Philippine Obstetrical
and Gynecological Society (Foundation), Inc. (POGS)

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on
PELVIC ORGAN PROLAPSE

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Task Force on the Clinical Practice Guidelines
on Pelvic Organ Prolapse

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POGS Building, No. 56 Malakas Street, Diliman, Quezon City 1100
Telephone Numbers: (632) 8921-2479; (632) 8921-9420; (632) 7341-5341; (632) 8922-0195
Fax: (632) 8921-9089
Email: pogsinc@gmail.com

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MESSAGE FROM THE PRESIDENT

PHILIPPINE OBSTETRICAL
AND GYNECOLOGICAL SOCIETY (Foundation), INC.

The issue of pelvic organ prolapse and its related conditions has often been taken for granted even by the suffering individual and was even misconstrued to be part and parcel of the normal aging process. Historically, affected women do not readily complain nor seek consultation and may not even be aware that the symptoms could be alleviated if only the right specialists were consulted at the right time.

It is my opinion that it is high time and exigently important that awareness about this discipline in women's health be formally raised and promoted through this first-ever CPG book, jointly endeavored by the visionary 2021 leaders of the Philippine Society of Urogynecology and Reconstructive Pelvic Surgery (PSURPS) through its President, Dr. Maria Teresa C. Luna, and the members of the 2021 POGS Committee on Clinical Practice Guidelines, inspired by its Chairman, Dr. Gil S. Gonzalez.

Until the PSURPS was officially established as a professional health organization, the pelvic floor was almost an abandoned anatomic concern that barely drew significant attention even from health professionals like us. That when the pelvic floor weakens due to aging, hypoestrogenism and repeated childbirth at the time of menopause, the sad consequences are inevitably tolerated together with all their attendant symptoms such as urinary leaks, falling out sensation and pelvic discomfort. That these, taken altogether, are part of normal aging, which have to be lived by and tolerated by the poor women for the rest of her menopausal life.

I share the pride in coming up with this tangible gift of learning opportunity for the members of our Society, borne out of internally generated collaborative initiatives in order to ensure that every aspect of women's healthcare, common or uncommon, is duly addressed by our expert colleagues and duly taught to the clinicians based on the best and currently available evidence in the medical literature.

Through this CPG, it is ardently hoped that every gynecologist will be guided, theoretically and operatively, by the prevailing management principles engrained in the book and to appreciate one's limitations as clinician and consider referral or call for assistance by the subspecialists during operative procedures so that every suffering patient will be optimally relieved of her symptoms and live a menopausal life with utmost quality, free of treatment-related complications. The growing number of experts are already within our reach and in fact, all members of the POGS for that matter.

I also congratulate the grit and the scholarly dedication of the authors and all the people who infused effort to bring this accomplishment into its present form. Together with the 2021 leaders and the entire membership of the Philippine Obstetrical and Gynecological Society (Foundation), Inc., I salute your unparalleled dedication to the science of healing, teaching and learning!

Three Cheers…One POGS!

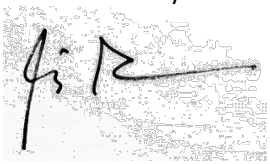
BENJAMIN D. CUENCA, MD, FPOGS
President
Philippine Obstetrical and Gynecological Society (Foundation), Inc., 2021

FOREWORD

In keeping with the objectives of the POGS Committee on Clinical Practice Guidelines (CPG), which are: 1) to set the standards for the general practice of Obstetrics and Gynecology and 2) to continuously update such guidelines for POGS members, the Committee is proud to present the 2023 Edition of the PELVIC ORGAN PROLAPSE CPG. The Task Force, led by Dr. Ma. Teresa C. Luna and ably assisted by Managing Editor Dr. Mary Rani M. Cadiz, has put forth this phenomenal undertaking and words cannot adequately convey the depth of my gratitude for their exceptional efforts.

The Committee also recognizes with great thanks the full support of President Benjamin J. Cuenca, M.D. and the members of the Board of Trustees, who facilitated the completion of this manuscript.

May the members find this material to be a useful and handy reference as they go about their daily Obstetrics and Gynecology practice.



GIL S. GONZALEZ, M.D.
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INTRODUCTION

Pelvic organ prolapse (POP) remains a significant health issue among women. Not only does it harm the physical, psychological, and social well-being of the patient, it also has profound resource implications.

The world population is constantly growing, with more vaginal births each year. Generally, the body mass index substantially increases with age. In addition, smoking and worsening pollution heighten the predisposition to pulmonary disease. Advances in medicine led to longer life expectancy and consequently inflation of the aging population. The pelvic floor undergoes adaptive changes during menopause. All the aforementioned are factors that contribute to the development of POP.

It is difficult to determine the true incidence of POP. Affected women are usually asymptomatic or may have not-bothersome-enough introital mass or pelvic heaviness. However, through the years, attention on women's welfare grew, resulting in changed health-seeking behavior. Now, medical services are sought for various pelvic floor dysfunctions, of which POP is the most common. For this reason, the Philippine Society for Urogynecology and Reconstructive Pelvic Surgery (PSURPS) embarked on formulating this clinical practice guideline (CPG) to be every obstetrician-gynecologist's companion in managing women with POP.

Maria Teresa C. Luna, MD, MBAH
Chair
Task Force on the Clinical Practice Guidelines on Pelvic Organ Prolapse, 2021-2023

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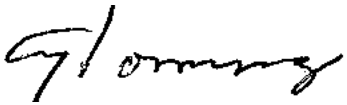
- The reader is encouraged to deal with each clinical case as a distinct and unique clinical condition which will never fit into an exact location if reference is made into any or all part/s of this CPG.
- The intention and objective of this CPG is to serve as a guide, to clarify, to make clear the distinction. It is not the intention or objective of this CPG to serve as the exact and precise answer, solution and treatment for clinical conditions and situations. It is always encouraged to refer to the individual clinical case as the one and only answer to the case in question, not this CPG.
- It is hoped that with the CPG at hand, the clinician will find a handy guide that leads to a clue, to a valuable pathway that leads to the discovery of clinical tests leading to clinical treatments and eventually recovery.
- On behalf of the POGS, its Board of Trustees, the Committee on Clinical Practice Guidelines 2021, this CPG is meant to make each one of us a perfect image of Christ, the Healer.



EFREN J. DOMINGO, MD, PhD
POGS Treasurer, 2018
Chair on Committee on Clinical Practice Guidelines, 2010-2011

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Chapter 1

Background and Epidemiology

Rowena A. Sumilang, MD, FPOGS, FPSURPS

Pelvic organ prolapse (POP) is the descent of one or more of the anterior vaginal wall, posterior vaginal wall, the uterus (cervix), or the apex of the vagina (vaginal vault or cuff scar after hysterectomy) from the normal anatomical position.[1] Symptoms may vary, and usually depend on the compartments affected.

In general, women with prolapse report a significant negative impact on their body image perception which alters their intimate, social, and work interactions.[2] Women with POP also reported lower scores in general health assessment indicating a substantial impairment in their quality of life compared with the population norm of the same age.[3]

Earlier studies which defined prolapse based on physical examination of Stages I to III prolapse showed higher prevalence rates ranging from 4% to 40%.[4] The later population-based studies that defined prolapse based on patient symptoms had lower rates of 2.9% to 12%.[4,5] Our local population-based study also had similar rates at 6.6%.[5] These results reveal that the prevalence rates of prolapse vary considerably depending on how it is defined. It then becomes important to assess the symptoms and degree of bother when evaluating a prolapse patient. The lifetime risk of surgical intervention for pelvic organ prolapse ranges from 7% to 12.6%.[6,7]

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Chapter 2

Risk Factors

Ryan Joseph B. Lirazan, MD, FPOGS, FPSURPS

The established risk factors for primary pelvic organ prolapse (POP) are parity, increasing age, and obesity.

