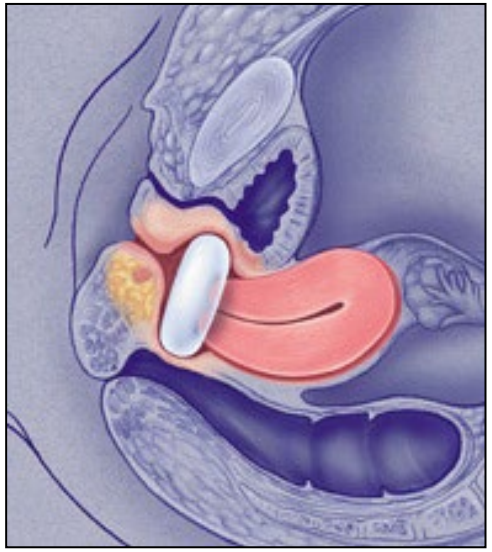
Vaginal Pessary Use and Management for Pelvic Organ Prolapse

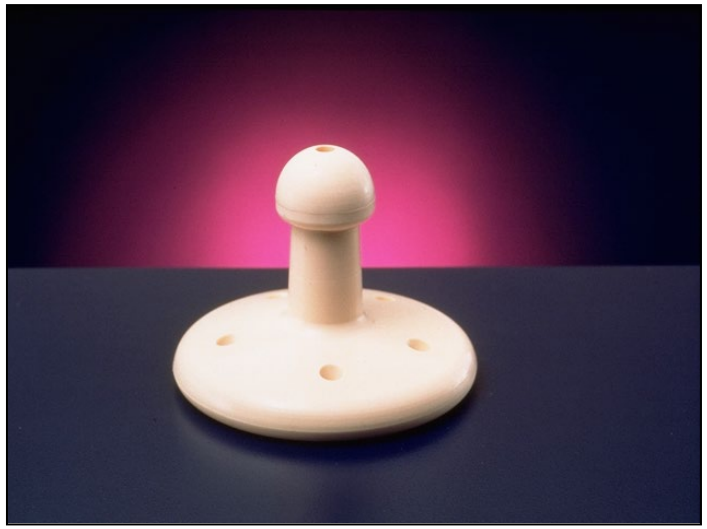
Developed by the joint writing group of the American Urogynecologic Society and the Society of Urologic Nurses and Associates. Individual writing group members are noted in the Acknowledgments section.

Vaginal Pessary Use and Management for Pelvic Organ Prolapse: Developed by the joint writing group of the American Urogynecologic Society and the Society of Urologic Nurses and Associates. Individual writing group members are noted in the Acknowledgments section. Urogynecology (Phila). 2023 Jan 1;29(1):5-20.

TIPS and TRICKS & COMPLICATIONS

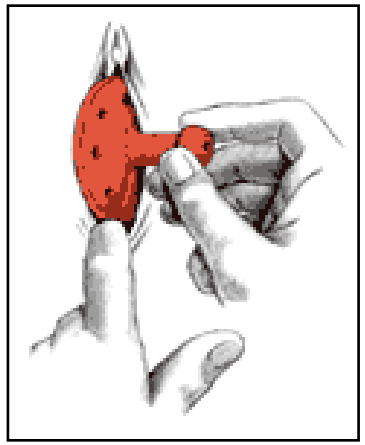
Most women can be managed with 2.5”, 2.75” and 3”

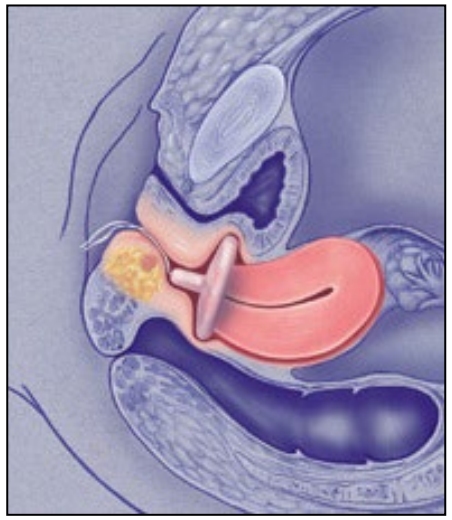




Gellhorn – SS and LS

Most women can be managed with the 2.5, 2.75, and 3” sizes





Try Plastic Wrap to Improve Estrogen Delivery

BY SHARON WORCESTER
Southeast Bureau

ATLANTA — Occlusion with plastic wrap may improve the delivery of topical estrogen to the vaginal area in postmenopausal women with vaginal atrophy who are being prepared for pelvic reconstructive or obliterative surgery, Peter L. Rosenblatt, M.D., said at the annual meeting of the American Urogynecologic Society.

It is generally accepted that local estrogen therapy improves vaginal thickness and integrity of the vagina in this population, and most surgeons typically recommend several months of treatment before pelvic reconstructive surgery, explained Dr. Rosenblatt of Harvard Medical School, Boston. But patients with advanced prolapse, who can have particularly poor tissue quality, are likely to have problems with the cream rubbing off on pads or undergarments. Pessaries can help, but some patients can't retain them due to poor perineal support, and in some cases they can cause or worsen erosions.

To keep the estrogen cream in place, Dr. Rosenblatt borrowed the plastic wrap occlusion technique from dermatologists, who often use plastic wrap with the application of EMLA cream before laser hair removal, skin biopsies, and other procedures.

Have the patient apply a thick layer of estrogen cream and cover it with plastic wrap or any other occlusive dressing, he advised.

"We have the patient use this every other night for several hours. … It's not pretty, but it gets the job done," he said at the meeting.

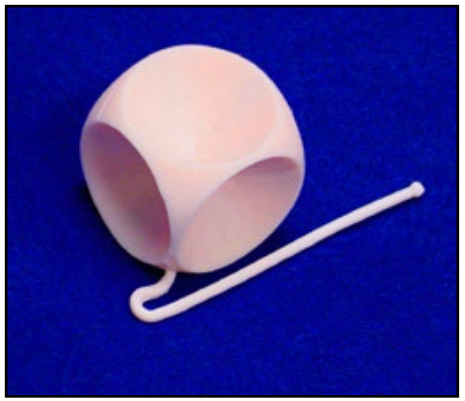
In his "informal experience" with eight patients who were candidates for pelvic surgery, subjective improvement in tissue quality, including resolution of erosions in one patient, was noted in all except two patients. Those patients both had a prolapse that would recede when they weren't bearing down, which would displace the plastic wrap.

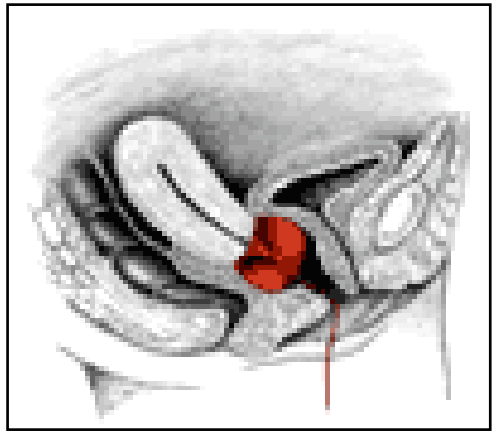
A prospective trial comparing the effects of standard estrogen cream application and estrogen cream application plus plastic wrap is planned, Dr. Rosenblatt said. ■

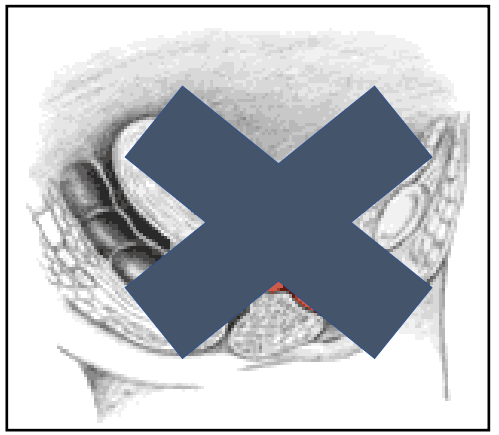
COURTESY DR. PETER L. ROSENBLATT

Plastic wrap is applied as occlusive dressing over estrogen cream.

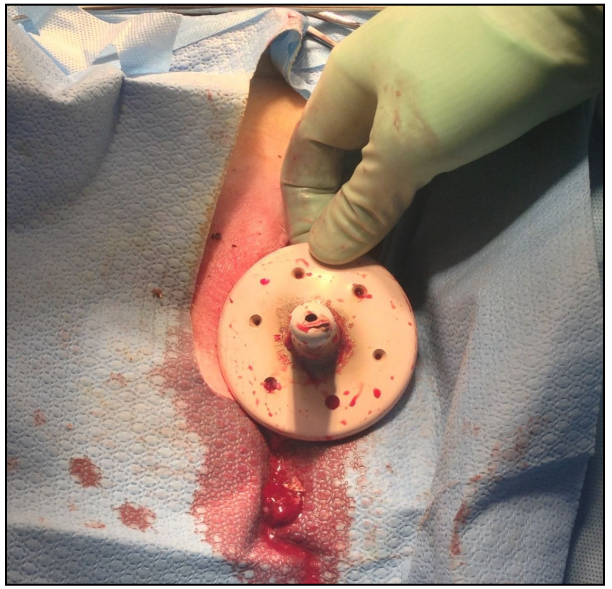
MY BIAS . . ..

