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Mid-Urethral Sling (MUS) Procedures for Stress Incontinence

A Guide for Women

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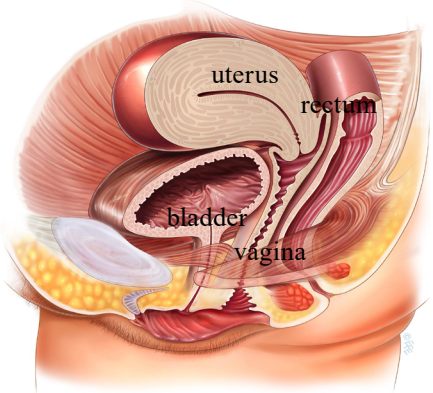
What are midurethral slings?

Mid-urethral sling procedures are operations designed to help women with stress incontinence. Stress incontinence is the leakage of urine with every day activities such as coughing, sneezing or exercise. It is a very common and embarrassing problem affecting up to 1 in 3 women. Stress incontinence may be cured or improved with pelvic floor exercises and lifestyle modifications, but if these strategies fail then surgery may be recommended for you. The most frequently offered type of operation is a mid-urethral sling procedure, a simple day case procedure that has been performed for more than 3 million women worldwide to date.

The operation involves placing a sling of polypropylene mesh about 1cm wide (suture material that is woven together) between the middle portion urethra and the skin of the vagina. The urethra is the pipe through which the bladder empties. Normally the muscle and ligaments, which support the urethra, close firmly when straining or exercising to prevent leakage. Damage or weakening of these structures by childbirth and/or the aging process can result in this mechanism failing, leading to urine leakage. Placing a sling underneath the urethra improves the support and reduces or stops leaking.

Figure 1: Normal Anatomy



How are the operations done?

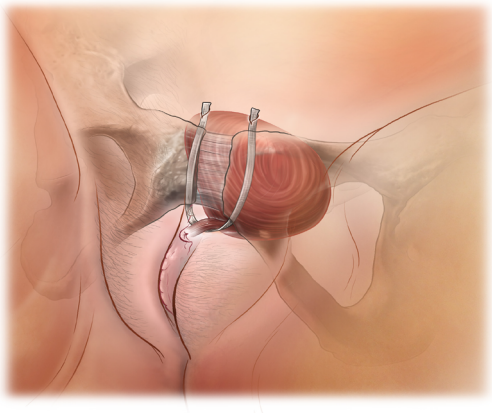
There are three main routes for placing the sling: the retro-pubic route, the transobturator route, and the "single incision" or "mini-sling". There is no clear advantage of one over the other, except for some women with severe stress incontinence where the retropubic route appears to be more successful. Minislings are still in the initial phases of investigation. Although they are less invasive than the other methods they may not be quite as effective in controlling stress incontinence in the longer term, or in women with severe incontinence.

During the retropubic operation the sling is placed through a small cut made in the vagina over the mid-point of the urethra. Through this the two ends of the sling are passed from the vagina, passing either side of the urethra to exit through two small cuts made just above the pubic bone in the hairline, about 4-6 cm apart. The surgeon will then use a camera (cystoscope) to check that the sling is correctly positioned and not sitting within the bladder. The sling is then adjusted so that it sits loosely underneath the urethra and the vaginal cut stitched to cover the sling over. The ends of the sling are cut off and they too are covered over.

The transobturator approach to the operation also requires a small incision to be made in the vagina at the same place as for the retropubic operation. The ends of the sling are passed through two small incisions made, this time, in the groin. Each end of the sling passes through the obturator foramen, which is a gap between the bones of the pelvis. The ends are cut off once the sling is confirmed to be in the in the correct position and the skin closed over them.

The mini-sling procedure is similar to the initial part of retropubic approach, except that the ends of the sling do not come out onto the skin and are anchored in position by one of a number of different fixation techniques.

Figure 2: Retropubic Sling



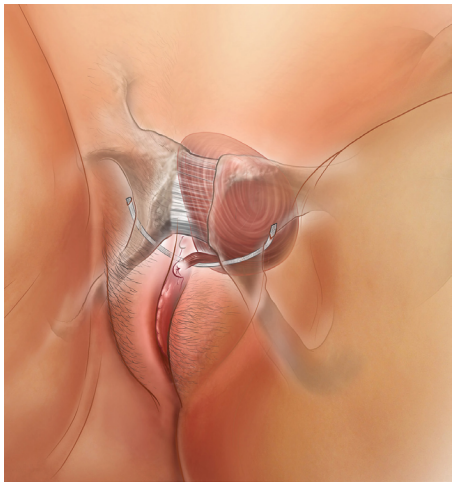
How do they work?