Multiparity

The risk of POP increases with increasing parity. In the first Philippine epidemiologic study on POP, it was shown that grand multiparity is associated with a three-fold risk in developing pelvic organ prolapse.[1] This link is also found in a large foreign population of 17,000 women prospectively followed up for 17 years. They found that compared to nulliparous patients, the risk for hospital admission for POP increased four-folds after the first and eight-folds after the second pregnancy.[2] Repeated trauma to the birth canal, levator ani muscle injury, and pudendal nerve weakness may be responsible for this correlation.

Other obstetric factors associated with POP include high infant birth weight, prolonged second stage of labor, operative vaginal delivery, and maternal age of younger than 25 years old after first delivery.[3]

Advancing Age

The risk of POP increases with advancing age. One study that involves 1,000 women consulting for routine gynecologic examination reported a progressive incidence of prolapse with increasing age; every additional 10 years of age conferred an increasing risk of 40 percent.[4] Similarly in another study, the number of women seeking care for symptomatic pelvic floor disorders increased by age with the largest number of consults from women in their 60-70th decade of life.[5]

Obesity

The risk of POP increases with increasing BMI. In a meta-analysis of 22 studies reporting on the relation of weight on the risk of prolapse, overweight (BMI >25 to 29.9 kg/m^2) and obese (BMI >30 kg/m^2) women had nearly 40 - 50% increased risk of POP compared with normal weight-peers.[6]

Hysterectomy

Hysterectomy is associated with an increased risk for POP. Hysterectomy causes separation of the upper third of the vagina from its suspension to the pelvic walls and injury to the hypogastric plexus or branches of the pudendal nerve found adjacent to the upper vagina. In a population-based study involving 162,000 women, the overall risk of subsequent prolapse surgery was increased by 50% among women with preceding total abdominal hysterectomy, doubled among women with subtotal hysterectomy and almost quadrupled among women with a previous vaginal hysterectomy.[7]

Chronic elevated intra-abdominal pressure

Chronic constipation and obstructive pulmonary disease appear to be a risk factor for pelvic organ prolapse likely from repetitive elevated intra-abdominal pressure. Data are conflicting regarding whether the risk of prolapse is increased in women with work that involves heavy lifting. One study of over a thousand women reported that women who are factory workers and laborers have significantly more severe POP than other job categories.[8]

Collagen abnormality

Connective tissue disorders (e.g. Ehler-Danlos syndrome) or congenital abnormalities (e.g. bladder exstrophy) have been found to increase the risk of developing POP. Women with hypermobile joints have a higher prevalence of prolapse suggesting that abnormalities of collagen play a role. These women metabolize collagen abnormally such that there is a decrease in type I collagen and an increase in type III collagen. Type I collagen forms large, high tensile strength fibers that constitute such tissues as ligaments, tendons, skin, and bone. Meanwhile, type III collagen forms smaller fibers of lower tensile strength that predominate the more flexible and distensible tissue type like the vagina.[9]

Family History

A systematic review of 16 studies found a 2.5-fold increased risk of prolapse in women with a family history of this condition.[10] Another meta-analysis of 3 studies reported an 80 percent increase of recurrent prolapse with a positive family history.[11] Potential genes and inheritance patterns are not known, and available studies on the genetic epidemiology of POP were of small sample size and often of poor quality.[12]

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Chapter 3

Initial Evaluation

Maria Teresa C. Luna, MD, MBAH, FPOGS, FPSURPS

The initial evaluation of a patient suspected to have pelvic organ prolapse (POP) starts with a comprehensive history and meticulous physical examination.

History

Essential information to elicit from the patient includes the predisposing factors, which can be obtained from the medical, obstetric and gynecologic histories. Of even greater importance is the presence of ongoing contributory factors which have a significant impact on the success of treatment.

Patients with POP often feel an introital mass, with pelvic discomfort and low back pain, relieved by lying down. Inquiry should also be done regarding accompanying urinary and bowel symptoms such as dysuria, frequency, urgency, hesitancy, intermittent urine flow, feeling of incomplete voiding or bowel emptying, involuntary leakage of urine/gas/feces, and constipation. Some patients need to bear down to start voiding or bowel movement while others have learned to push the mass to be able to urinate or defecate. Additionally, questions regarding sexual function namely dyspareunia, decrease or loss of libido, and obstructed intercourse should be part of the history.

POP is not a life-threatening condition, but it significantly affects the quality of life. The history should also include the effect of POP on the different aspects of the patient's life particularly its effect on the activities of daily living.

Treatment success is also dependent on the patient's understanding of the condition. The patient's ability to comprehend will determine compliance to the management.

Physical examination

Abdominal examination should be done to rule out pelvic pathology. The external genitalia should be examined for any skin lesions. Vaginal atrophy and ulcerations should also be noted.[1]

Pelvic organ prolapse quantification system (POP-Q) is the objective way of examining patients with POP. It is important to remember that the examination has to be done with the prolapse in its maximum protrusion as confirmed by the patient. If the maximum extent of the prolapse could not be obtained in the supine position, the patient should be examined in the standing position. The patient can be asked to do a Valsalva maneuver or repeatedly cough to determine the extent of the prolapse. Better assessment of the anterior compartment can be done by using the posterior blade of the speculum to retract the posterior vaginal wall while examination of the posterior vaginal wall can be done by retracting the anterior vaginal wall with the posterior blade of the speculum.

A bimanual examination should be done to evaluate the uterus and the adnexa.

Additionally, a rectal examination should be done to determine the extent of the prolapse of the posterior vaginal wall. A rectovaginal examination should then be performed to assess the presence of an enterocele.

The integrity of the pelvic floor muscles and the ability of the patient to contract and relax these muscles need to be assessed as well.[1]

A simple neurologic examination is performed to assess the anal sphincter tone, voluntary anal contraction, and perineal sensation. The cutaneous sacral reflex is elicited with a light touch in the circumanal skin. This will result in visible anal sphincter contraction.

To determine presence of stress urinary incontinence, a cough stress test should be done with the prolapse out and with the prolapse reduced.

Additional Tests

A urinalysis should be done to rule out infection before pessary fitting or surgery.

Postvoid residual urine measurement by catheterization or by ultrasound should be part of the evaluation of all patients with urinary symptoms.[1] The normal PVR should be less than 150 mL or less than one third of the total bladder volume (e.g., 100 mL after voiding 200 mL).[2]

Assessment of the endometrium by ultrasound is mandatory in all patients with vaginal bleeding even if there are erosions or ulcers that may cause the bleeding. Currently, there is no evidence to recommend routine evaluation of the endometrium in asymptomatic women[3]. However, the risk profile for endometrial cancer should be assessed. In a meta-analysis, it was found that asymptomatic post-menopausal women with endometrial thickness of more than 11mm have a 6.7% risk of endometrial cancer.[4] Likewise, routine assessment of the lower urinary tract and the pelvic floor using transperineal ultrasound is not recommended.[5]

A three-day voiding diary will provide useful information in patients complaining of urinary incontinence.[6]

Urodynamic testing is reserved for patients who complain of troublesome urinary incontinence or voiding dysfunction.[7]

Clinical evaluation of the cervix with a Papanicolaou smear should be done to rule out cervical pathology. For patients who recently have a Pap smear, the official result should be obtained.

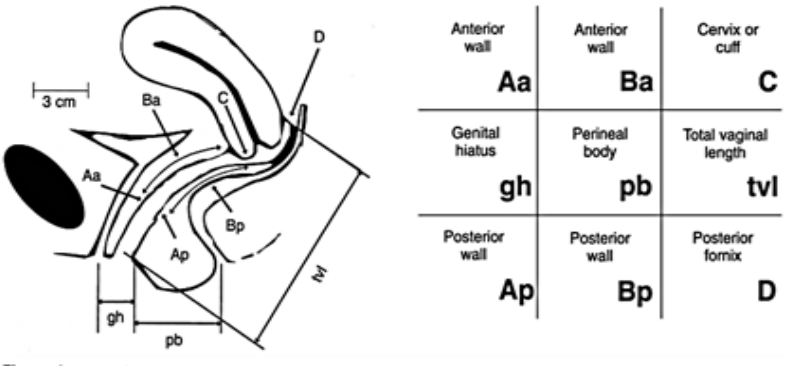

FIGURE 1. PELVIC ORGAN PROLAPSE QUANTIFICATION SYSTEM. *From Bump RC, Mattiasson A, Bo K, Brubaker L, DeLancey J, Klarskov P, et al. The standardization of terminology of female pelvic organ prolapse and pelvic floor dysfunction. Am J Obstet Gynecol. 1996;175:10–17.)*

After obtaining all the measurements, the most prominent defect is then staged.

