

# SURGERY FOR PELVIC ORGAN PROLAPSE – NEW INSIGHTS

*New insights into the management of pelvic organ prolapse have improved outcomes.*

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Despite uterovaginal prolapse being a concept readily grasped by generations of medical students, our basic understanding of this condition has changed recently. This article will highlight some of the new developments in pelvic organ prolapse (POP), and examines modern surgical interventions, with evidence supporting their use.

## HOW COMMON IS PROLAPSE?

POP is distressingly common, and 11% of women have a lifetime risk of surgery for this condition. Nonetheless its aetiology is poorly understood, and the natural course of prolapse is often discussed more in the anecdotal than scientific arena. In countries with ageing populations, reconstructive surgery for the management of POP commands increasing resources. Ideally, surgery should correct symptoms, restore the normal anatomy, retain bowel, bladder and sexual competence, and be durable. We have intuitively attributed prolapse to ageing, vaginal parity, chronic elevation of intra-abdominal pressure and previous hysterectomy. After novel anatomical insights occasioned by the cadaver dissections of Delancey, and Richardson before him, a new description of prolapse and classification of the staging have emerged.

We have traditionally considered POP as consisting of a cystocele (prolapse of the bladder), uterine or vault prolapse (depending on whether or not the uterus is present), and/or a rectocele (prolapse of the rectum). While we suppose that the cystocele contains the bladder, a vault prolapse consists of the apex of the vagina and a rectocele contains part of the rectum, this is not always the case.

## POP-Q – THE NEW SYSTEM

The International Continence Society's Pelvic Organ Prolapse Quantification (ICS POP-Q) supersedes the previous systems used to describe POP. In the past POP was quantified as 'slight, moderate or marked', or 'first, second or third degree'. This was subjective and operator dependent and did not allow a longitudinal description of the condition, or benchmark comparisons between management or surgical procedures. The new objective assessment introduced and validated by the International Continence Society (ICS) allows a clear and unambiguous description of prolapse, facilitating objective assessment, management and surgical comparison. Terms used in the past, e.g. small, medium or large, cystocele or rectocele, are no longer applicable. The new system has been extensively evaluated and has received consensus from expert organisations.

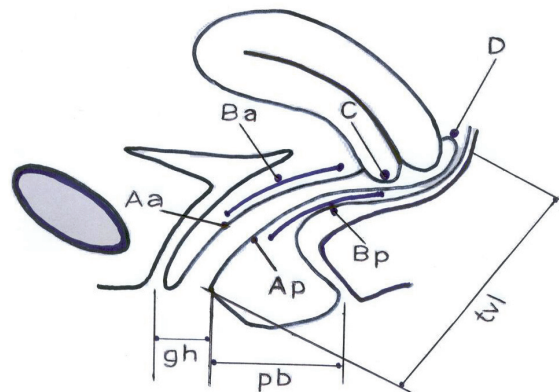


Fig. 1. International Continence Society's Pelvic Organ Prolapse Quantification (ICS POP-Q).

Using the introitus as the threshold, six specific vaginal sites (points Aa, Ba, C, D, Bp and Ap) and the vaginal length (tvL) are assessed using centimetres of measurement from the introitus. The length of the genital hiatus (gh) and perineal body (pb) are measured. Fig 1 is the summary diagram of this quantitative system.

The definition of the points and ranges used in the quantification are summarised in Table I. The findings of the clinical examination and measurements should be recorded on the 'POP-Q grid' (Table II).

Table I. Pelvic Organ Prolapse Quantification – definition and ranges

Point	Measurement	Range (cm)
Aa	Anterior vaginal wall 3 cm proximal to the hymen	-3 to +3
Ba	Leading – most point of anterior vaginal wall prolapse	-3 to +tvL
C	Most distal edge of cervix or vaginal cuff (if cervix is absent)	-/+ tvL
D	Most distal portion of the posterior fornix	-/+ tvL
Ap	Posterior vaginal wall 3 cm proximal to the hymen	-3 to +3
Bp	Leading-most point of posterior vaginal wall prolapse	-3 to tvL
gh	Perpendicular distance from mid – urethral meatus to posterior hymen	No limit
pb	Perpendicular distance from mid-anal opening to posterior hymen	No limit
tvL	Posterior fornix or vaginal cuff (if cervix is absent) to the hymen	No limit

All measurements are made to the nearest 0.5 cm.

The measurement of prolapse is performed in accordance with certain measurement fundamentals, as outlined in Table III. Staging of the grade of pelvic support is objective and includes five stages (Table IV).

