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Ambulatory urodynamics in the difficult patient

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Introduction: Inability to initiate a void during videocystometrography is occasionally seen in men with lower urinary tract symptoms. Frequently, this is associated with a history of difficulty in initiating micturation in public urinals. The absence of pressure-flow data makes interpretation of this phenomenon difficult. This study reports the results of home uroflowmetry and ambulatory urodynamics in a group where standard cystometrography failed to provide a voiding study.
Patients and methods: Sixteen symptomatic men (mean age [SEM] 46·4 [3·5]) unable to void during the course of a videocystometrogram underwent ambulatory urodynamics with monitoring of 3–4 storage-voiding cycles. Four had failed to provide a meaningful flow on uroflowmetry in the clinic and the mean (SEM) Qmax in the remainder was 11·1 (1·0) mL/s. Home uroflowmetry was performed where possible.
Results: In all 16 men, the ambulatory study provided pressure-flow data for analysis which are presented in detail. During voiding, five were urodynamically obstructed, seven had a low pressure-low flow state and four were completely normal. Four of the five obstructed men proceeded to surgical intervention and are being followed-up. Four patients showed detrusor activity consistent with a diagnosis of detrusor instability which was not identified by conventional investigation.
Conclusions: This study shows that ambulatory monitoring can provide the diagnosis in cases where conventional studies have limitations. In this group the majority were unobstructed and five of 16 had outflow obstruction. Urodynamic evidence of instability was identified in four of these patients. Ambulatory monitoring represents an essential adjunct to the urodynamic evaluation of such patients.

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Non-invasive urodynamic assessment of bladder outlet and detrusor function

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Introduction: Bladder outflow obstruction can only be assessed objectively by pressure/flow studies. The main arguments against their widespread clinical application are the invasiveness of intravesical pressure recording, cost of equipment, time, and measurement difficulties. Thus, flow rate recordings are popular, although in principle limited in information, and pressure is the key parameter for determining obstruction. Theoretical considerations show that the degree of obstruction could also be deduced from the measurement of two values: maximum flow rate and iso(volu)metric bladder pressure both of which can be assessed non-invasively.
Methods: Until now, two non-invasive techniques for intravesical pressure recording have been suggested: a penile compression technique, by Gleason *et al.* (ICS 1993) and the use of a modified condom catheter by Schäfer *et al.* (AUA 1994). Both techniques assess the isometric pressure extracorporeally when either the patient tries to void against a compressed/closed urethra, or when flow is interrupted during voiding. We have continued our series of measurements on patients and volunteers using various modifications of the condom technique and investigated the applicability, limitations, reproducibility, and accuracy of non-invasive pressure measurement compared to suprapubically recorded intravesical pressure.
Results: Adhesion of the condom device to the penis and elastic deformation, as well as the prevention of leakage, can make the procedure unpleasant. However, these problems can be minimized when the patient is able to cooperate and support the device manually. The data presented at the ICS 1995 confirm our values although some authors only assessed reproducibility but not accuracy and one compared condom pressure to CMG voiding pressure. Comparing the non-invasive pressure with suprapubically recorded values, the values were mostly lower than the expected isometric increase. The differences can only be explained by detrusor inhibition.
Conclusions: Non-invasively recorded pressures require careful plausibility controls. High pressure at low flow can be accepted as proof of obstruction, but not used for grading. Low pressure cannot exclude obstruction.

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Efficacy and tolerance of intravesical oxybutynin for detrusor hyper-reflexia: a randomized, double-blind placebo-controlled dose-ranging study

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Introduction: Oral oxybutynin, despite being the mainstay of treatment for hyper-reflexia, may not be tolerated well by a proportion of patients. Intravesical oxybutynin has been reported to be more effective and better tolerated despite a high plasma concentration [1]. There have been no dose-ranging studies to determine optimum drug usage.
Patients and methods: Twenty-four neuropathic patients with proven detrusor hyper-reflexia were recruited in two centres. Each patient had four bladder instillations, containing placebo, 2·5 mg, 5 mg or 10 mg oxybutynin. At least 48h of washout were allowed between successive instillations. Ambulatory urodynamics was used to monitor detrusor activity for two natural fill/void cycles, one before and one immediately after instillation. In addition, 10 patients had urinary incontinence assessed after each instillation by pad testing. Any adverse events were noted for all patients.
Results: Overall, oxybutynin significantly reduced urinary incontinence, the mean post-treatment pad weight was estimated at 20% of the post-placebo pad weight (analysis of variance $P < 0{\cdot}05$). Analysis of median pad-weight gains showed a trend towards greater efficacy with increasing oxybutynin dose. Despite this, there was no significant difference in the number of unstable waves after each treatment. Four patients experienced an adverse event that could be attributable to oxybutynin; two with a dry mouth, one with blurred vision and one with facial flushing. The facial flushing only occurred at a dose of 10 mg, otherwise no adverse event was dose-dependent.
Conclusions: Topical oxybutynin appeared to reduce urinary incontinence associated with detrusor hyper-reflexia. There was a trend towards increasing efficacy with increasing drug dose. All doses were well tolerated.
1. Massad CA *et al.* J *Urol.* 1992; 148:595–7