- Stage 0 - no prolapse is demonstrated, i.e., all points are at their highest possible level above the hymen
- Stage I - the criteria for Stage 0 are not met but the most distal portion of the prolapse is more than 1 cm above the level of the hymen
- Stage II - the most distal portion of the prolapse is 1 cm or less proximal to or distal to the plane of the hymen
- Stage III - the most distal portion of the prolapse is more than 1 cm below the plane of the hymen but protrudes no further than two centimeters less than the total vaginal length in cm
- Stage IV - essentially complete eversion of the total length of the lower genital tract is demonstrated. In addition, the system calls for three other measurements: the anterior-posterior length of the genital hiatus and the perineal body and the total vaginal length.

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Chapter 4

Non-surgical Management of Pelvic Organ Prolapse

Rowena A. Sumilang, MD, FPOGS, FPSURPS
Manuel S. Ocampo, Jr., MD, MPH, FPOGS, FPSURPS
Mary Rani M. Cadiz, MD, FPOGS, FPSURPS

Non-surgical management includes mechanical interventions, physical interventions and lifestyle modification interventions. These treatments may reduce intra-abdominal pressure, build up muscle strength and prevent the pelvic organs from progressing downwards.

Traditionally, non-surgical management has only been offered to women who are too old, have severe comorbidities, or patients who are unwilling to undergo surgery, even after an extensive consenting process, despite being good surgical candidates. It is also the primary option for young women with prolapse who still plan future pregnancies. In 2011, a Cochrane review found that despite conflicting results of the various studies on conservative management options for prolapse, there is evidence suggesting benefits for non-surgical management.

The aims of conservative treatment in the management of pelvic organ prolapse include the following[1]:

- preventing the prolapse from becoming worse,
- decreasing the frequency and severity of symptoms caused by the prolapse, and
- averting or delaying the need for surgery.

A. LIFESTYLE MODIFICATION

QUESTION 1	**How effective are lifestyle interventions in the management of women with pelvic organ prolapse?**
RECOMMENDATION	Advise women with pelvic organ prolapse about lifestyle interventions such as weight loss (especially for those with BMI > 25kg/m^2), treating and managing constipation and chronic cough, and avoiding heavy lifting. *Quality of Evidence: Low* *Strength of Recommendation: Strong*

SUMMARY OF EVIDENCE

There is currently no available evidence on the efficacy of lifestyle modification in managing prolapse, so the committee used their expert opinion to make this recommendation. It has been postulated that obesity, chronic straining, and heavy lifting are all associated with an increase in abdominal pressure which serves as a chronic stress on the muscles, connective tissue and nerves, eventually leading to some form of overt structural or neurogenic damage.[2,3] The committee agreed that addressing these modifiable risk factors, in combination with other forms of non-surgical management, help alleviate bothersome symptoms of prolapse.

B. PEVIC FLOOR MUSCLE TRAINING (PFMT)

QUESTION 2	**How effective is pelvic floor muscle training (PFMT) in the management of women with pelvic organ prolapse?**
RECOMMENDATION	PFMT use in the management of early-stage POP has been shown to improve POP symptoms and objective staging. *Quality of Evidence: High* *Strength of Recommendation: Strong*

SUMMARY OF EVIDENCE

There is strong evidence that pelvic floor muscle training (PFMT) effectively stimulates pelvic floor muscles and can be recommended as first-line treatment for urinary incontinence symptoms.[4,5] PFMT use in the management of POP has been shown to improve POP symptoms and objective staging. Thirteen studies with 2,340 patients were included in a Cochrane systemic analysis and indicated "women receiving PFMT gained a greater improvement than controls in prolapse symptom score [mean difference (MD) -3.07, 95 % confidence interval (CI) -3.91 to -2.23] and POP stages [risk ratio (RR) 1.70, 95 % CI 1.19-2.44]." [6,7] It is effective for POP Stages I-III.[8] Twelve months of supervised PFMT has been shown to be effective in reducing prolapse symptoms.[9] Its role as an adjunct prior to POP surgery has not been established.[8,10]

C. VAGINAL PESSARY

QUESTION 3	**How effective are vaginal pessaries in the management of women with pelvic organ prolapse?**
RECOMMENDATION	Pessaries may be offered as first-line treatment in women with symptomatic prolapse. The type and stage of prolapse will determine the kind of pessary to be used. Pessary use is as effective as prolapse surgery in the treatment of symptoms in women with pelvic organ prolapse. Properly fitted pessaries are effective in addressing prolapse-associated symptoms, regardless of the type of pessary used. *Quality of Evidence: Low* *Strength of Recommendation: Strong*

SUMMARY OF EVIDENCE

Pessary option may be offered when the patient has significant comorbid risk factors for surgery, if a non-surgical alternative is preferred, if pregnancy is still desired, if the prolapse presented during pregnancy, or when the surgery must be delayed to optimally prepare the vaginal mucosa for surgery.[11,12]

There are very few absolute contraindications for the use of pessary. Active vaginal infections need only be treated prior to pessary fitting and use. Other considerations are the medical and socio-economic factors which may predispose the patient to non-adherence and pessary neglect. Patients who are compliant in doing either pessary self-care or clinic follow-up rarely experience pessary complications. The dreaded forgotten or incarcerated pessary is a rare complication, usually resulting after years of neglect, wherein

the pessary becomes embedded in the vaginal mucosa, sometimes eroding into the adjacent organs.[11]

The current literature provides low quality evidence for the use of pessary treatment. Two RCTs were single-blinded with high participant bias. Both studies did show that women who were given pessary treatment reported significant improvement in their prolapse-related symptoms [Pelvic Organ Prolapse Distress Inventory: -29.7 (pessary group) compared with -4.7 (control group), P<.01][13] (Pelvic Floor Distress Inventory-20: -3.2; 95% CI, -6.3 to -0.0; P=0.047)[14] and health-related quality of life [Pelvic Organ Prolapse Impact Questionnaire: -29.0 (pessary group) compared with 3.5 (control group), P<.01].[13] Despite low-quality evidence, the committee agrees that pessaries remain a practical and important alternative as treatment for women with all stages of prolapse.

Limited evidence suggests that pessary is as effective as prolapse surgery as a primary treatment of pelvic organ prolapse with less severe adverse effects. One prospective cohort study showed successful use of a pessary in 84.4% (76/90) of cases.[15] The same study also reported an adverse event (mild) rate of 31.6% in the pessary group compared to a 39% adverse event (mild to moderate) rate in the surgical group. Another prospective cohort study showed comparable functional outcomes, as reported by patients in the Urogenital Distress Inventory (UDI) questionnaire, between undergoing surgery [median domain score of 0 (10^{th} to 90^{th} percentile 0-0)] and pessary use [median domain score of 0 (10^{th} to 90^{th} percentile 0-13)]($p<0.01$).[16] They also reported that the probability of pessary selection increases with increasing patient age.

One multicenter randomized crossover trial compared the symptom relief and change in life impact of a ring and Gellhorn pessary, the two most commonly used pessaries.[17] In terms of comparing the type of pessaries use, the study found a statistically and clinically significant improvement in the majority of PFDI (Pelvic Floor Distress Inventory) and PFIQ (Pelvic Floor Impact Questionnaire) scales with both types of pessaries, but no differences between the ring versus Gellhorn pessary. Consequently, most of their participants (60%) opted to continue pessary treatment in the long term, again irrespective of the type of device.

C. ENERGY DEVICES

Energy-based devices (EBD) are recent non-surgical treatment options being offered to improve external genital appearance, vaginal laxity, overactive bladder, mild prolapse, and stress urinary incontinence in women. Energy-based devices may be radiofrequency (RF) or laser treatments such as erbium-doped yttrium–aluminum–garnet (Er: YAG), carbon dioxide (CO2), and hybrid.

