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Bowel disturbance following bladder reconstruction

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Introduction: The use of bowel segments in urinary reconstruction may result in bowel disturbance, but the aetiology is unclear and its incidence in different patient groups is unknown. We have studied bowel disturbance in patients undergoing bladder reconstruction, continent diversion, clam enterocystoplasty for detrusor instability (DI) and ileal conduit diversion.
Patients and methods: The study comprised 126 patients following reconstruction and 80 following ileal conduit. The severity of symptoms (frequency of defecation, bowel opening at night, incontinence to flatus and faeces, explosive diarrhoea, urinary mucus production and infection) and quality of life were surveyed.
Results: At present, 73 of 126 reconstructed patients (58%) and 42 of 80 ileal conduit patients (53%) have responded. Among 73 reconstructed cases, 18 patients (eight reconstruction and 10 DI patients) had symptoms before surgery, but their bowel symptoms have not worsened significantly following operation.

Of patients who were asymptomatic before operation, 38% described new bowel symptoms afterwards and these symptoms were more common after enterocystoplasty for DI than after reconstruction and both groups had more bowel disturbance compared to controls with an ileal conduit. These symptoms included: flatus leakage – 23% *vs* 0%; occasional faecal incontinence – 22% *vs* 14%, explosive diarrhoea – 13% *vs* 5%, mucus production – 49% *vs* 28% and occasional urinary infection – 62% *vs* 28%; 10% regretted undergoing the operation because of these side-effects.
Conclusions: After enterocystoplasty for DI, patients are more likely to have bowel symptoms than are those after bladder reconstruction. The development of new bowel symptoms is associated with poor patient satisfaction. Its aetiology is unclear and may be related to underlying neuropathic bowel problems, bile salt malabsorption and changes in motility.

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'Nerve sparing' cystectomy and substitution cystoplasty in patients of either sex – limitations and techniques

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Introduction: Cystectomy and orthotopic substitution cystoplasty is becoming accepted for male patients with bladder cancer. There is little experience of its use in women.
Patients and methods: We have now performed cystectomy and orthotopic substitution cystoplasty in 79 patients, eight of whom were women. Follow-up ranges from 1 to 13 years with a mean of 7 years.
Results: Overall, 80% are continent without further treatment and 60% of the men who were potent pre-operatively are potent post-operatively. The best results were achieved by an essentially retrograde cystectomy in both sexes and are only achievable in women in this way. Interestingly, continence was achieved more easily in women than in men, although pathological delineation of the tumour pre-operatively and technical considerations per-operatively make both the selection and the procedure more demanding in women than in men.
Conclusions: Cystectomy and orthotopic substitution cystoplasty is possible in patients of either sex and should be offered to all patients as an alternative to ileal conduit urinary diversion unless pre-operative assessment suggests that the urethra must be removed with the bladder, which is rare in men and uncommon in women. In such patients a continent diversion may be the preferred option.

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Further experience with the valved S-shaped rectosigmoid pouch for continent urinary diversion

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Introduction: Stoma-free continent urinary diversion has been a preferred method in third-world countries for socio-economic and climatic reasons. The valved, S-shaped rectosigmoid pouch is a low-pressure reservoir constructed by detubularization and S-reconfiguration of 30 cm of the intact bowel. Continence is dependent on the anal sphincter. The pouch is functionally isolated from the proximal colon by an intussusception valve and the ureters are implanted into the pouch by an anti-reflux technique. The construction is protected by tube caecostomy for about 10–15 days.
Patients: The procedure was performed in 45 patients during the last 6 years. The indications were bladder carcinoma (36 patients), giant vesicovaginal fistula (three patients), bladder extrophy (three patients), urethral trauma (two patients) and neuropathic bladder (one patient).
Results: There was one early death due to mesenteric artery thrombosis. Early complications were prolonged ileus (four patients) and small bowel obstruction requiring surgical intervention (one patient). A late complication was the sliding of the nipple valve in four patients (8·8%) which was revised successfully (twice in one patient). Forty-two patients (93·3%) are continent and dry during the day and night with evacuation intervals of 3–6 h. Two patients have nocturnal incontinence and one patient was incontinent both day and night. Mild hyperchloraemic acidosis was noted in six patients with slightly decreased renal function and four of them are on alkali therapy. Cystometry of the pouch showed a capacity of 450–1200 mL (mean 700). The mean pressure at maximum capacity was 22 cm H_2O (range 10–32).
Conclusion: The detubularized, valved S-shaped rectosigmoid pouch is a satisfactory method of stoma-free continent urinary diversion.