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Transcutaneous neurostimulation for irritative bladder symptoms

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Introduction: Patients with refractory irritative bladder symptoms are encountered frequently. We report our experience in treating 30 such female patients with transcutaneous electrical nerve stimulation (TENS).
Patients and methods: All patients were assessed by endoscopy and urodynamics. The mean symptom duration was 8 years; none had responded to standard therapy. A frequency-voiding chart was completed throughout treatment. Bladder pain was scored on a visual analogue scale. The electrodes of a 'Biotens' stimulator were taped to the S3 dermatomes of each patient. Current was applied at a frequency of 10 Hz, 200 ms pulse-width in continuous mode during waking hours for one week.

Results: Twenty-four patients completed the treatment:. six patients had detrusor instability and one had chronic interstitial cystitis: 17 patients were diagnosed as having sensory urgency. Nineteen reported a significant improvement in their daytime frequency, 13 noticed a significant improvement in nocturia and 14 reported a statistically insignificant improvement in their urgency. Two of five patients with bladder pain noted symptomatic improvement.
Conclusions: There was a significant (P = 0·001) symptomatic response rate of between 40–79% in this group of patients who remained unresponsive to standard therapy. TENS appears to be effective for the treatment of frequency and nocturia. The role of this treatment modality for urgency and bladder pain requires further study.

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Case-directed management of urinary stress incontinence

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Introduction: Personal preference for the choice of procedure for treating female urinary incontinence may prevent some patients from achieving optimal results. Surgery that is selected according to both functional and anatomical appearances of the female outlet should produce the best results.
Patients and methods: Two hundred and seventy-one operations were performed in 210 female patients with urinary stress incontinence. Most of these patients had undergone previous surgery (70%), which is one of the confounding issues in assessing the results of surgery.
Results: The mean age of the patients was 49·2 years (range 22–80) with a mean follow-up of 4·8 years (range 6 months to 10 years). The overall long-term success rate (cure of stress incontinence) was 60%.

Procedure	n =	% Success
Bladder neck suspension	128	54·6
Open/colposuspension/VOSURP	49	70
Urethroclesis	23	63·3
Injectables	71	64·7
Overall success	271	60

Conclusions: The overall outcome for surgery for stress incontinence is never as good in the long-term as is expected from early results. A single procedure carries a disappointing long-term success rate of approximately 60%. Combination procedures at a single operation and multiple operations in a patient performed over a period will often provide a cure of incontinence, as was encountered in 20 of our patients who were rendered eventually dry after two to five procedures. However, we have not yet discovered the optimal procedure for the treatment of stress incontinence, although our experience has suggested that certain procedures are more likely to fail in certain patients.

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The Autocath 100™ intra-urethral incontinence device

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Introduction: The Autocath 100 is a new non-surgical intra-urethral device used for the treatment of stress urinary incontinence or retention in selected females. The device is fitted under local anaesthesia. We present the results of a 3-month evaluation study.
Patients and methods: The device was fitted to 10 women (age range 48–72 years, mean 59). All patients underwent a urodynamic assessment, including urethral profilometry and cystoscopic examination, before the device was fitted. After fitting, all patients completed bladder record sheets, serial questionnaires and underwent regular examinations.
Results: Six of the patients tolerated the device well and three have requested that the device be removed. Malfunction of the device occurred in one case and nine of the patients are dry, one has mild to moderate incontinence and none had no improvement at all. The infection rate was 39%, and no stone formation occurred.
Conclusions: The mid-term results of this new device appear promising. Long-term evaluation of the device is now required to assess its effect on the bladder mucosa, the urethra and establish the optimum time intervals between cleaning or replacing the device.

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Endoscopic correction of intractable stress incontinence with uroplastique. A follow-up report

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Introduction: Endoscopic correction of stress incontinence can be performed using a variety of materials. Politano introduced Teflon paste for the treatment of stress incontinence. Since then collagen and more recently bioglass have been used. However, all have been associated with foreign body granulomatous reactions, migration and extrusion. Silicone microimplants (Uroplastique™) consist of a sterile mixture of solid polydimethylsiloxone particles suspended in a plasdone hydrogel carrier, which allows it to be delivered as a paste. This study provides a follow-up report on Uroplastique for correction of intractable stress incontinence.
Patients and methods: Between January 1992 and March 1995, 34 patients with genuine stress incontinence were treated with transurethral submucosal injection of Uroplastique. Pre-filled syringes were loaded on to a piston gun and the implants injected submucosally. The procedure was performed as a day case under general or local anaesthesia.
Results: The follow-up ranged from 1 to 36 months. The success rate at one month after injection was 90%, at 3 months 75%, at one year 70% and 40% at 2 years. Complications were minor and patient satisfaction was high. Many more patients and a much longer follow-up are needed before any further meaningful conclusions can be drawn about the success or failure of this material. Nevertheless, the results so far are encouraging as all the patients treated had intractable stress incontinence with multiple failed previous surgery.
Conclusions: These results indicate a reasonable success rate in patients with intrinsic sphincter deficiency. There is no place for periurethral injections in urethral hypermobility. Uroplastique is a safe and effective treatment for intractable stress incontinence and is especially suitable for the unfit.