QUESTION 4	**How effective are energy devices in the management of women with pelvic organ prolapse?**
RECOMMENDATION	There is no substantial evidence that energy devices are effective in the treatment of pelvic organ prolapse. *Quality of Evidence: High* *Strength of Recommendation: Weak*

SUMMARY OF EVIDENCE

To date, there are limited published data on the use of lasers or radiofrequency in managing pelvic organ prolapse. No studies have compared the efficacy of energy-based devices to prolapse surgery or pessary use. Laser treatment, however, is being offered for vaginal laxity which is defined as sensation of looseness of the vagina.[18] This is differentiated from pelvic organ prolapse wherein one or more of the pelvic organs descends from the normal position. A randomized, assessor-blind, parallel-group, controlled trial of 30 subjects in a 1:1 allocation ratio (laser vs observation) found that three Er:YAG laser treatments did not restore or improve pelvic anatomy in postmenopausal women with symptomatic anterior and/or posterior vaginal wall prolapse.[19] The outcomes were objectively measured using POP-Q score and validated questionnaires of patient-reported outcomes (Pelvic Floor Distress Inventory

Questionnaire short form [PFDI-20], Pelvic Floor Impact Questionnaire short form [PFIQ-7], and Patients Global Impression of Improvement [PGI-I]). It was not able to reproduce the result in another prospective cohort study showing improvement of cystocele using vaginal erbium YAG laser.[20]

A prospective randomized comparative study to assess the efficacy and safety of non-ablative radiofrequency treatment in 44 postpartum patients with vaginal relaxation syndrome demonstrated positive effects on the tissues in the vulva, vagina, and perineum of patients associated with clinical improvement in symptoms of pelvic floor dysfunction. The authors do not associate such effects solely due to RF and recommend further investigation by assessing new markers and research methods, extending observation period, as well as increasing amount and quality of clinical observations.[21] Currently, there is no standardized anatomical definition for vaginal laxity.[22]

In a few studies with small sample sizes and short-term follow-up, there are reports of subjective improvement based on clinical examination and questionnaires.[23,24] The treatment also seems safe with minor adverse events. However, there is lack of good-quality evidence in the form of proper multicenter randomized placebo-controlled trials and long-term safety assessment.[23-26] The procedure is not cost-effective given the level of evidence on the safety and efficacy of its use as conservative treatment for pelvic organ prolapse. Consensus from International Urogynecology Association (IUGA), American Urogynecologic Society (AUGS), and other multidisciplinary expert panel opinion agree that further studies are needed to establish its efficacy.[25-27]

E. Estrogen

QUESTION 5	**How effective is the administration of local or systemic estrogen in the management of women with pelvic organ prolapse?**
RECOMMENDATION	There is paucity of evidence for the treatment of pelvic organ prolapse with either local or systemic estrogen. *Quality of Evidence: Moderate* *Strength of Recommendation: Weak*

SUMMARY OF EVIDENCE

Estrogen, topically applied or systemically given, can be used to reduce thinning of the vaginal and pelvic tissues. It is considered helpful in alleviating lower urinary tract symptoms and vaginal irritation commonly associated with prolapse.[28-29] In women wearing pessary, this is also being used in adjunct. A Cochrane intervention review examined three randomized controlled trials and a meta-analysis which showed estrogen did not have significant effect on the primary outcome— improvement, or cure of prolapse and its symptoms.[29] There are no trials assessing the value of estrogen in combination with other modalities such as pelvic floor muscle training to treat pelvic organ prolapse.[29-31] There was also no evidence to show whether or not the use of local estrogens to strengthen vaginal tissue prior to prolapse surgery is beneficial.

More well-organized randomized controlled trials with adequate sample size, validated outcome measures, and long term follow up are needed to further strengthen the value of estrogen in the management of pelvic organ prolapse.[29-31]

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Chapter 5

Surgical Management of Pelvic Organ Prolapse

Lisa T. Prodigalidad-Jabson, MD, FPOGS, FPSURPS
Lennette L. Chan-Cruz, MD, FPOGS, FPSURPS

I. ABDOMINAL VERSUS VAGINAL ROUTE OF OPERATION

Surgical treatment of pelvic organ prolapse is indicated in symptomatic women who either declined or failed non-surgical methods. The route of surgery may be either vaginal, abdominal, or via minimally invasive techniques (laparoscopy or robotic surgery). Factors determining the approach to surgery include the following: type and severity of the prolapse, risk factors for recurrence, surgeon's skill and experience, patient's preference, and expected or desired surgical outcome. Various vaginal and abdominal procedures have been described. However, the abdominal approach is generally performed in women with shortened and/or narrowed vaginal canal, or with a coexisting intra-abdominal pathology.

Referral to a urogynecologist is recommended in the following situations:

- advanced stage of prolapse
- recurrent prolapse
- accompanying voiding difficulty and/or urinary incontinence
- accompanying defecatory disorders and/or fecal incontinence

QUESTION 1	**Is the vaginal approach effective for the surgical management of pelvic organ prolapse?**

APICAL/MIDLINE COMPARTMENT PROLAPSE

RECOMMENDATION In most women with uterovaginal prolapse, vaginal hysterectomy with suspension of the vaginal apex is an effective form of treatment. Vaginal hysterectomy alone is not sufficient.

Quality of Evidence: High
Strength of Recommendation: Strong

SUMMARY OF EVIDENCE

Suspension of the vaginal apex at the time of vaginal hysterectomy for prolapse should be performed to reduce the risk of recurrent pelvic organ prolapse.[1-3] Apical suspension procedures include McCall culdoplasty, sacrospinous ligament fixation (SSLF), uterosacral ligament suspension (USLS), and iliococcygeus fixation (ICF). The SSLF and USLS have been found to have comparable anatomic, functional, and adverse outcomes. In the OPTIMAL Trial[4], the surgical success rate for USLS was 64.5% vs 63.1% for the SSLF after 2 years (adjusted odds ratio [OR], 1.1; 95% CI 0.7-1.7).

The iliococcygeus fixation procedure has also been shown to have comparative outcomes with the SSLF. [5,6] Subjective and objective success rates were similar between the groups – ICF 91% vs SSLF 94% and ICF 54% vs SSLF 67%, respectively.[5] The overall success rate of the ICF over a 5-year period was reported to be 84.1%.[6]

ANTERIOR COMPARTMENT PROLAPSE

RECOMMENDATION Anterior colporrhaphy is an effective procedure for the management of most anterior compartment prolapses (cystocele/cystourethrocele).

Quality of Evidence: Moderate
Strength of Recommendation: Strong

SUMMARY OF EVIDENCE

The rates of success in the management of cystoceles range from 37 to 100% in various retrospective series. However, reported rate of cystocele recurrence ranges from 27-42%.[7] In addition, many women with anterior prolapse also have an apical prolapse. It is therefore important to perform apical suspension together with the anterior colporrhaphy to reduce the risk of recurrent prolapse.

Previously, the Burch colposuspension was also performed for anterior prolapse with or without stress incontinence. But the anterior colporrhaphy was shown to be superior to the Burch colposuspension for repair of grade 2 to 3 cystourethrocele – 34% in the Burch group vs 3% in the anterior colporrhaphy group (OR 16.7, 95% CI 2.0 to 368.1; $P = 0.003$).[8,9]

POSTERIOR COMPARTMENT PROLAPSE

RECOMMENDATION Posterior colporrhaphy is an effective procedure for the management of posterior compartment prolapses (rectocele).