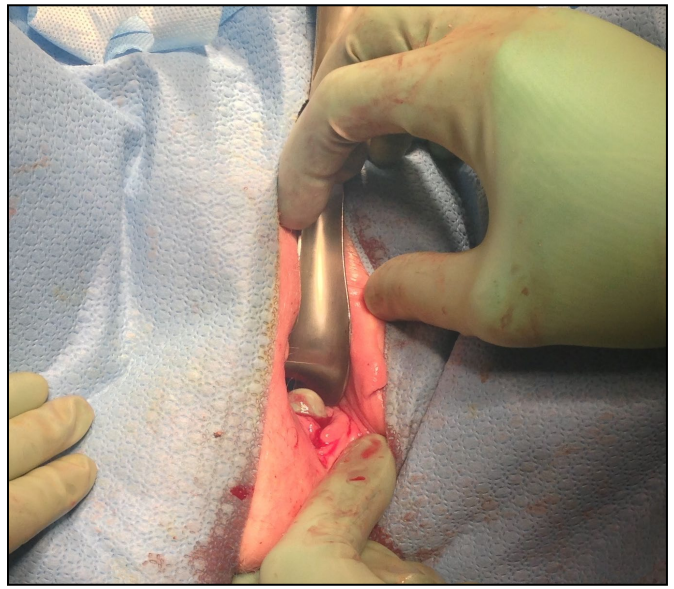




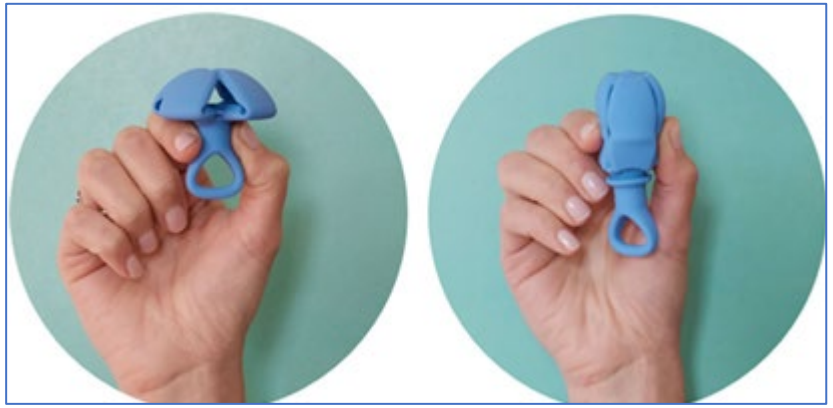


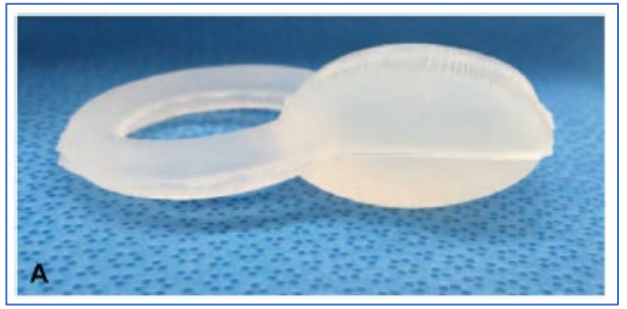
NEGLECT HAS ITS CONSEQUENCES

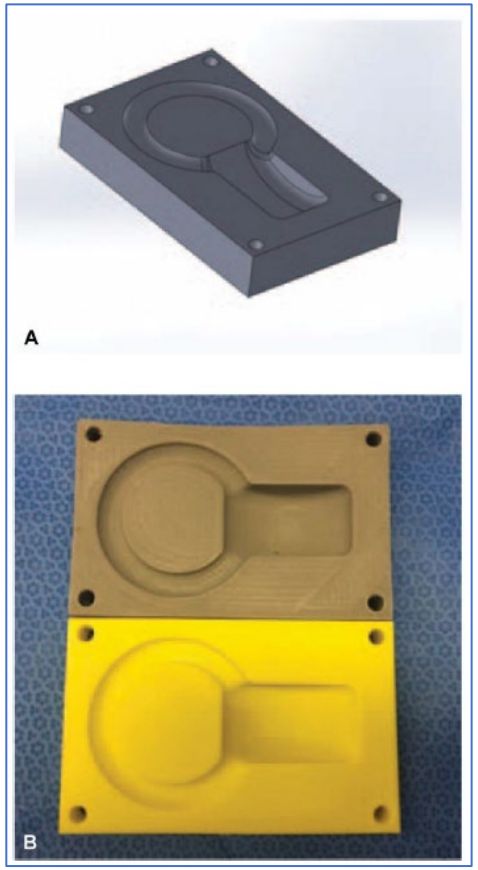




PESSARIES ON THE HORIZON







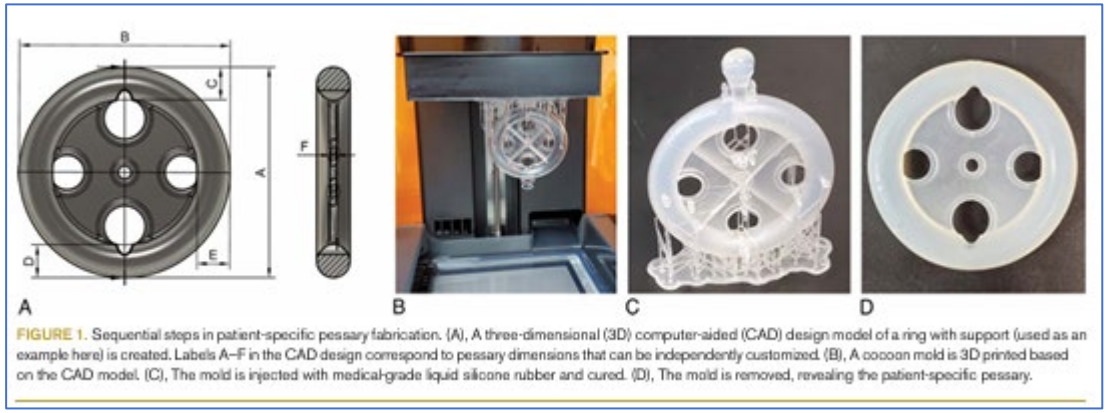


FIGURE 1. Sequential steps in patient-specific pessary fabrication. (A), A three-dimensional (3D) computer-aided (CAD) design model of a ring with support (used as an example here) is created. Labels A–F in the CAD design correspond to pessary dimensions that can be independently customized. (B), A cocoon mold is 3D printed based on the CAD model. (C), The mold is injected with medical-grade liquid silicone rubber and cured. (D), The mold is removed, revealing the patient-specific pessary.

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Barsky M, Kelley R, Bhora FY, et al. Customized pessary fabrication using three-dimensional printing technology. Obstet Gynecol 2018; 131(3):493–497.
Strohbehn, K., Wadensweiler, P. & Hanissian, P. A novel, collapsible, space-occupying pessary for the treatment of pelvic organ prolapse. Int Urogynecol J 34, 317–319 (2023)
Hong, C.X. et al. 2023. Patient-specific pessaries for pelvic organ prolapse using three-dimensional printing: a pilot study. Urogynecology, 29(9), pp.732-739.

REIMBURSEMENT

HCPCS Codes

CPT	Description	Total RVU Non-facility	Total RVU Facility
57160	Fitting and insertion of pessary or other intra-vaginal support device (initial, re-fitting)	2.15	1.33
57150	Irrigation of vagina and/or application of medicament for treatment of bacterial, parasitic or fungoid disease	1.27	0.82
A4561	Pessary, rubber	0	0
A4562	Pessary, non-rubber	0	0
A4320	Irrigation tray with bulb or piston syringe, any purpose	0	0

E/M Code with 25 Modifier if appropriate
Follow-up visits – only use E/M code (do not rebill 57160)

https://www.augs.org/assets/1/6/CodingFactSheetforPessariesFINALMWS.pdf

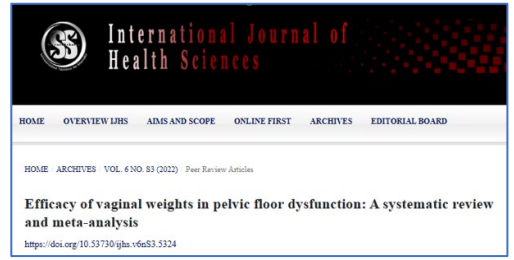
PELVIC FLOOR PHYSICAL THERAPY

- Investigate the effectiveness of pelvic floor muscle training in reversing pelvic organ prolapse and alleviating symptoms.
- Assessor-blinded, parallel group, randomized, controlled trial
- 59 in PT group, 50 in control; POP I – III (only 22% had Stage III)
- Each woman was individually supervised by a PT once a week during the first 3 months and every second week during the last 3 months
- RESULTS: Eleven (19%) women in the PT improved 1 POPQ Stage vs. 4 (8%) controls (P .035).

VAGINAL CONES

- Evaluated the effectiveness of using a specific type of vaginal cone in perineal rehabilitation
- 54 patients with a mean age of 39.68 years ± 3.34 with PFDs; 3 months
- Impact of the intervention on quality of life: a significant decrease in bladder and urinary problems (UIQ-7) and a non-significant decrease in vagina or pelvis problems (POPIQ-7)

- Systematic Review:
- Extracted reports range from 2000 to 2020; all were randomized controlled trials
- The sample size included ranged from 40 to 250 in number
- Vaginal cone training significantly improved pelvic floor muscle function and quality of life
- Pronounced impact on urinary symptoms but minimal effect on pelvic organ prolapse symptoms



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Ganesan, D et al. 2022. Efficacy of vaginal weights in pelvic floor dysfunction: A systematic review and meta-analysis. International Journal of Health Sciences, (III), pp.882-899.
Villani, F et al, 2024. 729 Perineal Rehabilitation in Pelvic Floor Dysfunction: The Benefits of Vaginal Cone Training. Balneo and PRM Research Journal, 15(3), pp.729-729.

LASER THERAPY??

- Aim: Er:YAG laser for managing ant/post prolapse
- Single blind, 1:1 trial; POP II-III
  - 30 women; 3 treatments at monthly intervals vs. no tx
  - 0% in either group had POPQ Stage 0 at 1 or 4 mos
  - PGI-I, 2/15 (14%) and 0/15 (0%) participants declared much better/very much better in the laser and watchful-waiting group, respectively.

- No support for use of Er:YAG for treatment of ant/port vaginal wall

Randomized Controlled Trial > Climacteric. 2021 Feb;24(1):101-106.
doi: 10.1080/13697137.2020.1789092. Epub 2020 Jul 28.

Can pelvic organ prolapse in postmenopausal women be treated with laser therapy?

S Athanasiou [1], E Pitsouni [1], L Cardozo [2], D Zacharakis [1], E Petrakis [1], D Loutradis [3], T Grigoriadis [1]

LASER AND POP


Contents lists available at ScienceDirect

European Journal of Obstetrics & Gynecology and Reproductive Biology

journal homepage: www.journals.elsevier.com/european-journal-of-obstetrics-and-gynecology-and-reproductive-biology

Full length article

Vaginal erbium laser versus pelvic floor exercises for the treatment of pelvic organ prolapse: A randomised controlled trial

Ann-Sophie Page [a,*], Eline Borowski [b], Emma Bauters [b], Susanne Housmans [a], Frank Van der Aa [c], Jan Deprest [a]

- Compare the efficacy of Er:YAG laser for mild to moderate POP to that of PFE
- Design: Single center randomized controlled trial
- 46 women with mild to moderate prolapse were enrolled (23 in each group)
  - Vaginal laser treatment (3–6 applications) vs PFE (9–18 sessions)
  - Subjective change in prolapse symptoms at 4 mos, Pelvic Organ Prolapse Distress Inventory-6 (POPDI-6)
- Results: The mean difference in POPDI-6 scores at 4 months was 1.09 (95 %CI = 6.02;8.12), showing non- inferiority of laser to PFE (p = 0.004).

- At 24 months, 50 % (11/22) of laser-patients and 43 % (9/21) of PFE-patients requested additional, yet alternative treatment

Page, AS et al. 2024. Vaginal erbium laser versus pelvic floor exercises for the treatment of pelvic organ prolapse: A randomised controlled trial. European Journal of Obstetrics & Gynecology and Reproductive Biology, 303, pp.165-170.

Update in Urology, Female Urology • IBJUInt. braz j urol 47 (3) • May-Jun 2021 • https://doi.org/10.1590/S1677-5538.IBJU.2021.03.04 copy

This document comments:
» 10.1111/1471-0528.16273

Editorial Comment: Laser therapy for urinary incontinence and pelvic organ prolapse: a systematic review

Authorship | SCIMAGO INSTITUTIONS RANKINGS

K Mackova[1,2], L Van Daele[3], A-S Page[4], I Geraerts[5,6], L Krofta[2], J Deprest[1,4]

BJOG. 2020 Oct;127(11):1338-1346.

