An Ambulatory Surgical Procedure Under Local Anesthesia for Treatment of Female Urinary Incontinence

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Abstract: The object was to study prospectively the results of a modified intravaginal slingplasty for the surgical treatment of female stress incontinence, carried out under local anesthesia as a day procedure. Seventy five patients with genuine stress incontinence were operated upon and followed for a 2-year period. All patients were diagnosed urodynamically to have genuine stress incontinence. Pad tests and quality of life assessments were carried out in all patients both pre- and postoperatively. There were no intra- or postoperative complications and 63 patients (84%) were completely cured throughout the 2-year follow-up period. Six patients (8%) were significantly improved, i.e. they did not lose urine apart from an occasional leakage during severe cold etc. In the remaining 6 patients (8%) no improvement was seen. These failures were obvious at the first postoperative check-up after 2 months. Thus, there were no relapses after 2 months. All but 5 patients were able to void properly directly after surgery. These 5 needed an indwelling catheter during the night directly after the operation. All 75 patients were released from the hospital the same day or the day after surgery without catheterization. Mean sick leave was 10 days and mean operation time 22 minutes. No defect healing or rejection of the sling occurred. It is concluded that the procedure described is a promising new technique for the surgical treatment of female stress incontinence. Prospective long-term studies including more patients are in progress to establish the definitive place of this technique in the clinical routine.

Keywords: Ambulatory surgical procedure; Female stress incontinence; Local anesthetics; Slingplasty

Introduction

We have previously reported on the results of a new ambulatory surgical procedure, intravaginal slingplasty (IVS), for the treatment of female urinary incontinence [1]. Although the results of both this and a further study [2] have shown an almost 90% cure rate 2 years after surgery, some important problems have been identified. One is the rejection of both Gore-tex and mersilene tapes, which occurred in about 8-10% of all patients. Another problem involves the instrument, which was originally designed to insert free nylon tapes to create new pubourethral ligaments [3], but not to implant a permanent sling around the midurethra. As permanent slings have been found to have a significantly better cure rate, however, this procedure is to be preferred [1,4].

The present study reports on an improved surgical technique for IVS used in 75 patients with genuine stress incontinence. The basis of the operation was similar to that previously reported, suggesting that correction of inadequate urethral support from the pubourethral-vesical ligaments and the suburethral vaginal wall is essential to alleviate the patient’s symptoms [3,4]. Moreover, the previous requisites on the surgical procedures remained, i.e. the operation was to be carried out under local anesthetic, as an ambulatory procedure, allowing the patient to return home on same day or the morning after surgery, without the need for postoperative catheterization.
Materials and Methods

Seventy-five consecutive patients with a typical history of stress incontinence but no previous surgery were entered into the study. Mean age was 52 years (range 36–81) and mean parity 1.5 (range 0–3). All women underwent a routine assessment in our continence clinic before they were considered for surgery. The assessment included full urodynamic investigation with urethral pressure profile measurements, urethrocystometry with stress provocation, urine flow measurement and a 24-hour pad test [5-7]. All patients were seen by experienced urogynecologists, who also undertook a gynecologic examination and made the final decision that the patient had stress urinary incontinence suitable for surgical correction. Before surgery the patients also completed a modified life quality assessment [8]. All postmenopausal women were on estrogen therapy, the majority using local estrogen rings (Estring®).

The postoperative evaluation, also undertaken in the continence clinic, was carried out after 2, 6, 12 and 24 months.

Informed consent was obtained from all patients and the study was approved by the local Ethics Committee of the University.

The instrument (Medscand AB, Johnson & Johnson, Sweden) (Fig. 1) comprises a non-disposable metal handle to which two metal or plastic disposable needles can be attached. The needles have an outer diameter of 5–6 mm. A prolene gauze sling 40 cm long and 10 mm wide, covered by a plastic sheath, is fixed to the needles. To insert the sling the proximal ends of the needles are attached to the handle with a specific coupling, allowing rapid and easy uncoupling once the needle tip has reached the abdominal skin, as described below.

Surgical Procedure (Fig. 2)

Immediately before the operation the patient was premedicated with 1 ml ketobemidone 5 mg/ml i.m. In the theatre she was initially sedated with 1 mg midazolam i.v., which was repeated as necessary to a maximum 5 mg during surgery. At the start of the operation fentanyl 0.05 mg was given i.v. and this dose was repeated at implantation of the sling.

The bladder was emptied via a transurethral Foley catheter. Local anesthetics (60–70 ml Citanest-Adrenalin® 0.25%) were injected in the abdominal skin just above the pubis symphysis and downwards along the back of the pubic bone to the space of Retzius. A 2 cm long transverse skin incision was made close to the superior rim of the pubic bone. In the last 25 operations, two 1 cm long transverse incisions 6 cm apart were made instead of the initially described skin incision. Vaginally 40 ml of 0.25% Citanest-Adrenalin was injected into the vaginal wall sub- and paraurethrally. An incision ≤1.5 cm long was made in the midline of the suburethral vaginal wall, starting approximately 0.5 cm from the outer urethral meatus. The incision was not allowed to encroach on the bladder neck, to avoid the tethered vagina syndrome and/or postoperative micturition disturbances [3]. Laterally from this incision a blunt dissection 0.5–1.0 cm long was made with scissors to each side of the urethra. This made it possible to introduce the tip of the needle in the correct starting position (Fig. 2). With a straight inserter introduced into the Foley catheter, the urethra and the bladder neck were identified. Using the instrument, i.e. the handle with the needles attached, the sling was placed around the urethra as follows: the tip of the needle was inserted into the prepared paraurethral incision on the right side of the urethra. The urogenital diaphragm was perforated and the tip of the needle was brought up to the abdominal incision by ‘shaving’ the back of the pubic bone. As soon as the needle tip had reached the abdominal skin incision the proximal end of the needle was disconnected from the handle and the sling, covered by the plastic sheath, was brought into position on this side of the urethra by pulling the needle upwards with the sling attached. The procedure was then repeated on the left side. When the sling had been placed in a U shape around the midurethra, the plastic sheath was withdrawn. The plastic sheath has two aims: it prevents contamination of the sling before insertion, and it enables the ends of the sling to be pulled up to the abdominal incision without trauma.

At this step of the operation the patient underwent cystoscopy to confirm an intact bladder. With 300 ml of