Quality of Evidence: High
Strength of Recommendation: Strong

SUMMARY OF EVIDENCE

Long-term success has been reported with anatomic cure rates of 76% to 96%.[10] In a review of randomized control trials comparing the transanal repair vs transvaginal repair, the transvaginal approach to rectocele repair is superior to the transanal repair in terms of recurrent prolapse (RR 4.12, 95%CI 1.56 to 10.88) and recurrent prolapse symptoms (RR 2.78, 95%CI 1.1 to 7.7).[11] Posterior colporrhaphy with levator ani plication (levator myorrhaphy) show similar anatomic success rates with fascial repair but less favorable functional outcomes (such as dyspareunia and constipation). Midline fascial plication, however, may offer superior anatomic and functional outcome compared to the discrete site-specific fascial repair.[10] In another RCT, posterior colporrhaphy and site-specific repair resulted in similar anatomic and functional outcomes.[12]

QUESTION 2	**When is abdominal sacrocolpopexy/ sacrohysteropexy indicated as initial prolapse surgery?**
RECOMMENDATION	Abdominal sacrocolpopexy/ sacrohysteropexy would be beneficial in women with foreshortened vaginal canal, coexisting intra-abdominal pathology, or risk factors for recurrent prolapse. *Quality of Evidence: High* *Strength of Recommendation: Strong*

SUMMARY OF EVIDENCE

The abdominal sacrocolpopexy/sacrohysteropexy aims to correct vault prolapse but may be performed in conjunction with repair of a high-grade cystocele or a posterior compartment defect. It has reported success rates ranging from 78% to 100% and has the advantage of maintaining the normal axis and caliber of the vagina. Women with foreshortened vaginal canal, intra-abdominal pathology, or risk factors for recurrent prolapse (such as age < 60

years, stage 3 or 4 prolapse, and/or BMI > 26) would benefit from an abdominal sacrocolpopexy.[13-15]

In a systematic review comparing vaginal procedures vs. sacrocolpopexy, vaginal repair was associated with more prolapse symptoms (RR 2.11, 95%CI 1.06 to 4.21), increased risk for repeat prolapse surgery (RR 2.28, 95%CI 1.20 to 4.32), and increased risk of recurrent prolapse (RR 1.89, 95%CI 1.33 to 2.70).[16] Sacrocolpopexy had superior outcomes compared to vaginal procedures including SSLF or USL suspension. Common complications after sacrocolpopexy include ileus or small bowel obstruction (2.7%), thromboembolic phenomena (0.6%), and mesh or suture complications (4.2%).[17] As such, the ASC may not be suitable in frail patients and those with medical or surgical co-morbid complications. In this case, the vaginal approach may be preferred due to its reduced morbidities and complications.

QUESTION 3	**What is the role of laparoscopy and robotic surgery in prolapse surgery?**
RECOMMENDATION	Laparoscopic sacrocolpopexy offers similar anatomic and functional outcomes compared with traditional open sacrocolpopexy but with reduced blood loss and shorter hospital stay. More studies though are needed to determine the role of Robotic-assisted sacrocolpopexy in prolapse surgery. *Quality of Evidence: High* *Strength of Recommendation: Strong*

SUMMARY OF EVIDENCE

Laparoscopic Sacrocolpopexy (LSC) is the minimally invasive alternative to the traditional open sacrocolpopexy. In RCT studies comparing open vs laparoscopic sacrocolpopexy, laparoscopy significantly reduced mean blood loss (mean difference 184ml; 95%CI 96 to 272) and fewer inpatient days (mean difference 0.9days; 95% 0.1 to 1.7).[18,19] Similar results were seen in

other studies that compared open SC with minimally invasive SC (laparoscopic/robotic) in that the minimally invasive SC was associated with less blood loss (122 ± 146ml vs 187 ± 142ml; $P < 0.01$) and shorter hospitalization (1.3 ± 1 day vs 2.9 ± 1.6 days; $P < 0.01$) while the open SC was associated with shorter operative times (222 mins vs 296 min; $P < 0.2$).[19,20] There were also no differences in anatomic and subjective outcomes between the 2 groups.[18,19]

Due to the steep learning curve of laparoscopic surgery, Robotic-assisted sacrocolpopexy (RSC) is also being performed as a minimally invasive alternative to open SC. Randomized control trials comparing RSC and LSC show significantly greater operative times, postoperative pain, and cost in the robotic group.[21,22] Anatomical and functional outcomes from 6 months up to 1 year were similar in the 2 groups. However, due to limited data, more comparative studies are needed to determine the long- term outcomes and safety of robotic-assisted surgery.[23,24]

QUESTION 4	**When is mesh augmentation indicated in prolapse surgery?**
RECOMMENDATION	Mesh augmentation should only be considered in women with recurrent pelvic organ prolapse. *Quality of Evidence: High* *Strength of Recommendation: Strong*

SUMMARY OF EVIDENCE

In order to diminish the rates of prolapse recurrence, synthetic mesh or biologic grafts have been used to augment traditional prolapse repair. Synthetic meshes (absorbable or permanent) were of various materials including polypropylene, vicryl, mersilene, polytetrafluoroethylene (PTFE). Biologic grafts are either xenograft, allograft, or autograft such as the porcine dermis graft or cadaveric fascia lata.

Numerous trials have compared native tissue repair and synthetic mesh vaginal repair. In a systematic review by Maher, mesh or graft interposition at the time of anterior prolapse repair reduces the risk of anterior compartment prolapse and reduces prolapse symptoms.[7] However, women who had vaginal mesh repair required repeat surgery for the combined outcome of prolapse, stress incontinence, or mesh exposure (RR 2.40, 95%CI 1.51 to 3.81). Mesh exposure rate was reportedly 12%. [25]

Transvaginal mesh kits have likewise been developed as a minimally-invasive procedure to mesh-augmented prolapse surgery. However, due to reported complications of the mesh kits, the US FDA ordered a halt in the production and sale of such products in April 2019. Transvaginal mesh kits are no longer available in the market today.

TABLE 1. DIFFERENT APPROACHES TO PROLAPSE SURGERY

COMPARTMENT	VAGINAL ROUTE	ABDOMINAL ROUTE (Open or Laparoscopic / Robotic)
ANTERIOR COMPARTMENT		
Cystocele / Cystourethrocele	• Anterior Colporrhaphy • Paravaginal Repair	• Burch Colposuspension • Paravaginal Repair • Sacrocolpopexy
POSTERIOR COMPARTMENT		
Rectocele	• Posterior Colporrhaphy (fascial repair; levator myorrhaphy; site-specific repair; post-anal repair)	• Sacrocolpopexy
MIDDLE / APICAL COMPARTMENT		
Uterovaginal / Vault Prolapse Enterocele	• Sacrospinous Ligament Fixation (SSLF) • Iliococcygeal Fixation (ICF) • Uterosacral Ligament (USL) Fixation • Le Fort Colpocleisis • McCall's Culdoplasty • USL Suspension	• Sacrocolpopexy • Sacrohysteropexy USL Plication • USL Suspension • Moschcowitz / Halban's Procedure

II. APICAL SUSPENSION PROCEDURES IN ADDITION TO HYSTERECTOMY

The traditional surgical management for prolapse has been vaginal hysterectomy. For prolapse repair, the critical intervention is not the hysterectomy but the attachment of the vaginal apex to the healthy portions of the ligaments.[26]

Several surgical procedures are commonly performed concomitantly with vaginal hysterectomy. Uterosacral ligament suspension is the attachment of the vaginal vault to the upper one third of the uterosacral ligament at the level of the ischial spines. McCall culdoplasty is a variation of the uterosacral ligament suspension wherein the ligaments are drawn toward the midline to close off the cul-de-sac. Sacrospinous ligament fixation can be a unilateral fixation to the vaginal apex by posterior approach or bilateral fixation to the vaginal apex by anterior approach. Iliococcygeus suspension is similar to the sacrospinous fixation however the apex is attached to the iliococcygeus or obturator internus fascia.