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Cimetidine in the treatment of interstitial cystitis

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Introduction: Interstitial cystitis (IC) is a chronic condition characterized by frequency, urgency, dysuria, pelvic pain and dyspaerunia, negative urine cultures and bladder biopsies that show an increased infiltration of mast cells. Mast cells have long been associated with histamine secretion and may play a significant role in IC. Early reports of treatment with histamine antagonists have been encouraging with some 50% of patients having symptomatic relief.
Patients and methods: Over a 15-month period, 31 patients (28 women and three men) aged 24–63 years (mean 41) with biopsy-proven IC were given cimetidine 200 mg three times daily for relief of their intractable symptoms of pain, dysuria, urgency and frequency. Patients were treated for periods of 1–15 months (mean 6·6 months).
Results: To date, 22 of the 31 patients (71%) have experienced varying degrees of symptomatic relief, with abolition of pain in 14 (45%). Eight of these patients (26%) have had complete cessation of all symptoms for up to 15 months. Six patients (19%) had no improvement in their symptoms and treatment has been discontinued. In the final three patients the follow-up was incomplete.
Conclusion: In the absence of a control group, the results must be interpreted with caution, but the encouraging results (71% symptomatic relief) and simplicity of the treatment makes cimetidine a possible useful addition in the treatment of patients with painful IC.

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Urogenital criteria in Parkinsonism

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Introduction: It is important for urologists to be able to differentiate between the various presentations of Parkinsonism, in particular idiopathic Parkinson's disease (IPD), and multiple system atrophy (MSA). In MSA there is selective loss of anterior horn cells in the Onuf's nucleus in the sacral cord, resulting in denervation of the striated sphincters. Thus, if the condition is thought to be MSA, then urological surgery should be avoided. This study describes the uro-genital criteria in favour of MSA and IPD.
Patients and methods: The clinical presentation was studied in 52 patients with probable MSA and 41 patients with IPD. Anal sphincter EMGs were recorded in patients with MSA and seven patients with IPD, but was not used as a diagnostic criteria in this study.
Results: Twenty-nine patients (60%) with MSA had urinary symptoms preceding or presenting with Parkinsonism; 33 of the 35 patients with IPD developed urinary symptoms following the neurological diagnosis. Urinary incontinence was the significant feature in 38 patients with MSA, while urgency and frequency but not incontinence were the predominant symptoms in 35 patients with IPD. Of the patients with MSA, 93% were impotent and in 48% of these patients impotence preceded the diagnosis of MSA. Of the patients with MSA, 66% had a significant post-micturition residual volume as opposed to only 16% of patients with IPD. All 11 patients with MSA who underwent TURP were incontinent post-operatively.
Conclusions: The proposed urogenital criteria in favour of MSA are:
1) Urinary symptoms preceding or presenting with Parkinsonism
2) Impotence preceding or presenting with Parkinsonism
3) Urinary incontinence
4) Significant post-micturition residual volume
5) Worsening bladder control after urological surgery

Such patients should be offered medical management rather than urological surgery for their urinary symptoms.

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Giggle incontinence – urodynamic findings and long-term follow-up

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Introduction: Giggle incontinence (GI) is traditionally described as a self-limiting disorder consisting of complete emptying of bladder contents provoked by giggling. A detailed urodynamic assessment has not been reported so far in this group of patients. We present a retrospective analysis of the urodynamic findings in 18 patients diagnosed as having giggle incontinence 1–14 years ago.
Patients and methods: The urodynamic records of 18 patients, diagnosed as having GI, were reviewed. A postal questionnaire was administered to patients who were contactable. The clinical outcome of GI in those patients was documented and correlated with the previous urodynamic findings. Twelve of 18 patients answered the questionnaire. Six patients were not contactable for various reasons.
Results: Contrary to traditional beliefs, 10 of 18 patients had abnormalities on the original urodynamic assessment. These abnormalities included detrusor instability, genuine stress incontinence and urethral instability. The follow-up ranged from 1–14 years (mean 7). Complete resolution was noted in five of 12 patients, partial improvement with or without anticholinergics in two and persistence of GI in the rest. Urodynamic abnormalities were found in those with, as well as without, resolution of GI. The relationship between GI and the observed urodynamic abnormalities is explained along well-established concepts.
Conclusions: A significant proportion of patients with GI have underlying urodynamic abnormalities, spontaneous resolution is not the rule in all patients with GI, and spontaneous resolution of GI is seen to occur irrespective of the presence or absence of underlying urodynamic abnormalities.