

Competence of Surgeons Performing Operative Procedures related to Knowledge of Female Urinary Incontinence and Pelvic Organ Prolapse

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Urinary incontinence (UI), defined as the complaint of any involuntary urinary leakage, is a common symptom that may affect women of all ages, with a wide range of severity and nature. UI may occur as a result of a number of abnormal conditions of the lower urinary tract or other illnesses related to the lower urinary tract, and these tend to cause leakage in different situations. In addition, UI is quite often to be accompanied by pelvic organ prolapse (POP).

Although it is not a life-threatening disease, incontinence may seriously influence the physical, psychological and social wellbeing of affected individuals. Medical and physical therapies are not always effective. Many patients are willing to seek permanent treatment with prompt effects. Therefore, a good hand good skilled surgeon with good knowledge is required for UI patients.

The aim of surgery is to achieve cure or improvement of incontinence with minimal morbidity. Surgical outcomes are dependent on numerous factors including careful patient selection, accurate diagnosis and the expertise of the surgeon. Most of the procedures for incontinence are technically simple, yet potentially harmful if carried out incompetently or on inappropriate patients. However, some are complex, especially those for UI combined with POP, and are likely to require higher levels of expertise for their effective execution.

Operative competence of surgeons undertaking surgical procedures to treat UI or POP in women should be formally assessed by trainers, who should be able to demonstrate that their training, experience and current practice equates to the standards laid out for newly trained surgeons, and provide sufficient case loads for training skills. The newly trained surgeon should know when to call for help, how to acquire up to date information and judge the accuracy of the new information.

I would recommend that a competent surgeon for UI/POP should be familiar with the following issues.

General knowledge: a surgeon should have knowledge of UI and POP from the basic science to clinical practice, treat the disease with the whole patient in mind, and understand the current limitations and vision for the future

- Accurate diagnosis of UI and POP.
 - Impact of systemic disease and associated surgical history on UI/POP.
 - Other associated urological symptoms.
 - Assessment of UI/POP.

- Conservative management of UI/POP.
- Surgical management of UI/POP - indications and contraindications.

- Anatomy relevant to procedure.
 - Steps involved in procedure.
 - Limitations of current methods.
 - Variable methods - good for patients and good for surgeons.
 - Complications of surgery - avoidance, take recognizing and handling.
 - To be a competent pelvic reconstructive surgeon - know the urological field, the gynecological field and the procto-rectal surgical field in the pelvic region.

Other generic skills: using evidence-based knowledge, from the literature to personal experience

- Be able to explain procedures and possible outcomes to patients and their families, and obtain informed consent.

View from the patient's side: what drives treatment for UI/POP? What are the patient's concerns?

- Nature, duration, severity of UI/POP.
- Effects on quality of life (QoL).
- Risks and transient cause.
- Prior surgery?
- Concomitant disease - neurological disease, radical pelvic surgery.
- Co-morbidities.
- Willingness to assume risk.

Impact of systemic disease and surgical history: know the patient's complete medical history instead of only focusing on UI and POP, which are often associated with other conditions

- Neurological disease - cerebrovascular accident (CVA), Parkinsonism - make the clinical decision complicated.
- Surgical history - is it related to the current condition? Usually nerve injury (sympathetic and parasympathetic) during total abdominal hysterectomy (TAH), lower anterior resection of the rectum (LAR), abdominoperineal resection of the rectum (APR).
- Avoid the difficult route?
- Previous surgery increases surgical complications.