QUESTION 5	**In patients with pelvic organ prolapse, how effective is vaginal hysterectomy alone compared with vaginal hysterectomy with apical suspension procedure in preventing recurrence?**
RECOMMENDATION	Vaginal hysterectomy is inferior to vaginal hysterectomy with apical suspension procedures as treatment for uterovaginal prolapse. *Quality of Evidence: Low* *Strength of Recommendation: Strong*

SUMMARY OF EVIDENCE

It has been observed that a significant proportion of hysterectomies are carried out for uterovaginal prolapse without concurrent apical support procedures. Kantartzis et al. noted that in a tertiary hospital where a total of 2,465 hysterectomies were performed for uterovaginal prolapse, only 1,358

cases (55.1 %) concurrent apical support procedures were carried out. Cases without apical procedures were more likely to undergo cystocele repair (23.8 % vs 9.4 %, p<0.001), but less likely to have rectocele (3.4 % vs 12.2 %, p<0.001) or combined cystocele/ rectocele repair (16.4 % vs 25.6 %, p<0.001).[27] This study highlights the fact that most hysterectomies for prolapse are done without apical support surgery resulting to recurrent prolapse. It also highlights the need to adequately identify and address the apical support loss for the optimal management of prolapse.[27]

A local retrospective review by Prodigalidad and Malonzo, compared 171 Iliococcygeal fixation patients to 83 patients with just vaginal hysterectomy without apical repair in the treatment of POP.[28] Prolapse recurrence was significantly lower (23.39 vs 36.14) in the group who had iliococcygeal fixation.

Another retrospective study compared 35 patients who underwent vaginal hysterectomy alone and 32 patients who underwent vaginal hysterectomy with unilateral sacrospinous ligament fixation in patients aged over 50 who presented with stage III or IV pelvic organ prolapse (POP). Recurrence of vaginal vault prolapse was significantly more frequent in the patients with vaginal hysterectomy alone compared with those who had both vaginal hysterectomy and sacrospinous ligament fixation (p=0.035).[29] These 2 studies confirm that performing vaginal vault fixation should always be a part in every prolapse surgery to decrease the recurrence of prolapse. [28,29]

In Maher's *Surgery for Women with Apical Vaginal Prolapse : Cochrane Systematic Review*, uterosacral colpopexy was compared with sacrospinous colpopexy for apical vaginal (uterine and vault) prolapse. [30] The review found that Uterosacral ligament suspension and sacrospinous ligament fixation are equally effective surgical treatment for pelvic organ prolapse with comparable anatomic, functional, and adverse outcomes.

There may be no difference between uterosacral and sacrospinous colpopexy in rates of awareness of prolapse (RR 0.91, 95% CI 0.58 to 1.43; 1 RCT, n = 303). There may be no difference between uterosacral and sacrospinous colpopexy for repeat surgery for prolapse (RR 1.20, 95% CI 0.33 to 4.40; 1 RCT, n = 316). Intraoperative ureteral injury however was more frequent at uterosacral colpopexy than with other vaginal procedures (RR 15.91, 95% CI 2.13 to 118.51; 2 RCTs, n = 544; I^2 = 0%).[30-32]

III. UTERINE-SPARING PROCEDURES

The surgical management for prolapse is hysterectomy with apical suspension however removal of the uterus may disrupt the uterosacral-cardinal ligament complex (pericervical endopelvic fascia), which may further weaken support.[33] Hysteropexy has been introduced as an alternative procedure for pelvic organ prolapse. In theory, hysteropexy may preserve the architecture of the vaginal apex better than hysterectomy by suspending, rather than transecting, the cardinal–uterosacral ligament complex and the envelope of connective tissue attachments surrounding the paracervical ring.[34]

Several uterine sparing techniques are vaginal (sacrospinous hysteropexy, uterosacral hysteropexy), open abdominal (sacrohysteropexy), and laparoscopic/robotic (sacrohysteropexy) approaches and Le Fort colpocleisis. In vaginal sacrospinous hysteropexy, the sacrospinous ligament is attached to the cervix, while in uterosacral hysteropexy, the USL at the level of the ischial spines is bilaterally attached to the posterior cervix. Open, laparoscopic, and robotic sacrohysteropexy utilizes the same principle as sacrocolpopexy with 1 posterior rectangular mesh and 1 anterior Y shape mesh.[35] Le Fort colpocleisis is a uterine sparing obliterative surgical procedure offered to the frail and elderly women who do not want to retain coital function.[36]

Contraindications for uterine sparing procedure are the following: postmenopausal bleeding, current or recent cervical dysplasia, familial cancer syndrome, BRCA 1 and 2, hereditary nonpolyposis colonic cancer syndrome, tamoxifen therapy, uterine abnormalities like fibroids, adenomyosis, abnormal endometrial sampling, abnormal uterine bleeding, inability to comply with routine gynecological surveillance, and cervical elongation (relative contraindication).[37]

QUESTION 6	**Is uterine preservation a viable option in women with pelvic organ prolapse?**
RECOMMENDATION	For women who desire and have no contraindications to uterine preservation, vaginal hysteropexy is as effective as vaginal hysterectomy with apical suspension and is associated with reduced blood loss and operating time as compared to hysterectomy in the first 5 years. *Quality of Evidence: High* *Strength of Recommendation: Weak*

SUMMARY OF EVIDENCE

There were 13 studies (4 RCTs[38-41] and 9 nRCs[42-50]) that investigated the comparison between transvaginal native tissue hysteropexy with vaginal hysterectomy and transvaginal native tissue suspension.[37] Vaginal hysterectomy with native tissue suspension and transvaginal uterosacral or sacrospinous hysteropexy demonstrated similar operative time and blood loss. Additionally, the preservation of the uterus during these procedures did not result in worsened results for prolapse.[38] There were also no significant differences in prolapse outcomes, including apical prolapse recurrence (RR, 2.22, 95% CI, [37,39,44,46,47] anterior prolapse recurrence (RR, 0.86, 95% CI, 0.48e1.55),[38,39,45,48,49] and posterior prolapse recurrence (RR, 0.79, 95% CI, 0.39e2.03)[38,39,45,48] and no significant difference in surgery satisfaction (RR, 1.07, 95% CI, 0.38e2.99).[42,43,48]

There may be no difference between vaginal hysterectomy with vault support and vaginal sacrospinous hysteropexy for any recurrent prolapse (RR 0.90, 95% CI 0.67 to 1.21; 1 RCT, n = 204).[52]

Maher et al in their systematic review found the same evidence wherein there may be no difference between vaginal hysterectomy with vault support and vaginal sacrospinous hysteropexy for repeat surgery for prolapse (RR 1.31, 95% CI 0.19 to 8.91; 2 RCTs, n= 270; I^2= 51%).[52]

RECOMMENDATION For women who desire and have no contraindications to uterine preservation, vaginal hysterectomy with apical support has a lower reoperation for prolapse than abdominal sacrohysteropexy with less bothersome urinary symptoms, improved operative time, and better quality of life.

Quality of Evidence: Moderate
Strength of Recommendation: Weak

SUMMARY OF EVIDENCE

Roovers et al[52] compared open mesh sacrohysteropexy with vaginal hysterectomy with uterosacral suspension in a randomized controlled trial. They reported in an eight-year review a reduced awareness of prolapse in the vaginal hysterectomy group as compared to abdominal sacrohysteropexy (RR 0.38, 95% CI 0.15 to 0.98;1 RCT, n = 84).[51]

Reoperation was performed or planned in 9 of the 41 patients who underwent abdominal sacrohysteropexy and in 1 of the 41 patients who underwent vaginal hysterectomy with apical support (odds ratio [OR]= 11.2, 95% CI 1.4-90.0).[51]

There may be no difference between vaginal hysterectomy with vault support and abdominal sacrohysteropexy for repeat surgery for prolapse (RR 0.68, 95% CI 0.36 to 1.31; 2 RCTs, n = 182, I^2= 0%). The uterine preservation in the form of open abdominal sacrohysteropexy worsens bothersome urinary symptoms, operative time, and quality of life. [51]

RECOMMENDATION For women who desire and have no contraindications to uterine preservation, Le Fort colpocleisis may be an option. It is a uterine sparing obliterative surgical procedure offered to the frail and elderly women who do not want to retain coital function and fear surgical invasiveness, risks, and recuperation. [34,36]

Quality of Evidence: Low
Strength of Recommendation: Strong

SUMMARY OF EVIDENCE

There was 1 non-RCT that compared the Le Fort colpocleisis obliterative procedure (uterine preservation) with vaginal hysterectomy with a reconstructive procedure (anterior-posterior colpoperineoplasty) for prolapse.[53] There was a shorter operating room time with the Le Fort colpocleisis procedure (75 vs 90 minutes, P < .01) but no significant difference in resolution of prolapse symptoms or adverse events. Colpocleisis also was likely to improve voiding function by relieving functional obstruction from prolapsed organs. Irritative symptoms such as urgency and frequency were reduced in as much as 50% of patients.[54,55] There was improvement of constipation in 1 in 4 patients and of fecal incontinence in 1 in 3 patients.[54] The rate of regret or dissatisfaction was 9.8% (6/61). The reasons for regret or dissatisfaction were urinary complaints, postoperative complications, and loss of vaginal intercourse. [56]

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Chapter 6

Pelvic Organ Prolapse with Urinary Incontinence

Judith M. Sison, MD, MPH, FPOGS, FPSURPS

With the development of stage I or II anterior vaginal wall/compartment prolapse (cystocele), symptoms of stress urinary incontinence (SUI) may ensue. However, most women see improvements in SUI as the anterior compartment prolapse or uterine prolapse worsens. ***Occult urinary incontinence,*** defined as incontinence present only when prolapse is reduced, may be detected at this point. Concurrently, these women may experience progressive voiding dysfunction due to bladder outlet obstruction. At this time, these women may need to push up the prolapse to aid voiding.