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Antireflux nipples *versus* afferent tubular ileal segment in 70 patients with a low pressure ileal reservoir. Long-term results of a prospective randomized trial

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Introduction: Absence of an isolated intravesical pressure rise due to coordinated contractions during voiding by patients with a low-pressure ileal reservoir may reduce the importance of reflux. We have determined whether these patients require a flap-valve type of antireflux system or whether the upper urinary tract could be sufficiently protected by unidirectional ureteric peristalsis of the ureters and an afferent tubular ileal segment.
Patients and methods: From 1985, 70 men with an ileal bladder substitute were randomized; 35 patients had an anti-reflux nipple valve (18 with an intussuscepted nipple and 17 with a split-cuff nipple) and 35 had end-to-side (Nesbit) ureteroileal anastomoses to a 15–20 cm afferent ileal segment. Survivors were observed for at least 5 years.
Results:

	Antireflux nipple Median (range)	Afferent ileal segment
Evaluable kidneys	67	69
Observation time (months)	57 (3–119)	45 (3–115)
Serum creatinine pre-op (μmol/L)	103 (62–244)	97 (75–180)
Serum creatinine 1 yr postop.	112 (76–197)	102 (80–134)
Serum creatinine 3 yr postop.	112 (87–255)	114 (80–139)
Serum creatinine 5 yr postop.	123 (82–399)	101 (81–136)
Pyelonephritis > 30 days postop.	4	1
Ureteric obstruction	9/67 (13%)	2/69 (3%)

$p = 0{\cdot}024$. χ^2 test

Conclusions: In our hands, severe upper urinary tract damage occurs significantly more often with an anti-reflux nipple technique than with an isoperistaltic ileal tubular segment. The latter also permits resection of the ureters and peri-ureteric lymphathics above the common iliac arteries which may reduce the risk of both ureteric recurrence (due to distal ureteric carcinoma *in situ*) and of anastomotic strictures (due to distal ureteric ischaemia).

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Long-term follow-up of renal function in patients after undiversion or primary urinary tract reconstruction

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Introduction: There is considerable discussion about the value of reflux prevention when the ureters are re-implanted into a substitute bladder, particularly after cystectomy for bladder cancer. To study this point we have reviewed our patients who underwent urinary undiversion or primary reconstruction into a substitution cystoplasty during the period 1982–1992.
Patients and methods: Of 107 undiversions and 105 other patients with orthotopic substitution cystoplasties, 101 patients had at least one DMSA renal scan pre-operatively and at least one post-operatively, and at least one and usually three voiding cystography studies post-operatively to show the presence or absence of reflux. To avoid confusion, only those patients who had more than one cystogram and who showed consistent findings have been included in this review.
Results: There was no evidence of any deterioration of renal function or of scarring of the kidney (or any other problem) that could be attributed to reflux *per se*. Whenever a problem occurred in follow-up it was usually attributable to poor bladder emptying or some other problem with the bladder, with or without superimposed urinary tract infection.
Conclusion: An anti-reflux mechanism may be desirable in certain circumstances and may make a more secure re-implantation of a ureter into a substitute bladder in all circumstances but does not appear to confer any particular advantage as far as the upper urinary tracts are concerned in most patients.