Pelvic surgery & lower urinary tract dysfunction: unavoidable destruction of pelvic anatomy due to pelvic surgery will derange the lower urinary tract, the effects of which may be permanent or transient

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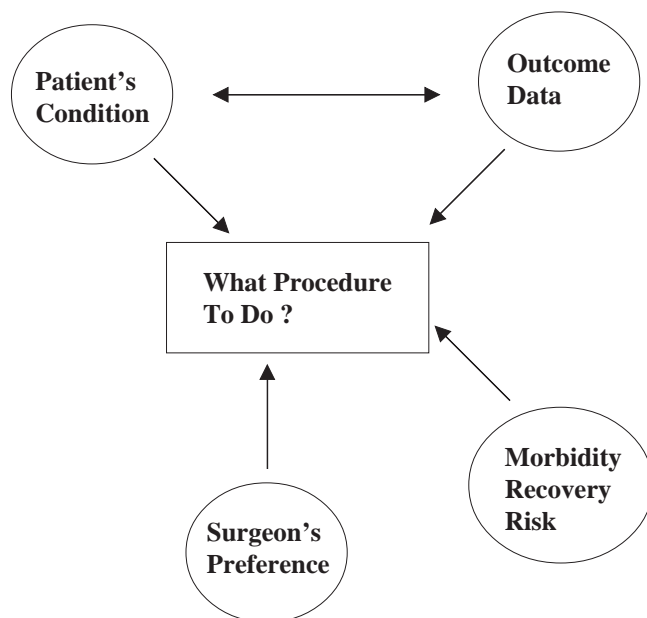
- Changes in anatomic position of bladder, urethra, vault: new onset lower urinary tract symptoms (LUTS), incontinence or prolapse.
- Neurological injury: often unavoidable.
 - Somatic (S2-4) - below levator - somewhat protected.
 - Sympathetic (T10-L2) - usually injured.
 - Parasympathetic (S2-4) - usually injured.
 - Dissection below the cardinal ligaments: TAH.
 - Para-rectal dissection: LAR, APR.

Other associated urological symptoms: should consider the co-existence of overactive bladder (OAB), interstitial cystitis (IC) and/or bladder outlet obstruction (BOO)

- Storage symptoms: OAB, IC.
- Stress urinary incontinence (SUI): usually daytime event (activity/gravity).
- OAB: may coexist with SUI, nighttime event and neurological deficit suggestive of OAB.
- Mixed incontinence: 60% UI improved in selected case of SUI surgery.
- Voiding symptoms: BOO (anatomical or functional), poor detrusor contractility.
- Poor emptying simulating OAB.

Assessment: know the principles of urodynamic study (UDS), why and when to do it

- Do UDS if:
 - Results will help counsel the patient.
 - Unsure of diagnosis.
 - There is a history of voiding symptoms or elevated post-void residual (PVR).
 - Determination of abdominal leak point pressure (ALPP) or other UDS parameters will affect choice of surgery.



- Do not do UDS if:
 - You are going to treat the patient the same way no matter what the findings and UDS will not influence how you counsel the patient.

Procedures, outcome and potential complications: know the patient's condition, apply suitable procedures and get the best outcome

- Measuring outcomes: patient-oriented outcome measurement is more appropriate than surgeon-oriented outcome measurement.
 - Symptom score.
 - Bother score.
 - QoL index.
 - Patient-derived outcome measurement.
- Immediate complications: need to be treated immediately.
 - Bladder, urethra injury.
 - Bleeding.
 - Bowel, vessel and nerve injury - rare but devastating.
- Long-term complications: may not be seen in the short-term but may be suffered by the patient in the long-term. Voiding dysfunction - obstruction vs. post-dissection nerve injury.
 - For ALL incontinence surgery: up to 40%-45%.
 - Post-sling de novo detrusor overactivity (DO) 5%-10%.
 - Post-sling worsened DO 10%.
 - Retention: < 5% → urethrolisis/sling incision in 8-12 weeks.
 - Post-sling prolapse: cystocele.
 - Persistent SUI.
 - Erosion: synthetic/allograft/autologous.
 - Dyspareunia.
 - Chronic pelvic pain.

Postoperative BOO: not an uncommon issue and more troublesome

- Estimated incidence between 2.5% and 24%.
- 3% may require intervention.
- Reasons:
 - Bladder outlet too tight or sling too tight.
 - Too much resistance for outlet.
 - Too much resistance in setting of poor detrusor contraction.