COMMENT

This paper's objective was to present a systematic review on the use of LASER therapy for the treatment of urinary incontinence (UI) and pelvic organ prolapse (POP). Erbium (ER-YAG) and carbon dioxide (introduced as a new non-invasive treatment in gynecology, initially for the so-called mer syndrome, and at a later date also being considered as a treatment option for UI and m authors selected 31 studies involving 1530 patients in accordance with the PRISMA-guid YAG (n = 21), CO2 (n = 9) LASERs, or both. A single RCT was included, in which the turned to the vagina, as sham group ([1]), and two studies were controlled cohort series.

All studies reported significant improvement both for objective and validated subjective Three studies addressed urge incontinence as a primary endpoint. POP was a primary e which reported anatomical improvements to grade 0 or 1 in 85% of the subjects and to five LASER therapy sessions. Lower cystocele grades were associated with a higher succ of the data did not allow for the development of a meta-analysis. The authors concluded that although short term results of LASER therapy for UI and POP seem beneficial, current information on long term results, cost-effectiveness compared to well-established surgical treatments and even about which LASER model to use are lacking.

This systematic review stands out due to its high scientific standards and by being the first to include the controversial topic of LASER use in POP treatment. Be that as it may, we must highlight that the quality of the majority of the studies included is still poor, both in terms of sample sizes and also follow-up. In addition, as the physical characteristics of ER-YAG and CO2 LASERs are quite different, conclusions on the effectiveness and adverse effects of these therapies is still very limited.

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1 Blaganje M, Šcepanovic D, Žgur L, Verdenik I, Pajk F, Lukanovic A. Non-ablative Er:YAG laser therapy effect on stress urinary incontinence related to quality of life and sexual function: A randomized controlled trial. Eur J Obstet Gynecol Reprod Biol. 2018;224:153-8.

2 Ogrinc UB, Sencar S. Non-ablative vaginal erbium YAG laser for the treatment of cystocele. Ital J Gynaecol Obstet. 2017;29:19–25.

Editorial Comment: Laser therapy for urinary incontinence and pelvic organ prolapse: a systematic review

Authorship | SCIMAGO INSTITUTIONS RANKINGS

K Mackova[1,2], L Van Daele[3], A-S Page[4], I Geraerts[5,6], L Krofta[2], J Deprest[1,4]

BJOG. 2020 Oct;127(11):1338-1346.

EBCOG – LASER AND POP

- EBCOG recommends that laser device manufacturers should provide evidence about long-term data on safety and effective ness of their own devices. We would recommend further good quality research targeting specific cohort of patients, standardizing treatment regimens and using appropriate patient reported outcome measures.


Contents lists available at ScienceDirect

European Journal of Obstetrics & Gynecology and Reproductive Biology

journal homepage: www.journals.elsevier.com/european-journal-of-obstetrics-and-gynecology-and-reproductive-biology

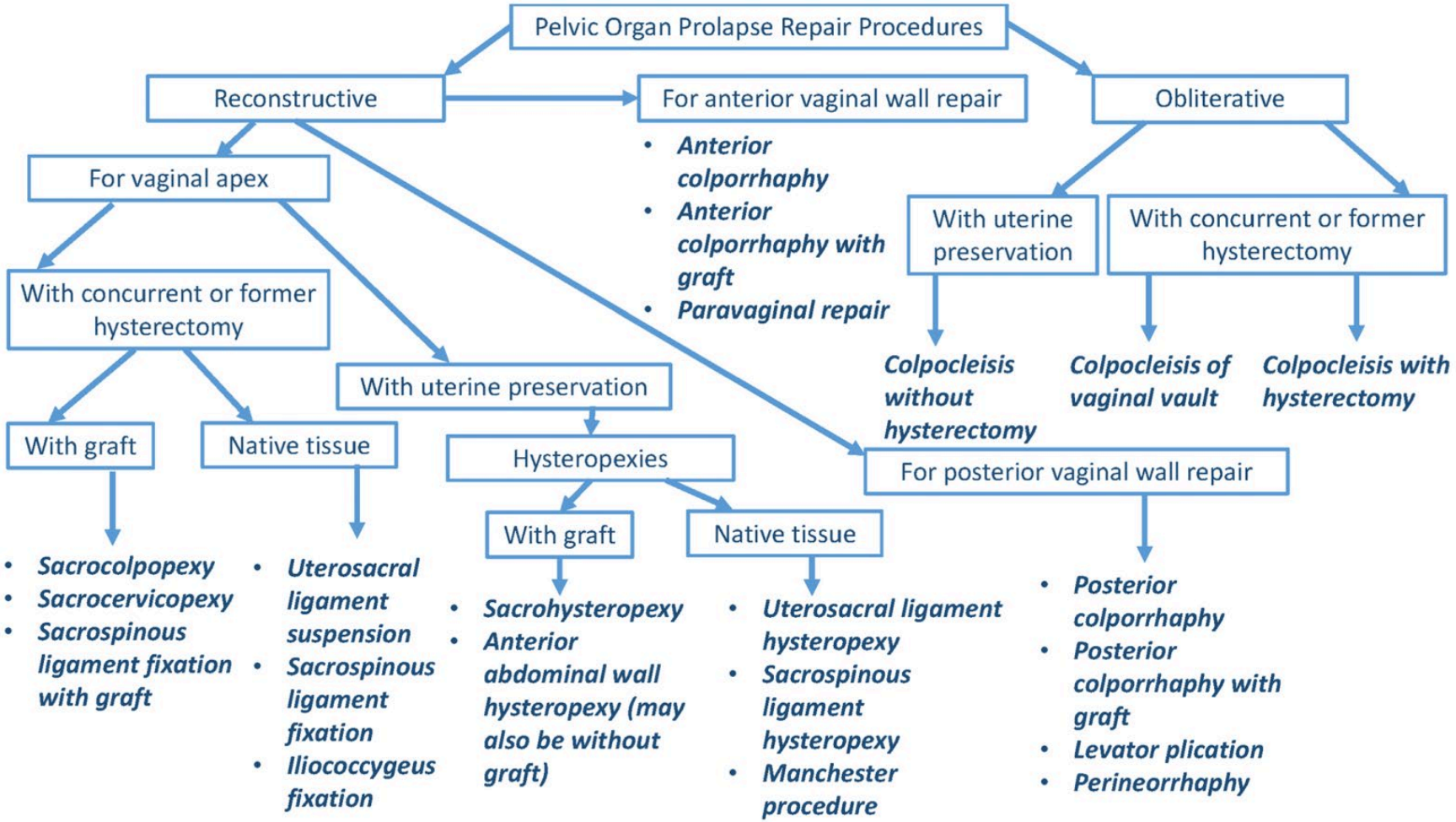
ELSEVIER

Full length article

European Board and College of Obstetrics and Gynaecology (EBCOG) position statement on the use of laser vaginal devices for treatment of genitourinary syndrome of menopause, vaginal laxity, pelvic organ prolapse and stress urinary incontinence

Ilias Giarenis [a], Sofia Tsiapakidou [b], Martino Zacche [c], Sambit Mukhopadhyay [a,d,*], Tahir Mahmood [e]

"The majority of cases of prolapse of the vagina can be successfully operated upon via the vagina. The cure is not infrequently difficult, and a great deal of surgical ingenuity is required."
Richard W. TeLinde



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Joint report on terminology for surgical procedures to treat pelvic organ prolapse. International Urogynecological Association. Meriwether, KV et al. Int Urogynecol J 31, 429–463 (2020)

KEEP IT SIMPLE

- Apical

  (Laparoscopy, Robot Assisted, Vaginal, Abdominal)

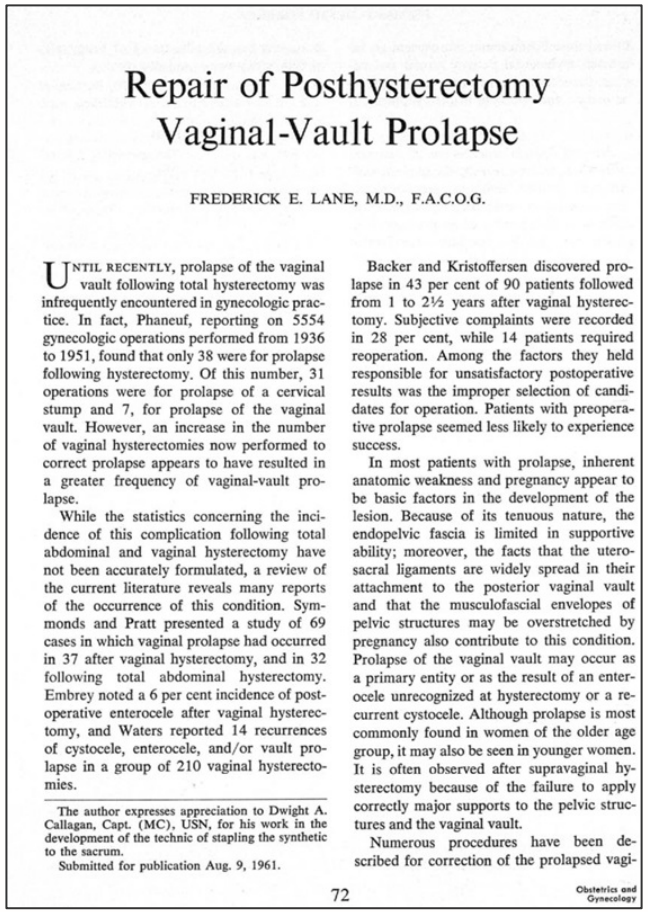
  - Sacrocolpopexy (post hysterectomy) with mesh
  - SCH with Sacrocervicopexy with mesh
  - Sacrohysteropexy
  - Uterosacral ligament suspension (uterine or vault)
  - Sacrospinous fixation, +/- vaginal hysterectomy
  - Sacrospinous Hysteropexy
  - Iliococcygeal Vaginal Suspension
  - [Rectopexy]

KEEP IT SIMPLE

- Anterior Compartment +/- Graft or Mesh
  - Anterior Colporrhaphy
  - Paravaginal Defect Repair (vaginal, abdominal)
- Posterior Compartment +/- Graft or Mesh
  - Posterior Colporrhaphy – levator plication
  - Posterior Colporrhaphy – site specific
  - Sacrospinous Ligament Fixation
- Obliterative
  - Le Fort Colpocleisis (or "colpectomy")
    - +/- hysterectomy

Sacrocolpopexy

- First described in 1962, Dr. Frederick Lane
- Grade A: SCxP preferred for vaginal apical prolapse
- Grade B: monofilament polypropylene mesh preferred graft
- Grade B: LSC is preferred technique
- Grade C: either permanent or delayed abs sutures @ vagina
- Grade C: permanent sutures or tackers @ sacral promontory
- Grade C: closing peritoneum over mesh
- Insufficient evidence/conflicting data on total vs. SCH
- Insufficient evidence/conflicting data for uterine preservation
  - Nevertheless, uterus preservation is associated with less mesh erosion (Grade B)



Repair of Posthysterectomy Vaginal-Vault Prolapse

FREDERICK E. LANE, M.D., F.A.C.O.G.

UNTIL RECENTLY, prolapse of the vaginal vault following total hysterectomy was infrequently encountered in gynecologic practice. In fact, Phaneuf, reporting on 5554 gynecologic operations performed from 1936 to 1951, found that only 38 were for prolapse following hysterectomy. Of this number, 31 operations were for prolapse of a cervical stump and 7, for prolapse of the vaginal vault. However, an increase in the number of vaginal hysterectomies now performed to correct prolapse appears to have resulted in a greater frequency of vaginal-vault prolapse.