Women with advanced apical/uterine prolapse, anterior vaginal compartment prolapse or both should have a preoperative evaluation for occult SUI with cough stress test or urodynamic test with a reduced prolapse. This finding is very essential as it may present after POP surgery if it is not addressed. After surgical treatment for POP, SUI may develop, and it is called ***de novo SUI***.

In women with POP and SUI, there are 3 strategies to approach the problems:

a. **Universal**

Concurrent surgeries are performed for POP and SUI where the incontinence procedure is done as prophylactic for de novo SUI. This approach recognizes the limited value of prolapse reduction stress testing and minimizes the number of trips to the operating room for a patient. The major disadvantage is that women may undergo unnecessary surgery.

b. **Concurrent/concomitant surgery**

Performed for POP and symptomatic or occult SUI

c. **Sequential/Staged surgery**

POP repair alone is performed. A subsequent incontinence procedure is performed only if the patient develops SUI symptoms and desires surgical treatment. This approach requires two different surgical events, and some women may elect to endure SUI symptoms rather than have a second surgery.

QUESTION 1	**Among women with POP and documented overt or occult SUI, which strategy is most beneficial?**
RECOMMENDATION	Women with documented SUI (overt and occult), would benefit from concurrent surgeries for both POP and SUI. *Quality of Evidence: High* *Strength of Recommendation: Strong*

SUMMARY OF EVIDENCE

Consider concurrent surgery for POP and SUI in women with anterior and/or apical prolapse and SUI.[1] The Cochrane Database of Systematic Reviews 2018 reported outcomes of surgery for women with pelvic organ prolapse with or without stress urinary incontinence. They stated that concomitant incontinence surgery improves postoperative rates of subjective SUI: RR 0.30, 95% CI (0.19 - 0.48), N=319 and decreases the need for further incontinence surgery: RR 0.04, 95% CI (0.00-0.74), N=134.[2]

In the 6th International Consultation on Incontinence (ICI) Report on women undergoing POP surgery, the odds to have post-operative SUI is almost eleven times fold for those with symptomatic SUI OR=10.9 (7.9-15.0), and almost ten times fold for those with occult SUI OR 9.8 (7.1-13.6).[3]

From the systematic review and meta-analysis reported by JM van der Ploeg et al, they calculated that 2.5 or 3 women should have concurrent vaginal prolapse repair with mid-urethral sling (MUS) to prevent one woman undergo

subsequent MUS after POP surgery, i.e., the number needed-to-treat (NNT) is 2.5 for women with POP and coexisting SUI.[4]

QUESTION 2	**In women undergoing POP surgery without symptomatic SUI preoperatively, is incontinence surgery required to prevent de novo SUI?**
RECOMMENDATION	Women without symptomatic SUI do not require incontinence surgery. ***Quality of Evidence: Moderate*** ***Strength of Recommendation: Strong***

SUMMARY OF EVIDENCE

In a meta-analysis conducted by JM van der Ploeg et al, they found a tendency towards less subsequent surgery for de novo SUI (2% versus 6%; RR 0.4; 95% CI 0.1-1.1); however, differences were not statistically significant. They reported no difference in objective SUI.[4] The OPUS trial (POP surgery with MUS slings) reported similar findings of no statistical differences.[5]

Constantini et al. compared sacrocolpopexy with or without Burch colposuspension in women with POP and without occult SUI. They found no difference in de novo SUI.[6] However, the CARE trial found significantly less SUI after abdominal sacrocolpopexy with Burch colposuspension compared to no Burch colposuspension (21% versus 38%; RR 0.6; 95% CI (0.4-0.9).[7] Due to differences in outcome, pooling of trials was not possible in women without symptomatic SUI and without occult SUI.[4]

Women do not benefit from Burch colposuspension in addition to abdominal sacrocolpopexy as evidenced by a meta-analysis involving N=364, where objective rate of de novo SUI is RR 1.56 95% CI (0.82-2.95).[3] Moreover, the risk of adverse effects is increased with an additional procedure. [3,6,7]

QUESTION 3	**In women undergoing POP surgery with occult SUI, is concurrent prolapse and incontinence surgery a better option compared to a sequential approach?**
RECOMMENDATION	Women undergoing POP surgery with occult SUI may be offered either concurrent or sequential surgical strategy. ***Quality of Evidence: High*** ***Strength of Recommendation: Strong***

SUMMARY OF EVIDENCE

The evidence did not show any clear benefits for concurrent surgery for SUI and POP. Women should be told about the uncertainty of the benefits and risks of concurrent surgery compared with sequential surgery, to ensure that patients are equipped to make an informed decision. [1]

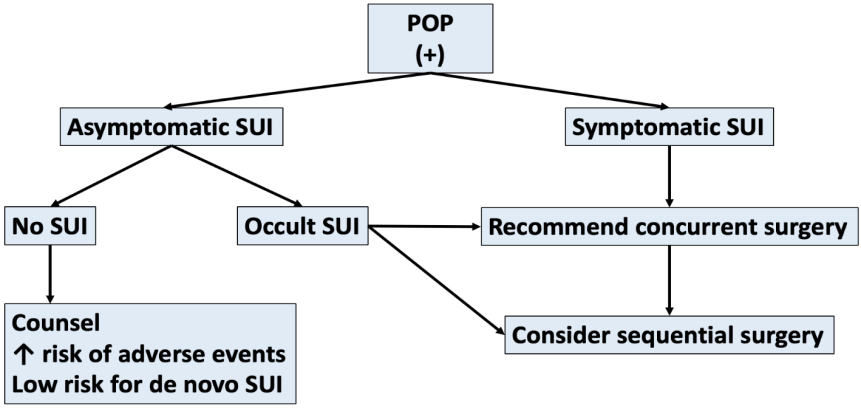
From the latest Cochrane Systematic Review in 2018, there were 5 studies N=369, that analyzed post-op SUI in women with POP and occult SUI who did or did not receive MUS as an additional incontinence procedure. With the primary outcome as post-operative SUI, the rates of subjects with post-op SUI were lower in the group receiving a concurrent MUS; thus, a concomitant MUS probably improves postoperative SUI rates with a RR 0.38, 95% CI 0.26 to 0.55.[8,9,10,11,12]

Another systematic review of RCTs with meta-analysis done in Brazil circa 2019, reported that concurrent surgery for POP and SUI for cases with occult SUI reduced the incidence of SUI post-operatively, RR 0.50, 95% CI (0.28-0.91).[13]

The benefit must be balanced against the increased risk of facing a serious adverse event from 8% (Control 26/333) to 14% (Intervention 43/308) from which the number needed to harm (NNH) is 17. Whereas benefits clearly exceed risks in coexisting SUI, they are in the balance for women with occult SUI and risks even exceed benefits when all continent women are considered.

Physicians should be aware that perception of risks and benefits will differ between individuals, emphasizing the importance of shared decision making.[4]

FIGURE 1. CLINICAL PATHWAY FOR WOMEN WITH POP AND SUI.



