URINARY INCONTINENCE AND MANAGEMENT, INCLUDING SLING SURGERY

The NZ Ministry of Health provides up to date patient-decision-guides and information on urinary incontinence and its management options. These may be downloaded from the Health NZ Te Whatu Ora website: Patient decision guides – Health New Zealand | Te Whatu Ora
And are also available on the Resource page of Riddiford Medical Specialists www.riddiford-medical.co.nz website.

Urinary incontinence affects some 40% of adult women at some time in their lives, and a smaller percentage of adult men. Most incontinence is primary: this means there is no other bladder disease. It is however important to identify those patients whose incontinence is secondary to another disease, whether serious or not, and this may be based on history, examination, urine and blood testing, ultrasound and potentially telescopic bladder examination.

Primary incontinence is treated according to its severity. It is fair to say that nobody dies from incontinence, but it significantly compromises quality of life and is often readily treatable with very good results and low risk. Conservative measures should always be tried initially. These include: lifestyle changes adjusting fluid intake; achieving a healthy/normal weight for height; avoiding triggers for incontinence; treating constipation; topical oestrogens; and pelvic floor muscle training. Continence vaginal pessaries may benefit some patients.

- Urge urinary incontinence (UUI) occurs with strong desire to void - 'urgency' or 'busting' - and is associated with frequency and night-time voiding. It results from bladder overactivity and irritability, the reasons for which are usually unknown. It is more common with aging, but may occur at almost any stage of life.
- Stress urinary incontinence (SUI) is leakage that occurs with cough, sneeze or strain. It results from weakness of the valve mechanism, usually secondary to a combination of previous pregnancies-childbirth, menopause and aging.

Management of SUI differs from management of UUI. As such, it is important to accurately characterise the incontinence, particularly when SUI and UUI co-exist, and specific investigations may be required for this.

Predominantly UUI:
This troublesome incontinence often waxes and wanes in severity. It may be secondary to some other urinary tract disease, including urinary tract infection and bladder tumours.
Management is primarily non-surgical and our treatment approach is more conservative.
Caffeine is a bladder irritant and should be excluded from the diet: decaffeinated coffee may substitute for coffee, herbal infusions for tea, and Cola drinks omitted altogether.
Constipation will worsen bladder function and should be treated with fruit, fibre, fluids and medication as appropriate.
All patients should attempt a course of pelvic floor exercises and bladder retraining, although the success rate for this is poorer than it is for SUI.
Oral medications may quieten down bladder overactivity but may have side-effects of dry mouth, constipation, nausea, lack of sweating and visual disturbance. They may be used intermittently or continuously, as tolerated.

Some patients without benefit from or unable to tolerate oral medications may be suitable for intermittent Botox injections directly into the bladder. This may be very effective at inhibiting bladder overactivity but may compromise bladder emptying. It requires a telescopic procedure typically under local anaesthetic in the clinic, and requires to be repeated every 6-12 months.
Rarely, more invasive surgery is appropriate, to increase bladder capacity and reduce overactivity. This involves either removing a part of the bladder muscle wall, or fusing a segment of bowel into the bladder. There is the option of a part-laparoscopic approach for this surgery.

Predominantly SUI:
All patients should attempt pelvic floor exercises and up to 50% of patients are improved when these exercises are supervised by a dedicated physiotherapist.
Patients not cured with pelvic floor exercises may consider anti-incontinence surgery.
The decision to proceed to surgical management should be based on understanding of the risks and benefits of the interventions.
There have been a great many surgical treatments for SUI described.
Concerns about mesh-related complications have meant the withdrawal of many of these products and a nationally implemented pause of mesh use for management of SUI and vaginal prolapse.

Currently in NZ, there are 3 primary options for surgical management of SUI:

- Urethral bulking agents,
- Native tissue sling procedures, and
- Colposuspension.

1. Urethral **bulking** is a fairly quick endoscopic procedure in which a material is injected into the urethral wall to increase the urethral resistance to urine leakage. It may be possible to have this procedure performed under local anaesthetic only on a daycase basis. Compared to sling and colposuspension, bulking is quicker, with quicker recovery, fewer early complications, but lower success and poorer durability. Bulking appears to be more effective than conservative measures. There has been a variety of different materials used for this over the past 30 years, both absorbable and non-absorbable. Some of these material options have been discontinued because of poor durability, abscess formation and erosion, and particle migration. Currently available bulking agents are non-absorbable and may be in the form of micro-particles or homogeneous gel. There are no direct comparisons between these materials. Reported short-term success ranges from 30-90% and longer-term success from 20-80%. The procedure may be repeated - reinjection rates range from 10-80%. Adverse effects include temporary urinary retention immediately after injection, urethral erosion and infection, new onset bladder storage symptoms, and pain. Overall early success and durability are less than with sling surgery and with colposuspension. Bulking agents have been surgically removed but there is no known experience with this in NZ.
    a. Macroplastique is a blend of silicone particles in a water-based gel.
    b. Bulkamid is made of polyacrylamide suspended in water.
2. Urethral **sling** is designed to support the bladder neck and urethra, relocating this area to its normal anatomy. The procedure has been performed since the late 1970s and became the most commonly performed surgery for SUI management for the past 20 years. A number of materials have been used for the sling, both natural and artificial. Polypropylene mesh was the most popular, but concerns relating to mesh-complications have significantly shifted practice away from mesh slings and back to autologous tissue slings.
   Autologous (native) fascia is the white, tough, fibrous tissue that forms ligaments and tendons, and currently this is the only sling option available in NZ. A short length of this is harvested from