While the statistics concerning the incidence of this complication following total abdominal and vaginal hysterectomy have not been accurately formulated, a review of the current literature reveals many reports of the occurrence of this condition. Symmonds and Pratt presented a study of 69 cases in which vaginal prolapse had occurred in 37 after vaginal hysterectomy, and in 32 following total abdominal hysterectomy. Embrey noted a 6 per cent incidence of postoperative enterocele after vaginal hysterectomy, and Waters reported 14 recurrences of cystocele, enterocele, and/or vault prolapse in a group of 210 vaginal hysterectomies.

The author expresses appreciation to Dwight A. Callagan, Capt. (MC), USN, for his work in the development of the technic of stapling the synthetic to the sacrum.

Submitted for publication Aug. 9, 1961.

Backer and Kristoffersen discovered prolapse in 43 per cent of 90 patients followed from 1 to 2½ years after vaginal hysterectomy. Subjective complaints were recorded in 28 per cent, while 14 patients required reoperation. Among the factors they held responsible for unsatisfactory postoperative results was the improper selection of candidates for operation. Patients with preoperative prolapse seemed less likely to experience success.

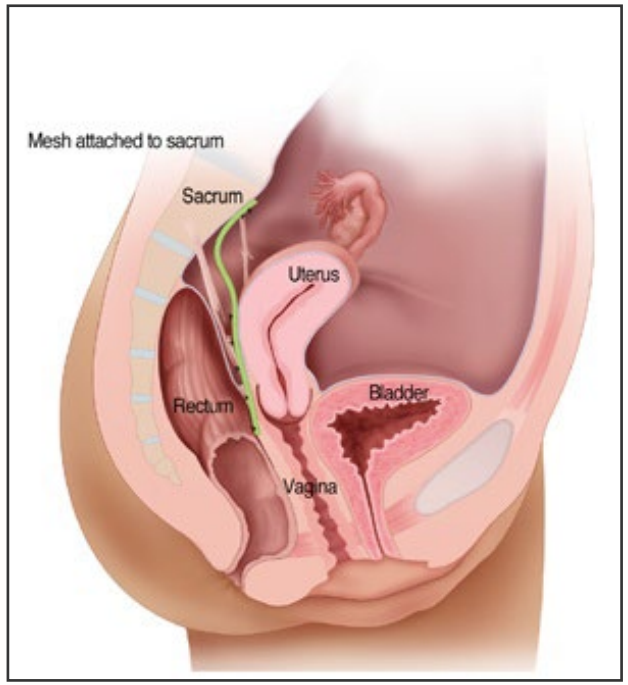
In most patients with prolapse, inherent anatomic weakness and pregnancy appear to be basic factors in the development of the lesion. Because of its tenuous nature, the endopelvic fascia is limited in supportive ability; moreover, the facts that the uterosacral ligaments are widely spread in their attachment to the posterior vaginal vault and that the musculofascial envelopes of pelvic structures may be overstretched by pregnancy also contribute to this condition. Prolapse of the vaginal vault may occur as a primary entity or as the result of an enterocele unrecognized at hysterectomy or a recurrent cystocele. Although prolapse is most commonly found in women of the older age group, it may also be seen in younger women. It is often observed after supravaginal hysterectomy because of the failure to apply correctly major supports to the pelvic structures and the vaginal vault.

Numerous procedures have been described for correction of the prolapsed vagi-

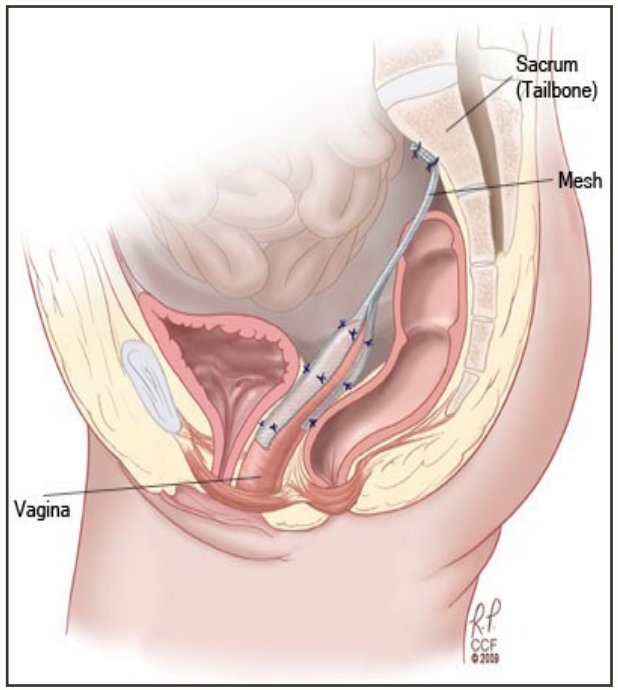
Costantini, E., Brubaker, L., Cervigni, M., Matthews, C.A., O'Reilly, B.A., Rizk, D., Giannitsas, K. and Maher, C.F., 2016. Sacrocolpopexy for pelvic organ prolapse: evidence-based review and recommendations. European Journal of Obstetrics & Gynecology and Reproductive Biology, 205, pp.60-65.

Sacrocolpopexy with Mesh – the 'gold standard'

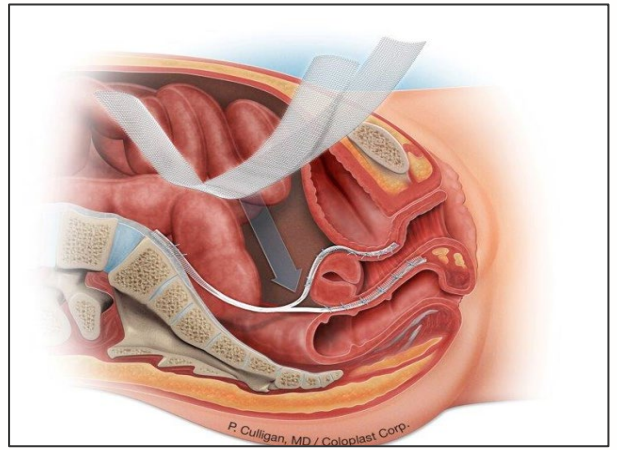
Sacrohysteropexy (uterus in place)



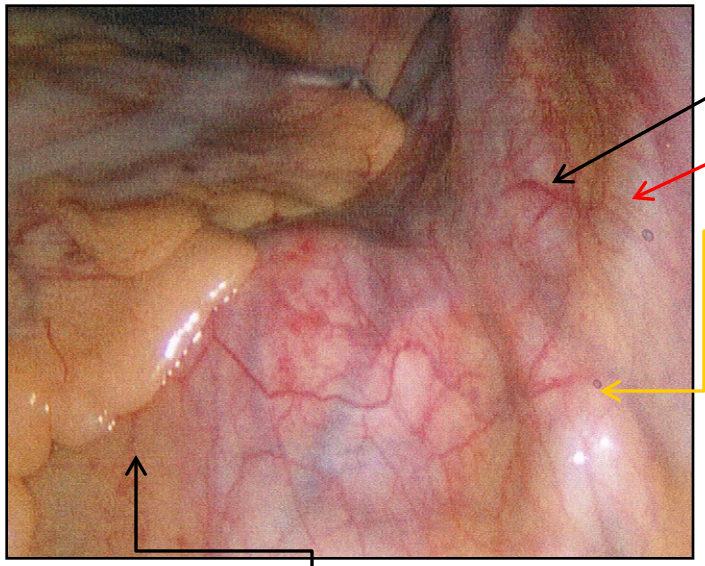
Sacrocolpopexy (post hysterectomy)



Sacrocervicopexy



THE "GOLD STANDARD"



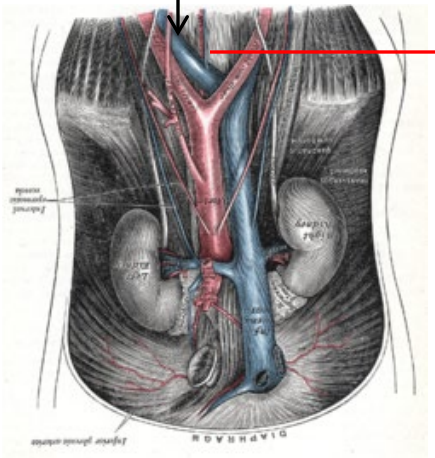
Internal Iliac Artery

External Iliac Artery

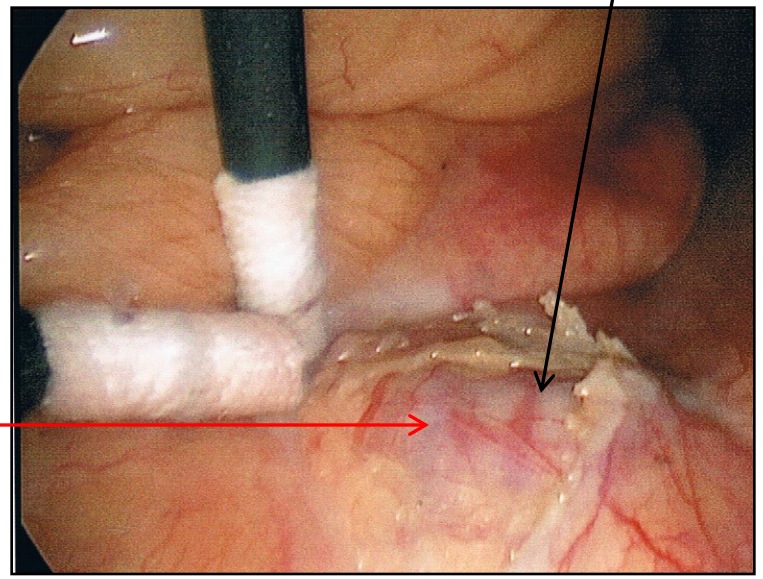
Ureter

Anterior Longitudinal Ligament

Left Iliac Vein



Middle Sacral



Sacrocolpopexy – complications (specific)

- Hemorrhage (presacral vessels)
  - blood transfusions
- Mesh exposure/erosion
  - SCH vs Total
- Bladder injury
- Ureteral injury
- Bowel obstruction
  - reperitonealization of mesh
- Spondylodiscitis
- Other
  - wound complications
  - trocar related injuries

Biler A, Ertas IE, Tosun G, Hortu I, Turkay U, Gultekin OE, Igci G. Perioperative complications and short-term outcomes of abdominal sacrocolpopexy, laparoscopic sacrocolpopexy, and laparoscopic pectopexy for apical prolapse. Int Braz J Urol. 2018 Sep-Oct;44(5):996-1004.
Baines G, Price N, Jefferis H, Cartwright R, Jackson SR. Mesh-related complications of laparoscopic sacrocolpopexy. Int Urogynecol J. 2019 Sep;30(9):1475-1481.
Dallas, K., Taich, L., Kuhlmann, P., Rogo-Gupta, L., Eilber, K., Anger, J.T. and Scott, V., 2022. Supracervical hysterectomy is protective against mesh complications after minimally invasive abdominal sacrocolpopexy: a population-based cohort study of 12,189 patients. The Journal of Urology, 207(3), pp.669-676.
Glass Clark, Stephanie M. MD*; Shannon, Megan B. MD*; Gill, Edward MD†; Clark, Michael D. MD, PhD‡; Lamb, Elizabeth WHNP†; Carroll, Ashley MD†. Complications After Reperitonealization of Mesh at Time of Sacrocolpopexy: A Retrospective Cohort Study. Female Pelvic Medicine & Reconstructive Surgery 26(2):p 116-119, February 2020.