The sling (or tape) prevents leakage by supporting the urethra and mimicking the ligaments that have been weakened by having babies and the aging process. Once the sling is in position your tissues grow through the holes in the weave and so anchor it in

position. This may take 3 to 4 weeks.

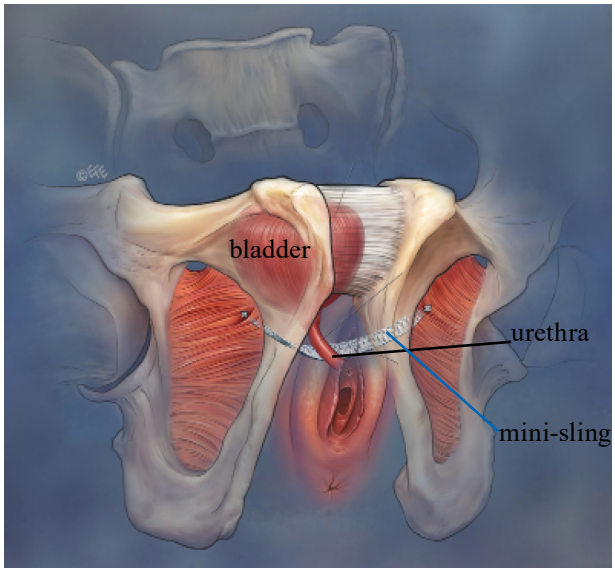
Do I need an anesthetic for the operation?
Although it is possible to do the operations just with local anes-

Figure 3: Transobturator Sling



thetic, most surgeons would supplement this with a strong sedative or, sometimes, a full general anesthetic. Occasionally, the operation is done using a spinal or an epidural anesthetic, depending on the preference of the patient, anesthetist and surgeon.

Figure 4: Mini-sling



When will I be able to go home after the operation?
Most surgeons will allow patients to go home after a mid-urethral sling operation once they are emptying their bladders efficiently and after any pain has been adequately controlled. Normally this time will vary from a few hours to a couple of days, depending on the facilities available.

What are the chances of success of the operation?
Our research tells us that, in the short term, this operation is as successful as any more invasive procedure used for controlling stress incontinence, but with a quicker recovery and less chance of needing surgery for prolapse in the first two years after the surgery. Between 80 - 90% of women are happy with their operation and feel that their incontinence is either cured or much better. However, there are a small group of women for whom the operation does not seem to work. The operation is less likely to be a success if you have had previous surgery to your bladder (such as a repair operation).
The most common retropubic operation to be carried out is the TVT (Tension-free Vaginal Tape). This is also the operation that has been done for the longest time, and research suggests that if it is initially successful in controlling stress incontinence then it is still likely to be working up to at least 17 years later. The other retropubic and transobturator procedures are likely to have similar long term success rates.

When can I return to my usual routine?
You should be able to drive and be fit enough for usual daily activities within a week of surgery. We advise you to avoid heavy lifting and sport for 6 weeks to allow the wounds to heal and the sling to be firmly held in place.

What complications can happen?
There is no completely "risk free" operation for stress incontinence. The three methods of placing the sling have their own specific risks (see below) but all can be complicated by:

- Urinary tract infections – These are not uncommon after any procedure and should respond to antibiotics. Symptoms of a urinary tract infection include burning, stinging, the need to pass urine frequently and in some cases bloody, cloudy or offensive smelling urine. If you notice these symptoms contact your doctor.
- Bleeding – Bleeding, sufficient to require a blood transfusion, is very rare. Sometimes bleeding can happen where the tape from a retropubic operation passes behind the pelvic bones. This is normally self-limiting and only very rarely needs an operation to fix.
- Difficulty passing urine (voiding difficulty) – Some women have difficulty emptying their bladder following sling surgery; this is often because of swelling around the urethra or discomfort and will usually settle quickly (within a week). During this time your doctor may recommend a fine tube or catheter be used to drain the bladder. If your urine stream remains very slow or you cannot empty the bladder well even after the swelling has settled, your care provider will discuss other possibilities, such as cutting or stretching the sling, with you.
- Sling exposure – Very occasionally the sling can appear in the wall of the vagina a few weeks, months or years after an operation. Your partner may notice a rough area during intercourse, or you may feel an uncomfortable prickling sensation in the vagina. Occasionally there can be some blood-stained discharge. In this case, you should consult your surgeon who will be able to advise which method of resolving the situation is best. Usually this would involve either re-covering the tape or removing the section of tape that is exposed. The risks of this happening are about 1 in 100 after a retropubic operation or mini-sling and more slightly frequent than this after a transobturator operation.
- Bladder or urethral perforation – Bladder perforation occurs most often during a retropubic operation, whilst the urethra is most at risk of damage during a transobturator procedure. Your surgeon will check for damage during the operation by looking inside the bladder and urethra using a special telescope (cystoscope). Removing and correctly relocating the needle to which the

sling is attached should resolve the situation. The bladder is normally then drained by a catheter for 24 hours to allow the hole in the bladder to heal itself. Damage to the urethra is more difficult to deal with, and should be discussed with your surgeon should it occur. Both are relatively rare, and bladder perforation, as long as it is recognized, does not affect the success of the operation.

- Urgency and urge incontinence - Women who have bad stress incontinence often experience urgency and urge incontinence, the leakage of urine associated with the sensation of urgency. About 50% of women notice an improvement in urgency symptoms but for about 5% the symptoms may worsen following a MUS procedure.
- Pain – Long term pain following sling surgery is unusual. Studies suggest that after the retropubic operation about 1 in 100 (1%) will develop vaginal or groin pain. Similar pain in the vagina or at the site of the cuts where the tape is put in can occur in as many as 1 in 10 women after a transobturator approach. In most cases pain is short lived and does not occur for more than 1 to 2 weeks. Rarely pain may not settle and removal of the sling is required.

My bladder isn't too bad at the moment, but should I have an operation now to prevent it getting worse in the future?
It is difficult to predict what will happen to your bladder in the future; doing regular pelvic floor exercises improves stress incontinence in up to 75% of women and may mean surgery is never required. You should have the operation only if you feel the stress incontinence is affecting the quality of your life now, not to prevent it deteriorating in the future.

I haven't finished my family yet, can I still have a MUS?
Many surgeons would want to avoid surgery until a woman's family is complete because future pregnancy may compromise the results of the initial surgery.

How will the operation affect my sex life?
We usually advise you to wait for 4 weeks after the operation before having sexual intercourse. In the long term there is no evidence that the operation will make any difference to your sex life. If you previously leaked urine during intercourse, the operation might make this better, but this is not always the case.

Is there anything else I can do instead of an operation?

- **Pelvic Floor Exercises (PFE)**. Pelvic floor exercises can be a very effective way of improving symptoms of stress urinary incontinence. Up to 75% of women show an improvement in leakage after PFE training. Like all training, the benefits of pelvic floor exercises are maximised if practice is carried out regularly over a period of time. Maximum benefit usually occurs after 3 to 6 months of regular exercising. You may be referred to a physical therapist (physiotherapist) specialising in teaching PFEs to supervise this. If you also have a problem with urge urinary incontinence your doctor may also advise bladder retraining exercises. http://c.ymcdn.com/sites/www.iuga.org/resource/resmgr/Brochures/eng_btraining.pdf
- **Continence Devices**. Continence devices are available which fit in the vagina and help control leakage. These can be inserted prior to exercise or, in the case of a vaginal pessary, can be worn continuously. Some women find inserting a large tampon prior to exercise may prevent or reduce leakage. These types of device are most suitable for women with more minor degrees of urinary incontinence or who are waiting definitive surgical treatment.
- **Lifestyle Changes**. Being overweight can make stress and urge incontinence worse whilst reducing weight can result in an improvement in incontinence symptoms. Maintaining a good general health, quitting smoking, and having good control of medical conditions such as asthma can also be helpful.

For more advice and information check out our leaflet on stress urinary incontinence: http://c.ymcdn.com/sites/www.iuga.org/resource/resmgr/Brochures/eng_sui.pdf

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