either the abdominal wall or side of thigh. General anaesthetic is required and a wound is needed for sling harvest, commonly a suprapubic C-section-type wound. Success rates are 80-95% early after surgery, with long-term success around 70%. Adverse effects include donor site pain, haematoma, new onset bladder storage symptoms, and urinary retention requiring self-catheterisation or sling release surgery. There is potential for sling shortening over time, which may cause delayed onset voiding dysfunction. There are no reports of erosion or rejection of native tissue sling. Sling surgery is predominantly performed via the vagina. Consequently, it is associated with less pain and superior recovery when compared to other abdominal anti-incontinence procedures, allowing an earlier return to normal function and shorter hospital stay. Recovery to normal activities is typically over 2 weeks. The wounds are cosmetically excellent.

3. **Colposuspension** is performed through the abdomen, again using a suprapubic C-section-type wound if performed by open surgery. It may be performed laparoscopically although there is less data available for the laparoscopic approach compared with open surgery. It may simultaneously correct cystocoele if this is present. Open surgery requires more tissue dissection and post-surgery recovery is generally slower than after sling surgery or bulking surgery. It has lower early success 75-85% and does not appear to be as durable as a sling procedure, with long-term continence reported at 50-60%. Complication rates are similar to autologous sling surgery, except for a lower rate of voiding dysfunction.

One of the above treatments may be more applicable to an individual patient than the others.

FURTHER INFORMATION ON SLING PROCEDURE

WHAT TO DO BEFORE YOUR PROCEDURE:

- ensure laboratory tests are done > 48 hours prior to surgery, unless advised otherwise
- discontinue aspirin and other anticoagulants 1 week prior, other medications may also need to be stopped
- nothing to eat or drink from 6 hours prior to procedure - see Admission Booklet regarding diet restrictions
- microlax enema morning of the procedure for afternoon procedures, evening prior for morning procedures
- you will be admitted to hospital on the day of surgery.
- you do not need to shave prior to surgery

WHAT HAPPENS IN HOSPITAL AFTER YOUR PROCEDURE:

- day 1-2: diet and reinstate usual medications
  urethral catheter and vaginal pack will be removed and discharge home once satisfactory voiding is confirmed

WHAT HAPPENS AFTER YOU LEAVE HOSPITAL:

- resume normal activities as tolerated from 2-4 weeks
- continue antibiotics x 1 week
- post-operative constipation is a common problem and may be minimised with good fluid intake, dietary fibre and laxatives.
- avoid heavy lifting for 2 weeks
- resume full normal activity including sexual intercourse by 4-6 weeks

WHAT CAN GO WRONG:
Although most cases proceed without particular difficulty and have excellent outcomes, surgical complications occur overall in <10% of patients, the most common of which are persisting urinary incontinence, slowed voiding or retention needing self catheterisation, and de novo bladder storage symptoms and urgency.
The list below details potential complications recognised as common or serious, but this does not include the rare and extraordinary. Risk of death is approximately 0.03% in generally healthy patients.

AT THE TIME OF AND EARLY AFTER SURGERY:

- Urine retention, needing to self-catheterise intermittently
- Bleeding requiring blood transfusion in < 1%, haematoma
- Infection may require antibiotic treatment <3%
- Numbness or tingling in legs, genitalia and perineum is usually temporary
- Risk of death may be estimated using the nzRISK https://nzrisk.com on-line pre-operative calculator. It has been developed and validated for patients in New Zealand over the age of 18, to help patients and doctors balance benefits and risks of treatment.

LATER POTENTIAL COMPLICATIONS :

- Recurrent or persisting urinary incontinence commonly urge urinary incontinence but less frequently recurrent stress urinary incontinence
- Urine retention, needing to self-catheterise intermittently
- New onset bladder storage symptoms: frequency, urgency and nocturia
- 1-2% of patients require subsequent surgery to achieve loosening of the sling