Lumbar spondylodiscitis

- 36.5% laparotomy
- 44.2% laparoscopic
- 15.4% robotic-assisted
- 63.5% cases - Sacral anchorage was performed with synthetic mesh (nonabsorbable or partially absorbable)
- Biologic mesh 1.9%, direct sutures 3.8%
  - 25% of all cases, the type of sacral anchorage was not specified.
- The attachment to the promontory
  - was made with sutures in 36.5% (all nonabsorbable sutures)
  - staples, clips, tacks or screws in 23% of the cases
  - information lacking in 40.4% of the cases

Tavares, M.A., Silva, A.R., Melo, M.G.D., Pacheco, M., Coutinho, N., Ambrósio, A. and Tapadinhas, P., 2021. Conservative Management of Spondylodiscitis after Laparoscopic Sacral Colpopexy: A Case Report and Review of Literature. Revista Brasileira de Ginecologia e Obstetrícia, 43, pp.570-577.

Delayed Complication: Lumbar spondylodiscitis

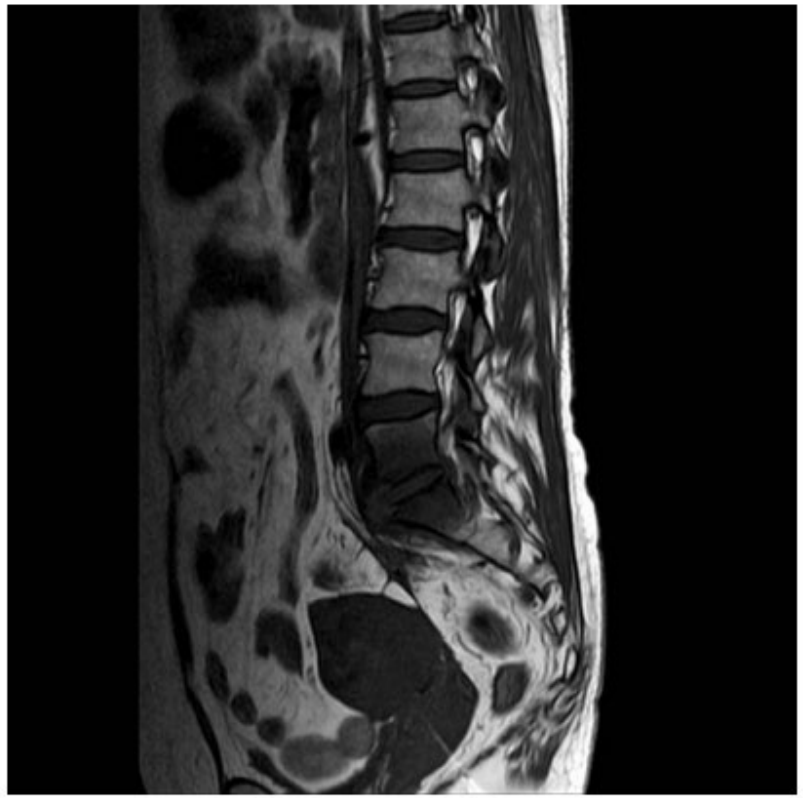


Figure 1. MRI: Lumbar pyogenic spondylodiscitis, enhancement of soft tissues surrounding the L5-S1 vertebrae (arrow). MRI = magnetic resonance imaging.

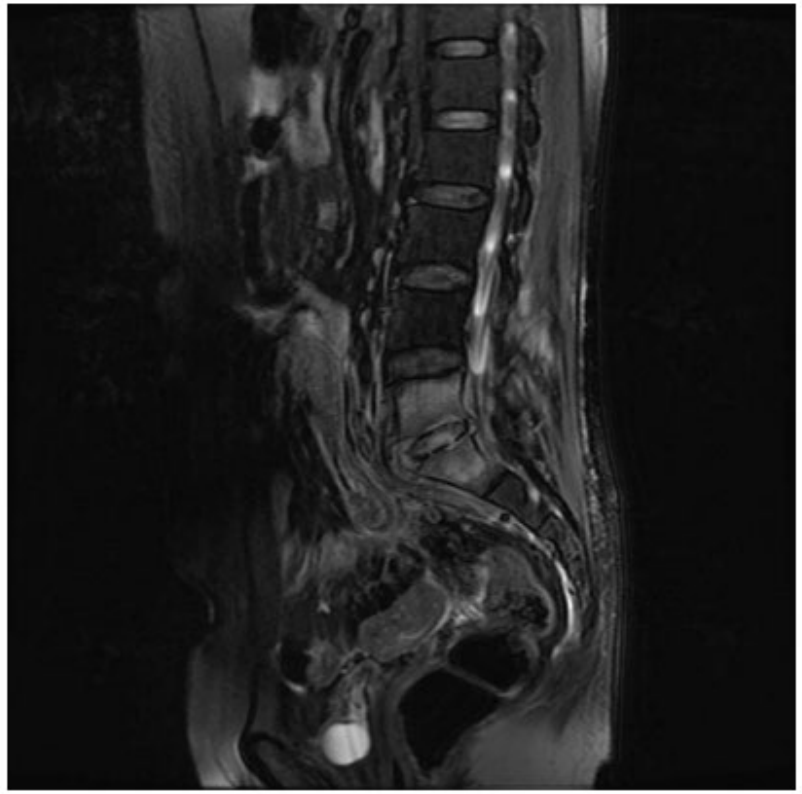


Figure 2. MRI after mesh removal 2 wk later: bony destruction of the lower part of the L5 vertebra and the dome of the sacrum (arrow). MRI = magnetic resonance imaging.

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Qu, D.C., Chen, H.B., Yang, M.M. and Zhou, H.G., 2019. Management of lumbar spondylodiscitis developing after laparoscopic sacrohysteropexy with a mesh: A case report and review of the literature. Medicine, 98(49).

Sacrospinous Ligament Fixation (SSLF)

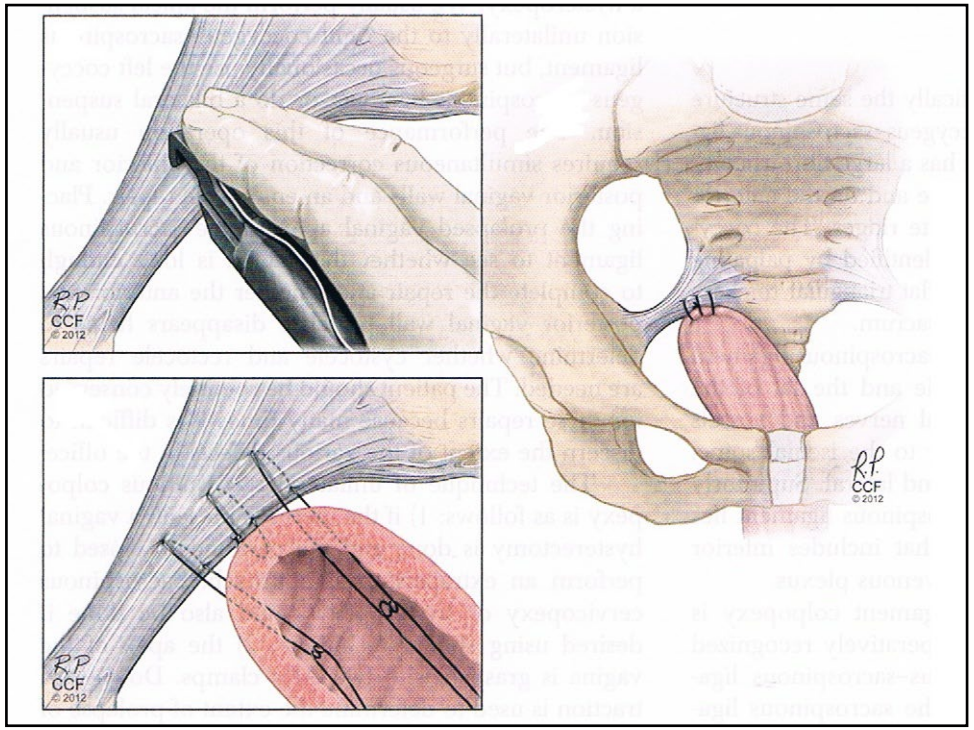
- Sederl 1958; Richter 1968; Randall and Nichols 1971
- Transvaginal surgical treatment is mainly represented by the sacrospinous ligament fixation
- Sutures the posterior vaginal wall to the sacrospinous ligament
- Compared to sacrocolpopexy, the SSLF
    - avoids abdomen
    - lower morbidity
    - shorter operation / anesthesia time / LOS
    - faster postoperative recovery
    - lower cost

    - higher rate of dyspareunia
    - higher rate or recurrence

Maher CM, Feiner B, Baessler K, Glazener CM. Surgical management of pelvic organ prolapse in women: the updated summary version Cochrane Review. Int Urogynecol J. 2011;22:1445–1457.

Sacrospinous Ligament Fixation

Unilateral / Bilateral



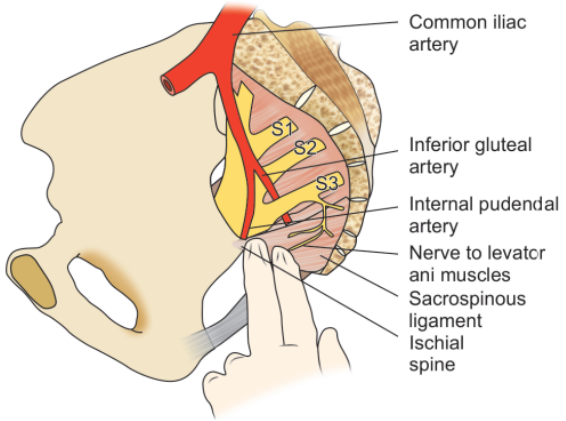
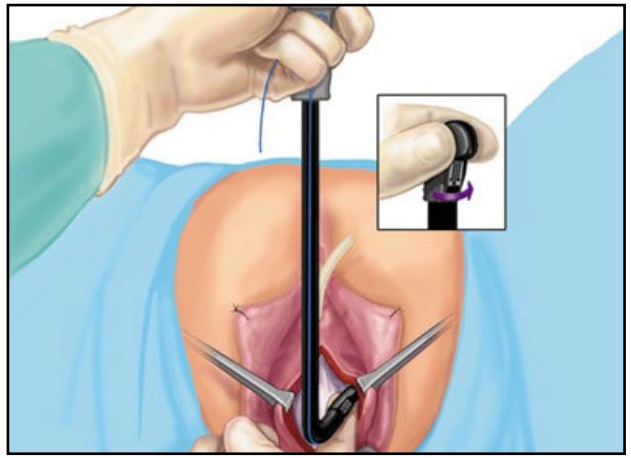