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The long-term follow-up of urethroplasty for non-traumatic urethral strictures

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Introduction: Urethroplasty is the best option for traumatic strictures but its role in non-traumatic strictures is more controversial. We have reviewed the long-term results of 65 patients with non-traumatic strictures treated by urethroplasty.
Patients and methods: Twenty-seven patients were treated by a two-stage Turner Warwick scrotal inlay procedure and 38 by a pedicled flap of preputial penile skin. Follow-up was from 3 to 16 years and 1 to 10 years, respectively. Most patients had undergone previous manipulation before urethroplasty. The scrotal inlay series 'straddled' the introduction of the optical urethrotome, and the pedicle flap group had usually had optical urethrotomy(ies).
Results: In the scrotal inlay series, there was an overall recurrence rate of 44%, but most of these were late (60%, 26% of all cases) – between 4 and 11 years after the second stage. In the pedicled flap series, the stricture rate was much lower (27%) but again most of these were late (66%, 18% of all cases) – between 2 and 6 years after surgery and, most importantly, every recurrence had undergone at least two previous manipulations, virtually all optical urethrotomies (at the 12 o'clock position). There were no recurrent strictures in either group who had undergone one or no previous procedures.
Conclusions: Urethroplasty gives excellent results in the treatment of non-traumatic urethral strictures, but this is compromised by repeated optical urethrotomy. Particularly in the younger patient, optical urethrotomy should only be performed once, and then at the 6 o'clock position to reduce the likelihood of fibrosis in the roof strip at the time of surgery.

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Early experience with the use of buccal mucosa for substitution urethroplasty

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Introduction: Most patients undergoing urethral reconstruction for reasons other than a short post-traumatic proximal urethral stricture undergo some form of 'patch' urethroplasty in which the patch is derived as a flap or free graft from local genital skin. Buccal mucosa as a free graft is an alternative introduced recently.
Patients and methods: Thirty-nine patients underwent urethral reconstruction using either a patch or a tube graft of buccal mucosa harvested from the inside of the cheek(s), with a follow-up of 6 months to 3·5 years. All patients had at least one post-operative X-ray in their follow-up evaluation. All were one-stage procedures.
Results: The handling characteristics of buccal mucosa were better than genital skin and bladder mucosa and resembled those of post-auricular skin. There was no short-term 'failure of take'. Thus far, only three patients have suffered recurrent stricture, none of which is directly related to the urethroplasty itself.
Conclusion: As a patch graft, these results are at least as good as patch urethroplasty with a preputial or penile skin flap and substantially better than scrotal skin. As a tube graft, they are substantially better than either preputial/penile skin or scrotal skin. Although the follow-up is so far short, buccal mucosa is beginning to replace alternative tissue substitutes in uncomplicated strictures of the bulbar urethra and has become the material of choice for one-stage reconstruction of the penile urethra.

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Dilatation *versus* internal urethrotomy as out-patient treatment for male urethral strictures – a prospective, randomized clinical trial

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Introduction: The aims of this study were to determine the optimal out-patient treatment for male urethral strictures and the factors influencing the success of initial treatment.
Patients and methods: Male patients with proven urethral strictures were randomized to undergo either filiform dilatation (106 patients) or internal urethrotomy (104 patients) as an out-patient procedure under local anaesthesia. The life-table method was used to estimate the survival function for the two treatment methods (survival time was regarded as the time to the first recurrence of stricture) and the log-rank test was used for comparing the efficacy of the two treatments. Co-factors such as aetiology, clinical presentation, number, length and site of the stricture, complications during the procedure and previous stricture treatment were evaluated with regard to their association with stricture-free survival using Cox's proportional hazards model with a discrete time scale.
Results: Life-table survival analysis showed no significant difference ($P = 0·22$) between the treatments with regard to stricture recurrence. At 36 months, the recurrence rate was 16% higher in the dilatation than in the urethrotomy group, and at 48 months it was 10% higher in the dilatation group, but these differences were not statistically significant. Hazard-function analysis showed that the risk of stricture recurrence was highest at 6 months, whereas the risk of failure after 12 months was very small. The only co-factor significantly associated with stricture recurrence was the length of the stricture ($P = 0·001$). For each 1 cm increase in stricture length the risk of recurrence was increased by 1·22 (95% CI 1·05–1·43).
Conclusions: There is no significant difference in the success of internal urethrotomy compared to filiform dilatation as initial out-patient treatment of male urethral strictures. The length of the stricture is the only co-factor significantly associated with stricture recurrence.