Adapted from the 6th International Consultation on Incontinence, Incontinence 6th Edition, 2017, Volume 2.

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Chapter 7

Pelvic Organ Prolapse in Pregnancy

Almira J. Amin-Ong, MD, FPOGS, FPSURPS

Pelvic organ prolapse (POP) in pregnancy is not a common occurrence. During the 1940's, the incidence was 1 in 10,000 to 15,000 deliveries with 22% ending in maternal mortality.[1,2] With better health care and lower parity, the incidence in the 21st century is still low, and lower than the 1940's. From 1990 to 2015, a systematic review identified 41 cases in the English language.[3] Wang's literature review from 2000-2020 identified only 20 cases in the 20-year period, 12 of which were already cited in the systematic review.[4] There are 9 additional case reports from 2015 up to the present time, 3 of which were in the Philippines.[5-11] Although the incidence is quite uncommon, it is still prudent for clinicians to be aware of the condition, determine the effects on pregnancy, institute the appropriate management and advise definitive treatment after delivery.

Theoretically, POP resolves spontaneously as the uterus grows and becomes an abdominal organ. However, in the systematic review[3], 37% of patients with preexisting POP resolved, 21% worsened antepartally, and almost all persisted or recurred after delivery and on follow-up. In patients who had an acute onset of POP, 7% resolved by the second trimester, 3% became worse and 67% resolved spontaneously or improved postpartum.[3]

The complications are related more to the progression or non-resolution of the prolapse such as cervical edema, erosions, infection, urinary retention, abortion, preterm labor, and even fetal death.[3,4] Intrapartum complications include a higher rate of cervical laceration, obstructed labor from cervical dystocia, and uterine rupture at the lower uterine segment. Repeat assessment of the POP staging should be done after the puerperium. Appropriate referral to urogynecologists should be sought for definitive management.

QUESTION 1	**Among women who have pelvic organ prolapse during pregnancy, can a vaginal pessary be inserted to reduce the prolapse?**
RECOMMENDATION	Vaginal pessaries can be inserted anytime during the pregnancy and removed at the onset of labor. *Quality of Evidence: Low* *Strength of Recommendation: Strong*

SUMMARY OF EVIDENCE

There are no randomized controlled trials in the use of pessaries for pregnant women with POP. Hence, there are no standard guidelines in the management. Management is individualized depending on age of the patient, parity, age of gestation, stage of prolapse and patient's preference. In literature and systematic reviews of case reports, bed rest in Trendelenburg position, genital hygiene, manual reduction, and insertion of pessaries are well documented.[3,4] However, pessaries are frequently expelled as the gestation progresses due to the enlarging pelvic soft tissue diameters. If the pessary stays in place, it is removed at the onset of labor.

QUESTION 2	**In pregnant women with Stages II to IV pelvic organ prolapse who are in labor, is elective cesarean delivery better than vaginal delivery for optimal fetal and maternal outcomes?**
RECOMMENDATION	There is insufficient evidence to recommend elective cesarean delivery in pregnant women with Stages II to IV pelvic organ prolapse who are in labor. *Quality of Evidence: Moderate* *Strength of Recommendation: Weak*

SUMMARY OF EVIDENCE

In the systematic and literature reviews regarding mode of delivery in pregnant patients with POP, management is individualized according to patient's preference, stage of prolapse, and labor progression. Of the 41 cases analyzed in the 25-year systematic review, 54% underwent vaginal delivery and 37% underwent cesarean section while the remainder had cesarean section for obstetric indications (i.e. cephalopelvic disproportion, placenta previa, fetal distress). Vaginal delivery is not contraindicated and was the mode of delivery in those whose POP resolved antenatally and those whose POP progressed as labor advanced. Cesarean section was done on those who had obstructed labor from marked cervical edema or cervical dystocia.[3]

QUESTION 3	**Do antenatal and postnatal pelvic floor muscle exercises improve or decrease pelvic organ prolapse?**
RECOMMENDATION	There is no evidence that ante- or postpartum pelvic floor muscle exercises improve the stage of pelvic organ prolapse. ***Quality of Evidence: Low*** ***Strength of Recommendation: Weak***

SUMMARY OF EVIDENCE

There is no evidence that ante- or postpartum pelvic floor muscle exercises improve the stage of pelvic organ prolapse. In a study by Bo in 2015 where postpartum women were subjected to a regimen of 3 sets of 8-12 daily contractions at home and weekly group training with a physiotherapist for four months, there was no significant risk difference of postpartum PFMT on POP in primiparous women with or without a documented levator ani muscle defect on ultrasound (rational ratio, 1.62; 95% confidence interval, 0.55–4.75), bladder neck position or symptoms of vaginal bulging.[11] In one study, 15% - 40% of primiparous women have a major defect of the levator ani muscles and

are twice more likely to have pelvic organ prolapse more than Stage II.[12, 13]

Most clinical trials focused on effects of antepartum PFMT on duration of second stage of labor [14-17], pelvic floor muscle activity [18-20], rate of second- and third- degree perineal tears, and stress urinary incontinence[21] and not on improvement nor resolution of POP. Similarly, literature on PFMT initiated within 6 - 9 weeks postpartum dealt with outcomes on stress urinary incontinence [16,18] or on both urinary and fecal incontinence.[22-23]

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APPENDIX I

GRADE QUALITY OF EVIDENCE

GRADE	SYMBOL	DEFINITION
High	⊕⊕⊕⊕	Further research is *unlikely to change* confidence in the estimate of effect.
Moderate	⊕⊕⊕◯	Further research is *likely* to have an important impact on confidence in the estimate of effect and may change the estimate.
Low	⊕⊕◯◯	Further research is *very likely* to have an important impact on confidence in the estimate of effect and is likely to change the estimate.
Very Low	⊕◯◯◯	Any estimate of effect is *very uncertain.*

GRADE STRENGTH OF RECOMMENDATION

TARGET GROUP	STRONG RECOMMENDATION	WEAK RECOMMENDATION
Patient	Most people in the situation would want the recommended course of action and only a small proportion would not	The majority of people in the situation would want the recommended course of action, but many would not
Clinician	Most patients should receive the recommended course of action	Recognize that different choices will be appropriate for different patients and that there must be greater effort with helping each patient to arrive at a management decision consistent with his/her values and preferences Decision aids and shared decision making are particularly useful
Policy makers	The recommendation can be adopted as a policy in most situations	Policy making will require substantial debate and involvement of many stakeholders

APPENDIX II

GUIDELINE DEVELOPMENT GROUP

The following guideline contributors declare no conflict of interest:

MARIA TERESA C. LUNA, MD, MBAH, FPOGS, FPSURPS
Faculty of Medicine and Surgery
University of Santo Tomas Hospital

MANUEL S. OCAMPO, JR., MD, MPH, FPOGS, FPSURPS
Department of Obstetrics and Gynecology
Manila Doctors Hospital

LISA T. PRODIGALIDAD-JABSON, MD, FPOGS, FPSURPS
Chief, Division of Urogynecology and Pelvic Reconstructive Surgery
Department of Obstetrics and Gynecology
Philippine General Hospital

JUDITH M. SISON, MD, MPH, FPOGS, FPSURPS
Retired Prof. UST Faculty of Medicine and Surgery
University of Santo Tomas Hospital

ALMIRA J. AMIN-ONG, MD, FPOGS, FPSURPS
Training Officer, Division of Urogynecology and Pelvic Reconstructive Surgery
Department of Obstetrics and Gynecology
Philippine General Hospital

LENNETTE L. CHAN-CRUZ, MD, FPOGS, FPSURPS
Chief Executive Officer
Dr. Marcelo M. Chan Memorial Hospital

ROWENA A. SUMILANG, MD, FPOGS, FPSURPS
Department of Obstetrics and Gynecology
The Medical City

RYAN JOSEPH B. LIRAZAN, MD, FPOGS, FPSURPS
Assistant Training Officer, Department of Obstetrics and Gynecology
Ilocos Training and Regional Medical Center

MARY RANI M. CADIZ, MD, FPOGS, FPSURPS
Clinical Associate Professor, Department of Obstetrics and Gynecology
Philippine General Hospital