Fig. 6: Anatomy of sacrospinous ligament



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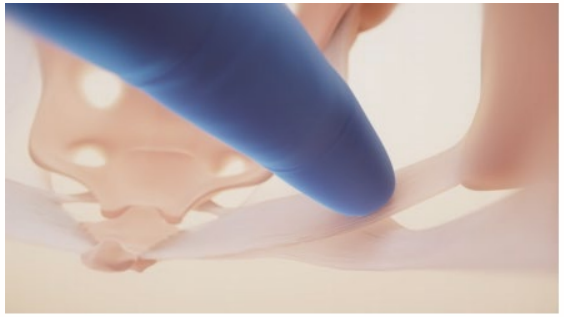
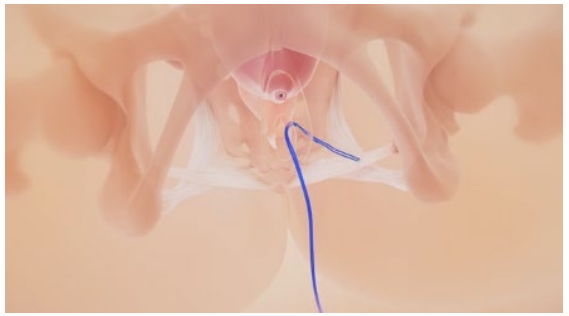
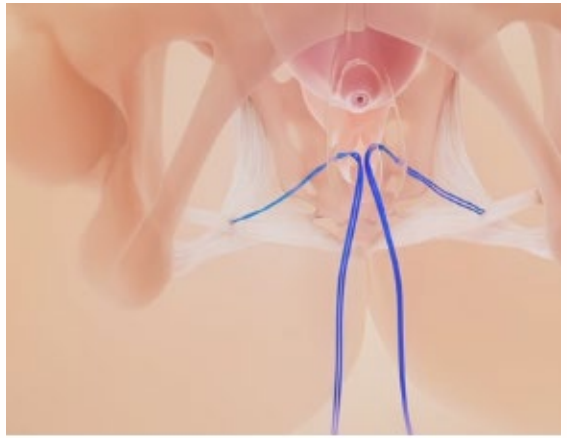
Transvaginal Sacrospinous Ligament Fixation: Revisited in Modern Gynecology. Shraddha S Shastri, Sameer P Darawade, Nikita R Yedage. Journal of South Asian Federation of Obstetrics and Gynaecology (2020): 10.5005/jp-journals-10006-1782



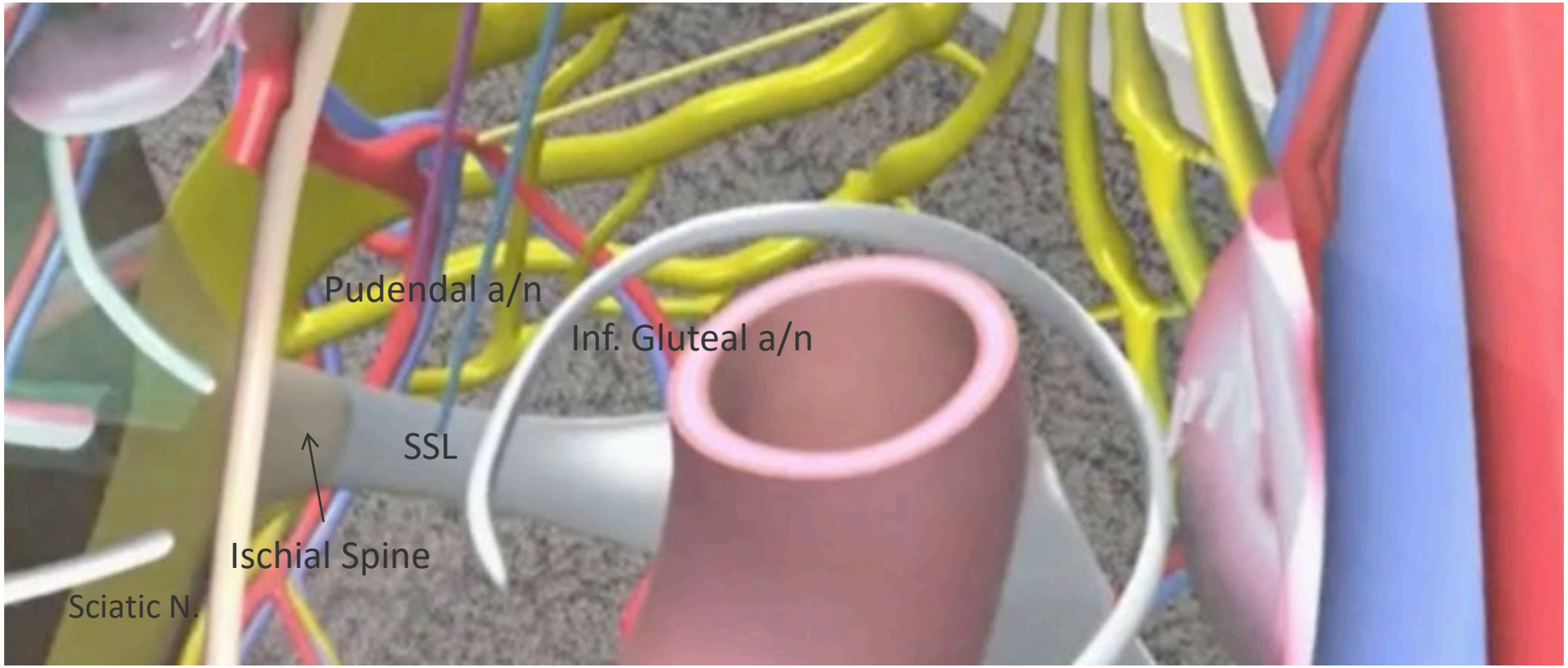




Coloplast®

Key landmarks (SSLF)

- Ischial Spine
- Sacrospinous ligament (SSL)
- Pudendal vessels and nerves
- Sciatic nerve
- Inferior Gluteal arteries and nerves



Courtesy Dr. Lauren Siff

Complications (specific)

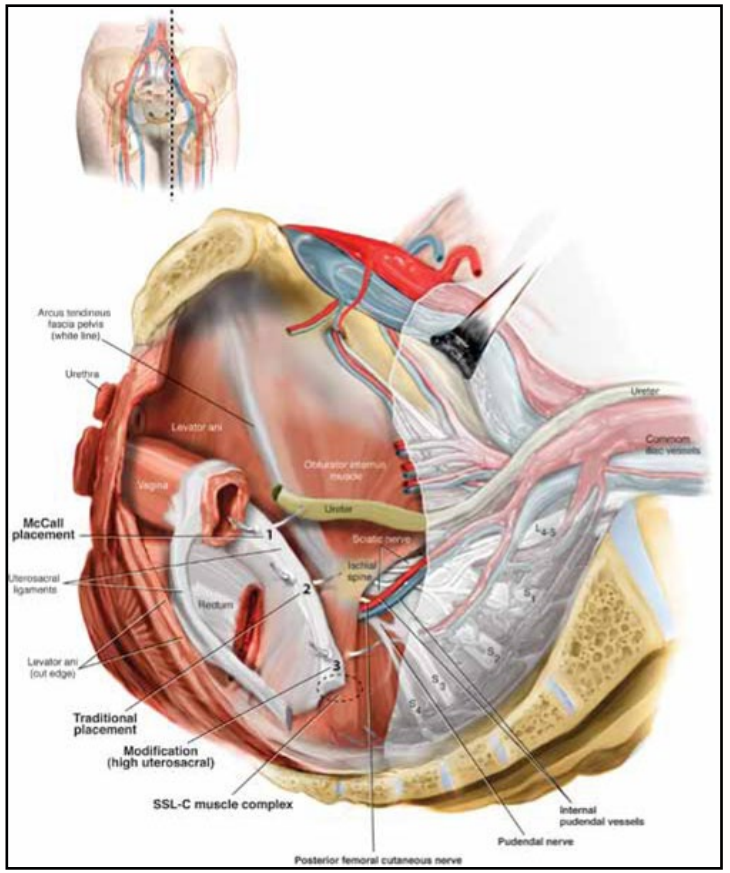
- Gluteal pain – requiring removal of stitch(es)
- Bleeding – can be catastrophic, inaccessible
- Injury to rectum (ureter, bladder)
- Constipation
- UTI
- Dyspareunia
- Myositis
- Perineal necrotizing infection of the gluteal region

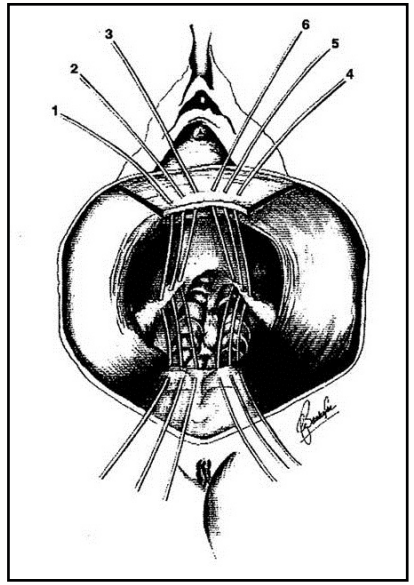
Vodegel, EV, van Delft, KWM, Nuboer, CH, Kowalik, CR, Roovers, J-P. Surgical management of pudendal nerve entrapment after sacrospinous ligament fixation. BJOG. 2022; 129: 1908 - 1915.

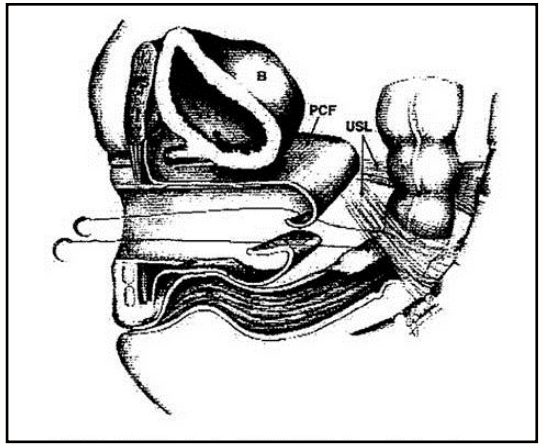
Uterine preservation or not? SSF Hysteropexy

- recurrence rate was 19.5%
- retreatment rate was 11.0%
  - cystocele was the most common recurrent compartment (17.1%)
  - the uterine preservation group (n = 66) was younger, had lower parity, and had fewer stage 3 to 4 cystoceles and uterine prolapses than the concomitant hysterectomy group (n = 16)
  - Shorter operation times (99.4 minutes vs 153.7 minutes, P = .002) and lower anatomical recurrence rates (11.5% vs 45.5%, P = .039) were found in the uterine preservation group before and after PSM(propensity score matching).
  - Previous pelvic organ prolapse surgery (hazard ratio 3.14) and concomitant hysterectomy (hazard ratio 4.08) were identified as risk factors for anatomical recurrence
  - most common adverse event was buttock pain (14.6%); resolved spontaneously within 4 weeks
- compared with concomitant hysterectomy, SSLF with uterine preservation reduces the anatomical recurrence rate.