Surgical failure: knowing the reasons for surgical failure will make the next surgery a success

- Inappropriate choice of procedure.
- Technical problem.
- Persistent high intra-abdominal pressure.
- Tissue deficiency.

Complicated incontinence cannot be regarded as a simple UI and POP, including

- Recurrent UI.
- Incontinence associated with:
 - Pain.
 - Hematuria.
 - Recurrent infection.

- Voiding symptoms.
- Pelvic Irradiation.
- Radical pelvic surgery.
- Suspected fistula.

Are the current methods perfect? It is necessary to know the limitations of current methods

- SUI - creates an anatomical hurdle, may cause functional obstruction.
- Current sling - not physiological? Can it be dynamic?
- Short-term complication.
- Long-term complication - voiding dysfunction up to 40% to 45%, post sling prolapse, persistent SUI, sling erosion, dyspareunia, chronic pain.

Tissue engineered bulking agents: may be easier to apply and may be more physiological in the near future

- Muscle derived stem cells (MDSC).
 - Differentiate into myogenic and non-myogenic lines.
- Skeletal derived satellite cells.
 - Myogenic precursors with limited differential potential.
- Chondrocytes.
 - Arise from mesenchymal stem cells and have intrinsic ability to produce extracellular matrix (ECM) and cartilage in vivo.

- Adipose derived multipotent stem cells.

Is it possible to organize a team for SUI and POP? What is the rationale? A team often makes the best outcome

- A kind of pelvic reconstructive surgery.
- As an urologist - I am weak in uterus-related problems and I am afraid to tear the bowel?
- How about urogynecologists? Bladder, ureter and bowel?
- How about anal/rectal surgeons? Bladder, ureter and uterus?
- Can the concept of the flap from plastic surgeons be helpful?

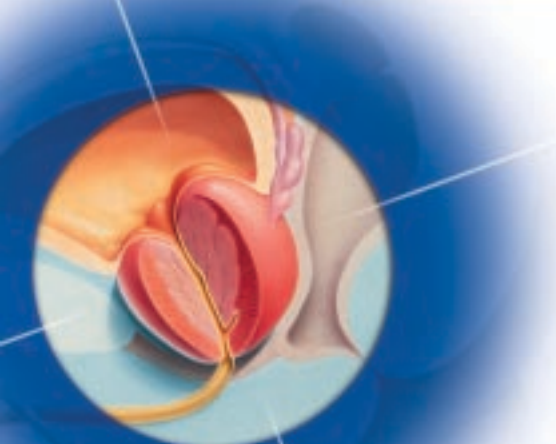
CONCLUSIONS

Competent surgeons for UI/POP should have dialogue between urologists, gynecologists, colon-rectal surgeons and even plastic surgeons. They should have enough knowledge to know who should be treated, when and how to perform surgery, what the expected outcome will be, and what potential treatment methods are available.

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* Study Design: Data from the Medical Therapy of Prostatic Symptoms (MTOPS) trial, a double-blind, placebo-controlled, multicenter, randomized, five-year coverage follow-up study to compare the effects of placebo, finasteride, tamsulosin, and combination therapy on measures of the clinical progression of BPH. Entry criteria included the following: men ≥50 years of age, AUA symptom score 8–33, maximum flow rate (Q_{max}) 6–15 ml/sec, and initial volume ≥125 ml. Patients (n=3267) were randomized to receive PROSCAR (n=762), tamsulosin (n=734), PROSCAR and tamsulosin (n=762), or placebo (n=737).

** The primary endpoint—overall clinical progression—was defined as the first occurrence of an increase of at least four points over baseline in the AUA symptom score, AUR, urinary incontinence, renal insufficiency, or recurrent urinary tract infection. P values are compared with placebo.

AUR: Acute urinary retention AUA: American Urological Association

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