Table II. Pelvic Organ Prolapse Quantification grid

Anterior wall	Anterior wall	Anterior wall
Aa	Ba	C
Genital hiatus	Perineal body	Total vaginal length
gh	pb	tvL
Posterior wall	Posterior wall	Posterior fornix
Ap	Bp	D*

\*Measurement D is not taken in the absence of a cervix.

### NEW DEFINITIONS

**Pelvic organ prolapse (POP)** is the descent of one or more of anterior vaginal wall, posterior vaginal wall, and apex of the vagina (cervix/uterus) or vault (cuff) after hysterectomy.

**Anterior vaginal wall prolapse** (previously termed a cystocele) is descent of the anterior vagina so the urethra-vesical junction (a point 3 cm proximal to the external urinary meatus), or any anterior point proximal to this, is less than 3 cm above the plane of the hymen.

**Prolapse of the apical segment of the vagina** (previously termed vault prolapse) is any descent of the vaginal cuff scar (after hysterectomy) or cervix below a point which is 2 cm less than the total vaginal length above the plane of the hymen.

Table III. Pelvic Organ Prolapse Quantification – measurement fundamentals

- All measurements are made to the nearest 0.5 cm
- All measurements are made relative to the hymen
- Points proximal to the hymen are negative (inside the body)
- Points distal to the hymen are positive (outside the body)
- The hymen is assigned a value zero
- gh, pb, and tvL measurements will always have a positive value
- All measurements, except for tvL, are made while patient is bearing down
- Both the patient's position during the examination (lithotomy, birthing chair, or standing) and the state of her bladder and rectum (full or empty) should be noted

Table IV. Five stages of pelvic organ support

- Stage 0: No descent of any compartments
- Stage 1: Descent of the most prolapsed compartment between perfect support and -1 cm, or 1 cm proximal to the hymen
- Stage 2: Descent of the most prolapsed compartment between -1 cm and +1 cm
- Stage 3: Descent of the most prolapsed compartment between +1 cm and (tvL -2 cm)
- Stage 4: Descent of the most prolapsed compartment from (tvL -2 cm) to complete prolapse

**Posterior vaginal wall prolapse** (previously known as a rectocele) is any descent of the posterior vaginal wall so that a midline point on the posterior vaginal wall 3 cm above the level of the hymen, or any posterior point proximal to this, is less than 3 cm above the plane of the hymen.

### IS PROLAPSE 'NORMAL'?

Clearly some degree of prolapse is the norm, especially in a parous population. Women with prolapse beyond the hymenal ring have a significantly increased likelihood of having symptoms. In a general population of women between 20 and 59 years the prevalence of prolapse was 31%, whereas only 2% of all women had prolapse that reached the introitus. Some estimations suggest that a degree of prolapse is found in 50% of parous women, and up to 20% of these cases are symptomatic. An estimated 5% of all hysterectomies result in vaginal vault prolapse.

Apical prolapse is a delayed complication of hysterectomy and follows vaginal and abdominal hysterectomy in equal numbers. Prolapse may be the result of damage to the upper vaginal supports occurring at the time of surgery.

### URINARY INCONTINENCE AND PROLAPSE

Urinary incontinence and POP are separate clinical entities that may or may not coexist. Significant protrusion of the vagina may obstruct voiding and defecation. Surgical repair

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of one pelvic support defect without repair of concurrent asymptomatic pelvic support defects appears to predispose to accentuation of unrepaired defects and new symptoms. Women with POP may have to digitally reduce their prolapse in order to void or defecate.

Although pelvic anatomy can now easily be measured accurately and reliably, the relationship between these anatomical findings and functional abnormalities is not well understood. Support abnormalities of the anterior vaginal wall are common in women who have delivered vaginally, but stress incontinence is not consistently associated with this finding. Distal, posterior vaginal wall support abnormalities may exist with or without defecation abnormalities. The relationship between anatomy and function is one of the most pressing research priorities in the domain of physical examination of women with POP.

**WHEN TO OPERATE?**

Prolapse is not always progressive, and will not necessarily worsen with time. It is an over-simplification to suggest surgery to avoid an operation 'at a later stage', as this may never be required.

POP symptoms are vague and correlate poorly with the site and severity of prolapse. They include the following:

- pelvic pressure
- vaginal heaviness
- irritative bladder symptoms
- voiding difficulty
- urinary incontinence
- defecatory difficulty
- backache
- coital problems.

Backache and pelvic pain may or may not be associated with POP. The level of evidence to support the notion that surgery consistently alleviates these symptoms is poor. When vaginal pessaries are unsuccessful or complicated by ulceration, surgical POP repair may be indicated in symptomatic individuals. Up to 30% of operations for prolapse fail. It is probably unrealistic to use weakened native tissue to restore fascial defects. Ligaments and tissues are attenuated by age and childbirth, and are further traumatised by the dissection and devascularisation of prolapse repair. Healing by fibrosis is unpredictable, and the further insults of age, obesity and oestrogen deprivation make the use of prosthetic material during surgery attractive.