High Uterosacral Ligament Suspension +/- VH







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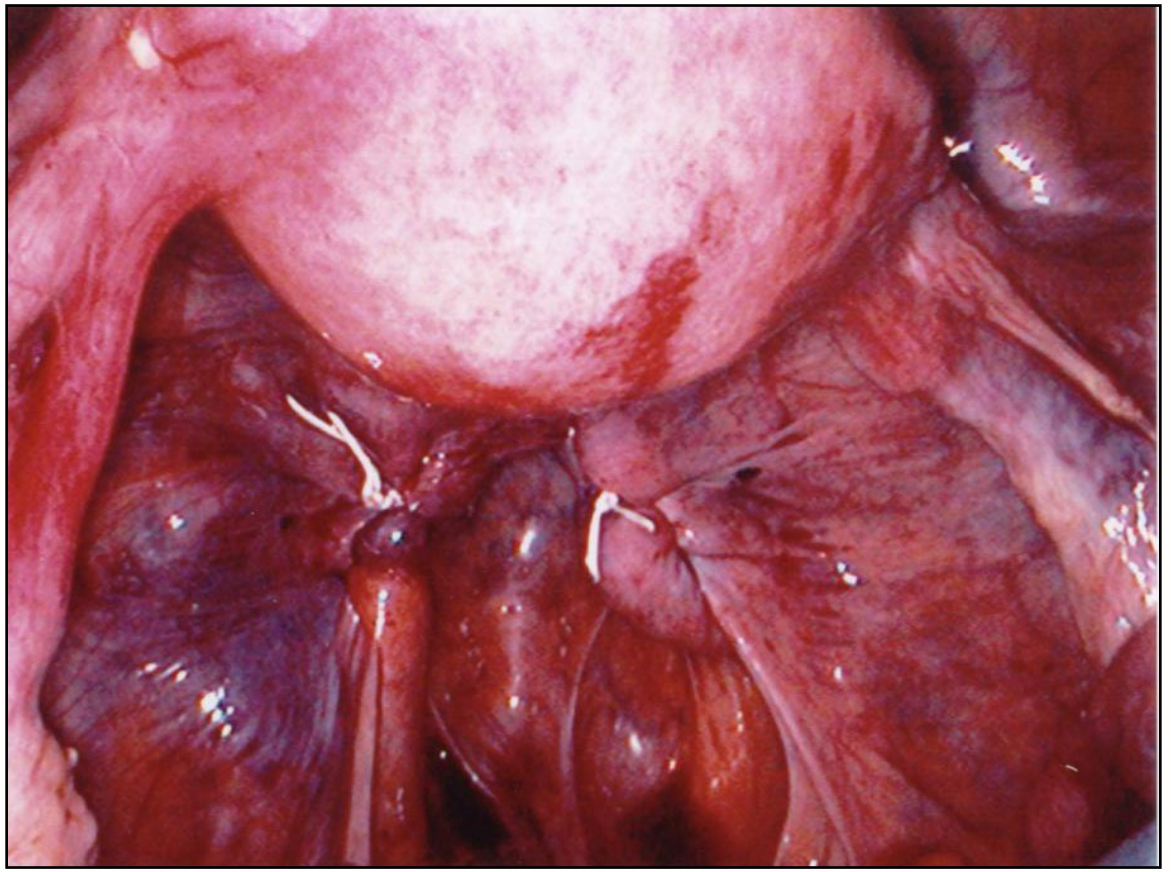
Shull, B.L., Bachofen, C., Coates, K.W. and Kuehl, T.J., 2000. A transvaginal approach to repair of apical and other associated sites of pelvic organ prolapse with uterosacral ligaments. American journal of obstetrics and gynecology, 183(6), pp.1365-1374.

JB, 48yo

LSC – uterosacral ligament plication



Courtesy Dr. Peter Rosenblatt

Uterine preservation or not? SSF vs. USLS

- 4 sites, 147 patients underwent SSHP and 114 underwent USHP
  - SSHP patients were younger, higher BMI
- One year postop: 1 in 3 patients were available for follow-up
  - no differences in prolapse recurrence between patients who underwent USHP versus SSHP
  - adverse events were low and less than 5% of patients underwent subsequent hysterectomy for prolapse
    - There were 10 (3.8%) anatomic failures: 3 (2%) SSHP and 7 (6.1%) USHP (p=0.109)
    - Some pts had trachelectomy
    - Variety of suture techniques

LeFort Colpocleisis

- 1823 - Gerardin described obliterative vaginal surgery in elderly women who are no longer sexually active.
- 1877 – Leon Le Fort performed and published the technique for the procedure now known as Le Fort partial colpocleisis

- Elderly
- High risk for prolonged, abdominal or reconstructive procedure
- **Vaginal Penetration**

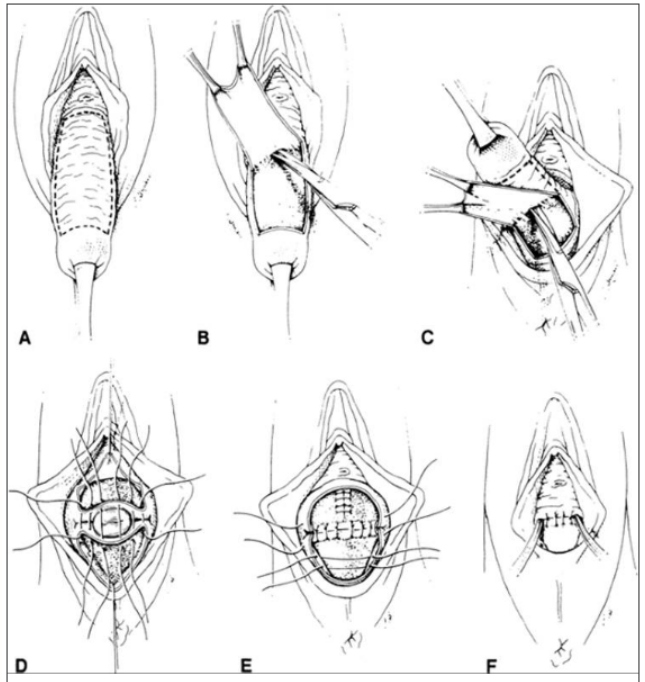
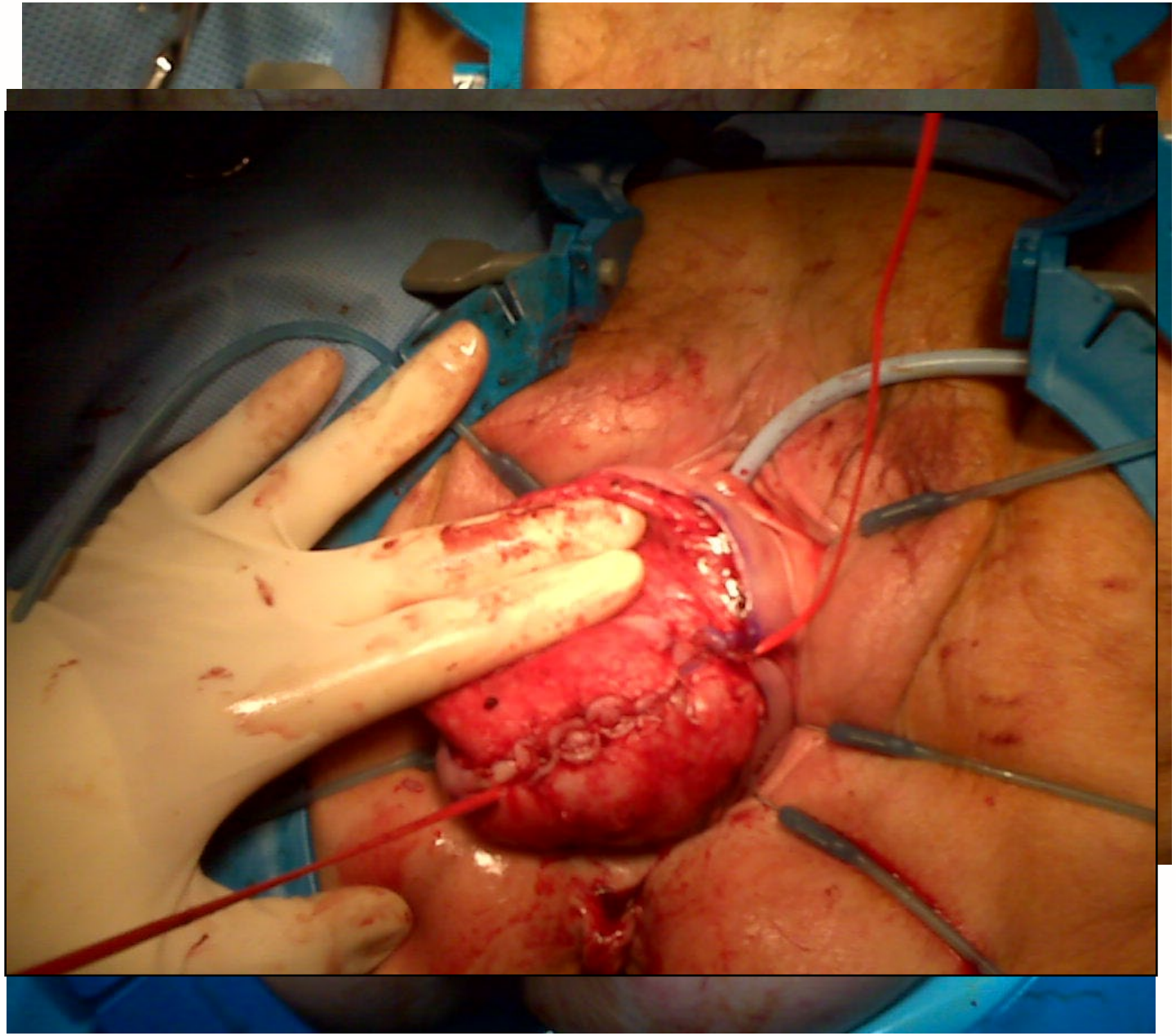
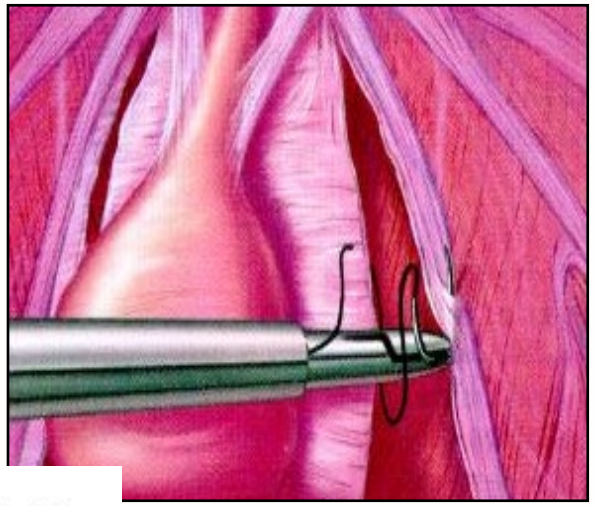


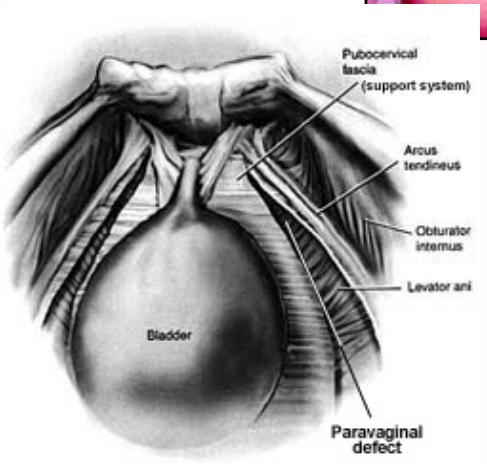
FIG. 45.21. A–C: In Le Fort colpocleisis, rectangles of vaginal mucosa are removed from the anterior and posterior vaginal walls. **D,E:** The denuded areas are then sutured together, leaving **(F)** channels on each side open. (From Mattingly RF, Thompson JD, eds. *Te Linde's operative gynecology*, sixth ed. Philadelphia: JB Lippincott Co, 1985:562, with permission.)

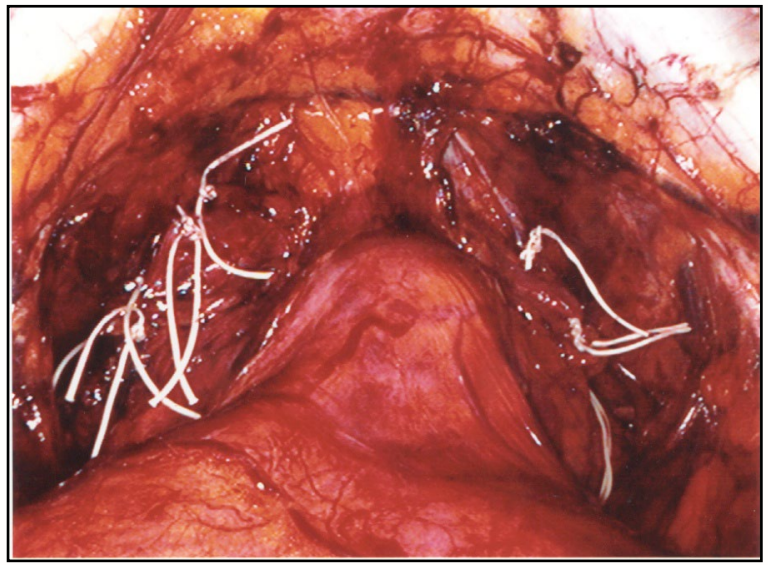
O'Leary, A.J., Vyas, S.K. Le Fort's partial colpocleisis: a review of one surgeon's experience. Gynecol Surg 1, 15–19 (2004)
Gupta A, Herrera S, Kanitsch S, Kane L. Le Fort Partial Colpocleisis: A Low-Cost Model. J Med Educ Curric Dev. 2018 Sep 20;5:23
John O.L. DeLancey and Kris Strohbehn. Danforth's Obstetrics & Gynecology, 9th Edition. Chapter 45 - Pelvic Organ Prolapse



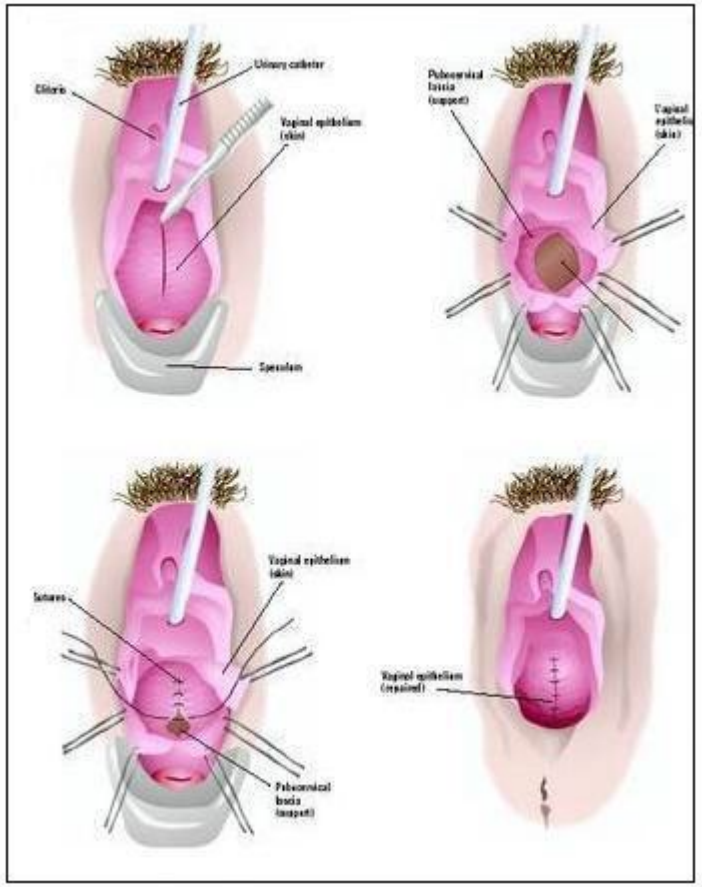
Paravaginal Repair (Abdominally / LSC)

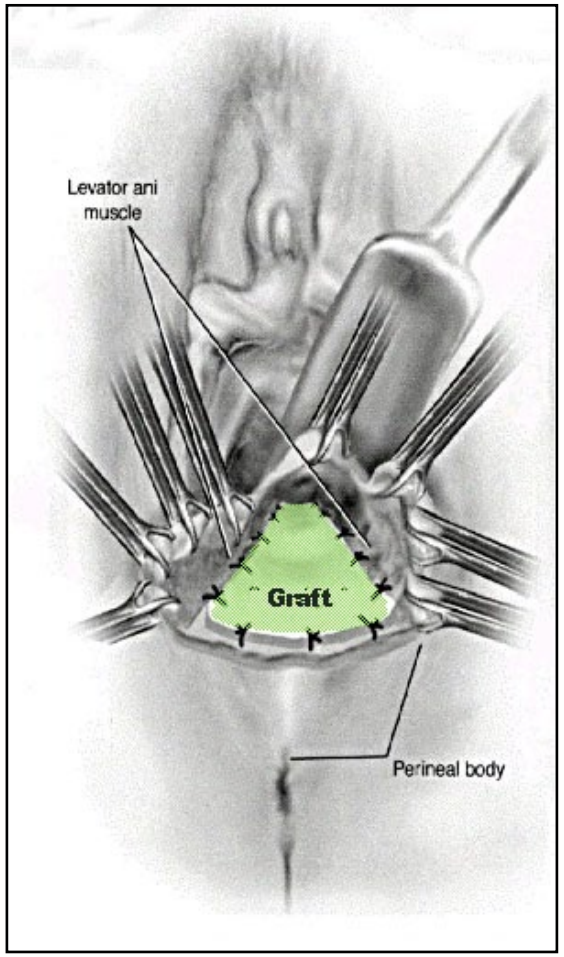




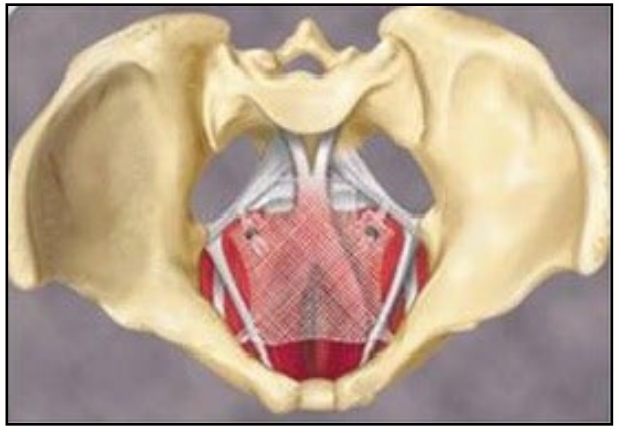


Vaginal Colporraphy





2008 → 2011 …. and beyond



Mesh

Why??

- Success rates for native repairs

Surgical mesh materials can be divided into four general categories:

- non-absorbable synthetic (e.g., polypropylene or polyester)
- absorbable synthetic (e.g., poly(lactic-co-glycolic acid) or poly(caprolactone)
- biologic (e.g., acellular collagen derived from bovine or porcine sources)
- composite (i.e., a combination of any of the previous three categories)

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Keck School of Medicine of USC

Blame Game

510(k) process

Surgeons/Consultants

Device Manufacturers / DTC Marketing

Present state:

522 Studies - The FDA has ordered manufacturers to conduct post-market surveillance studies to address specific safety concerns related to mini-sling devices for stress urinary incontinence (SUI) and surgical mesh used for transvaginal POP repair.

Device Reclassification - In 2016, the FDA reclassified urogynecologic surgical mesh for transvaginal POP repair from class II (moderate risk) to class III (high risk), requiring premarket approval applications for new devices.

FDA APPROVED

Where do we go from here?

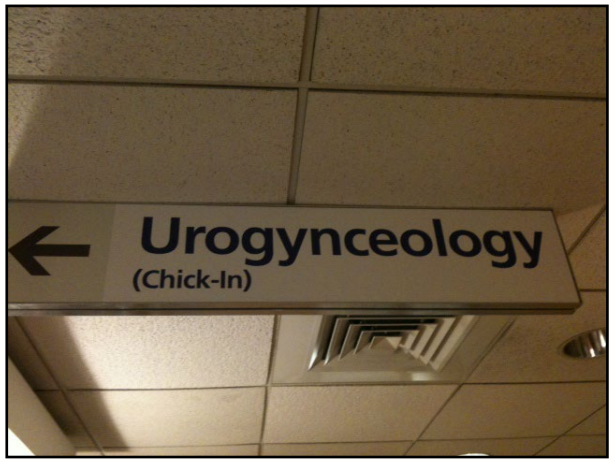
AUGS
Advancing Female Pelvic Medicine and Reconstructive Surgery

SUFU
Society of Urodynamics, Female Pelvic Medicine & Urogenital Reconstruction

Position Statement

This Position Statement was developed by a joint task force between the American Urogynecologic Society (AUGS) and the Society for Urodynamics, Female Pelvic Medicine and Urogenital Reconstruction (SUFU). This document reflects clinical and scientific advances as of the date issued and is subject to change. The information should not be construed as dictating an exclusive course of treatment or procedure to be followed.

Mesh Midurethral Slings for Stress Urinary Incontinence



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Transvaginal mesh implants

In recent years there has been some growing concerns about the use of transvaginal mesh implants, which are used for the treatment of pelvic organ prolapse (POP) or stress urinary incontinence (SUI).

Following the public petition in Scottish Government about concerns raised with complications related to use of transvaginal mesh for both POP and SUI, the Scottish Government completed an independent review. This looked into the safety, use and efficacy (effectiveness) of transvaginal implants.

The report which was published in March 2017 made recommendations around managing patient who are considering surgery for SUi and POP and those suspected of having mesh related complications.

Some of the conclusions made by the independent review include:

- Shared decision making with health professionals and patient choice is essential when choosing treatments
- In the case of surgical treatment for stress urinary incontinence, individuals must be offered all appropriate treatments (mesh and non-mesh) as well as the information to make treatment option choices about their treatment
- In the surgical treatment of pelvic organ prolapse, current evidence does not show any extra benefit from the use of transvaginal implants (prolypropylene mesh or biological graft) over native tissue repair. Transvaginal mesh procedures must not be offered routinely

THANK YOU

World Health Organization

"Health is a state of complete physical, mental, and social well-being, not merely the absence of disease or infirmity."

ferzandi@usc.edu

www.augs.org
www.acog.org
www.iuga.org

Boston Garden, 2019

PCH, 2021

"It's better to be tormented by doubts, rather than run the risk of lying in the wrong conviction"
Alessandro Manzoni