**ROUTE OF SURGERY**

There are hundreds of operations described for the correction of POP, either with an abdominal or a vaginal approach. Although most POP surgery is performed via the vaginal route, there are no good data on which to base the decision as to route of surgery. Reviewing prolapse literature is difficult because of the heterogeneous nature of the condition, variability in inclusion and exclusion criteria, variety of procedures, non-standardised definitions of outcomes, lack of independent reviews and short-term follow-up.

In general terms, there is good evidence that the abdominal approach is more robust, effective and durable for correcting the anatomy and preserving vaginal and lower urinary

tract function. The vaginal route has fewer serious perioperative complications, and it is usually faster to perform with quicker postoperative recovery. However, vaginal surgery has a significantly higher risk of recurrent anterior or apical prolapse than abdominal surgery using a mesh or sacral colpopexy technique. The vaginal approach is commonly preferred for the obese, chronic strainer who smokes and has obstructive pulmonary disease.

**PROLAPSE AND CONCOMITANT HYSTERECTOMY**

Although hysterectomy is frequently performed in conjunction with POP repair, there is no evidence that it improves prolapse surgery outcomes. In three studies it appeared that uterine preservation or removal did not affect the risk of POP recurrence. Some authorities feel that hysterectomy is a major contributor to the occurrence of POP, and is part of the problem rather than the solution. Theoretically at least, cervical conservation at abdominal hysterectomy should maintain apical support and prevent vault prolapse.

**PROSTHETIC MATERIALS AND SURGERY**

There are currently insufficient data to draw any evidence-based conclusions with regard to the role of prosthetic materials in prolapse surgery. Part of the problem arises from the paucity of baseline data regarding the efficacy of 'traditional' anterior and posterior vaginal repairs.

As a result, the efficacy of adding prosthetic material for primary or recurrent prolapse affecting these compartments is difficult to assess. While synthetic type 1 mesh grafts may offer a theoretical advantage, this must be balanced against increased cost and potential morbidity. There is also a need for further long-term prospective studies, ideally in the form of randomised controlled trials, as well as from structured personal series audits, in order to determine the long-term efficacy and potential

morbidity associated with the use of prosthetic materials in primary or recurrent prolapse repair. Standardised criteria for staging POP, adequate follow-up and assessment of the effects of surgery on bladder, bowel and sexual function are required to determine under which circumstances these grafts confer advantage over standard prolapse repair.

This will allow appropriate selection of both the type of prosthesis and the optimal surgical approach in women requiring reconstructive pelvic floor surgery. Synthetic prostheses will, however, not compensate for poor surgical techniques or a poorly conceived procedure. There is currently a large range of prostheses available on the market, riding the wave of more established mainstream product usage. A prudent surgeon will evaluate published data on specific products before deciding on the best surgical approach for the patient.

**CONCLUSIONS**

New insights and amended classification systems have modified previously held beliefs in the field of POP, which is a vast and amorphous field of surgery. Different causes of prolapse and a host of confounding variables make a single approach and any one standard procedure unscientific. The 'one-operation-fits-all' methods of the past must be rejected, and a more thoughtful and evidence-based approach cultivated. Difficult cases of POP undoubtedly require sub-specialist, and often multidisciplinary, expertise and management.

**Further reading**

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**IN A NUTSHELL**

Pelvic organ prolapse is caused by vaginal parity, ageing, hysterectomy and raised intra-abdominal pressure.

A new system of staging pelvic organ prolapse has been developed, validated and introduced.


Staging is no longer subjective (small, medium, large, etc.), but objectively measured.

New terminology and definitions replace previously used terms such as cystocele, rectocele and vault prolapse.

Prosthetic graft material has been introduced to improve the quality of pelvic reconstructive surgery.

The one-operation-fits-all approach needs to be revised, and a more objective evidence-based approach considered.


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Turmeric or *borrie*, the yellow root of *Curcuma longa*, seems to boost brain power, according to researchers from the National University of Singapore. Curcumin, a constituent of turmeric, is an antioxidant and seems to inhibit the build-up of amyloid plaques in people with Alzheimer's disease. The research team looked at the curry-eating habits of 1 010 Asian people who did not have Alzheimer's who were aged between 60 and 93 and compared their cognitive performance. Those people who ate curry once or more in 6 months but less than once a month and those who ate curry once a month had better cognitive performance than those who only ate curry rarely or never. Good news for those of us who love curry!

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