

Incontinence (1)

12

Clinical results of artificial sphincter in the treatment of post-prostatectomy incontinence

Kap Byung Kim, Scott Litwiller and Anthony R. Stone
Department of Urology, University of California Davis Medical Center, 4301 X Street, #2210, Sacramento, CA 95817, USA

Introduction: The artificial urinary sphincter (AUS) has been available in its present form for over 12 years and its acceptability for post-prostatectomy incontinence is increasing. A 10-year experience with the AUS in post-prostatectomy incontinence is reviewed.

Patients and method: Seventy men aged 51–83 years (mean 72.1) underwent AUS implantation (bulbar cuff); 61 had prostate cancer (16 irradiated) and nine had benign disease. The initial surgery was radical prostatectomy (56) and transurethral resection (14).

Results: Pre-operative urodynamics confirmed sphincter deficiency, 24 exhibited detrusor instability and 13 had low compliance. Endoscopically, eight had an anastomotic contracture, necessitating incision. The cuff size implanted was 4.5 cm (62 patients), 4.0 cm (6), 5.5 (1) and 5.0 (1); 68 had a 61–70 cm reservoir, and two had a 51–60 cm device. Delayed activation was used in all. Before activation, five patients required intervention due to a peri-pump haematoma (2), pump repositioning (2) and pump malfunction (1). Following activation, 45 patients (64.4%) were continent, 19 patients (27%) had a significant improvement, and six (8.6%) were not improved. During follow-up, revision or explanation was required in 12 patients (17%) (urethral atrophy in six, inadequate reservoir pressure in three, pump malfunction in one, cuff leak in one and infection in four, two with erosion). Revision was required 6–43 months after implantation (mean 16 months) and, in most, continence was restored. Infection was always associated with urethral manipulation. The revision rate was 30% in irradiated cases, compared to 12% in the rest.

Conclusion: The artificial urinary sphincter is a safe and effective solution to post-prostatectomy incontinence. In this elderly, high-risk population, its revision and complication rates are acceptable.

13

The fate of the 'modern' artificial urinary sphincter with a follow-up of more than 10 years

S.D. Fulford, J. Hughes, G. Bales, S. Datta, M. Hickling and T.P. Stephenson
Cardiff Royal Infirmary, Newport Road, Cardiff

Introduction: The artificial urinary sphincter (AUS) was introduced into our practice in July 1981. Between then and the end of 1985, 68 were implanted, of which 55 have had a complete follow-up.

Patients and methods: Over half (32) were neuropaths, mainly congenital (25). Eleven were implanted for post-TUR sphincter weakness incontinence, and 12 for a variety of conditions: stress incontinence (2), trauma (2), female sphincterotomy for retention (2), ectopic vesiculae (1) and cuff around the bowel (5).

Results: In the neuropathic group, half (16) have had cuff failures, mostly after 5 years (10); six had pump failure/blockage, three a reservoir failure, and there were six erosions, three early, and three late. Four patients had smaller cuffs implanted for bladder neck shrinkage. Only one patient has had no problems. Despite this, 23 patients are satisfactory with normally functioning replaced AUS systems. Two patients have died of unrelated causes with normal function of their AUS, and three females explanted for erosion are dry on CISC.

In the TUR group, five have had cuff failure and one pump failure, five patients have died, but 10 of the sphincters are either still working or were at the time of death. This third group have done badly, mainly because of erosion (seven) and only three of these still have a functioning AUS.

Conclusions: Despite a high complication rate, the long-term results in the neuropath and post-TUR incontinence groups were better than expected. 80% if those who died of unrelated causes are included and

65% if the latter are excluded. This certainly justifies the long-term use of the AUS where simpler methods of achieving continence are inappropriate.

14

Long-term results of the artificial urinary sphincter in 250 patients

R. Popert, D. Kontothanassis and A.R. Mundy
Guy's Hospital and The Institute of Urology, London

Introduction: When all else fails in the treatment of urinary continence, most clinicians would accept that an artificial sphincter is indicated. The short-term complication rate is well documented but there are no large series with a long-term follow-up.

Patients and methods: In a total series of 400 patients, 250 have been followed for a minimum of 5 years. Half the group have neuropathic bladder dysfunction, 25% have post-prostatectomy incontinence, 12% have refractory stress incontinence and the remaining patients suffer a range of congenital and acquired problems.

Results: Ultimately, 95% of patients overall were made continent, 78% at the first surgical attempt. One in three patients with neuropathic bladder dysfunction required revision, often for a major problem. One in seven patients with post-prostatectomy incontinence required a revision, generally for a trivial problem.

Conclusion: An artificial sphincter should be considered earlier than it generally is in patients with difficult stress incontinence problems; sooner rather than later in post-prostatectomy incontinence when spontaneous recovery is clearly not going to occur; and otherwise only sparingly in neuropathic bladder dysfunction when attention to the bladder is more important and in other types of incontinence when the complication rate can be prohibitive, as after radiotherapy or when urethral self-catheterisation is a problem (e.g. some congenital and post-traumatic problems). Long-term erosion is a growing problem, occurring for no apparent reason, with an annual incidence of 5% per year after 5 years.

15

'Sling on a string'; for the surgical treatment of stress incontinence

M.G. Lucas, S.J. Emery, J.A. Thomas, B.A. Holt, K. Wareham and C. Roberts
Morrison Hospital, Swansea, SA6 6NL

Introduction: The 'Sling on a String' is a modification of the rectus sheath pubovaginal fascial sling, used for the surgical treatment of stress incontinence in women. The operation aims to achieve both the placement of autologous 'supportive' tissue around the urethra whilst minimizing dissection and reducing potential morbidity.

Patients and methods: Thirty-six patients with stress incontinence underwent this procedure. One had a concurrent colpopexy for prolapse and one had concurrent levatorplasty for anorectal incontinence. All patients had undergone pre-operative videourodynamics to exclude detrusor instability. An 8 cm length of anterior rectus sheath was harvested through a small suprapubic incision. This was mounted at each end on a length of No 1 Nylon thread and, through two lateral vaginal incisions, placed into a suburethral tunnel. Endopelvic fascial defects were created through which the threads were passed up to the rectus sheath, where they were used to adjust the tension on the sling before being tied. The follow-up ranged from 3 to 17 months (median 6 months).

Results: Thirty-three patients (91%) are currently cured of their stress incontinence, although four patients now have urge incontinence (overall 'dry rate' of 80%); 31 patients (86%) were able to void naturally before discharge home and five patients (14%) are still using intermittent self-catheterization to some extent post-operatively. One patient suffered a stroke in the first 48h.

Conclusions: These early results compare with any other surgical technique for treating stress incontinence and the procedure therefore merits formal comparison with the best existing procedures.

16

Long-term results of transabdominal urethral closure

C. Loh, G. Davies and T.P. Stephenson *University Hospital of Wales, Heath Park, Cardiff*

Introduction: Urethral closure is a useful last resort for certain types of urinary incontinence. The transvaginal approach is favoured by many but is associated with a high failure rate. We report our experience with the transabdominal approach using omental patching over the 'ink-well' urethral closure.

Patients and methods: Seventeen urethral closures (nine male and eight female patients, age 16–71 years, mean 42) were carried out transabdominally by one surgeon between 1986 and 1995. All patients but one had incontinence from a neuropathic cause. The urethra was divided near the bladder neck in the female and at the membranoprosthetic junction in the male patients. After the urethra was oversewn, a flap of healthy omentum was brought down and secured in place to cover the closure.

Results: One patient died post-operatively from hypertensive cardiomyopathy. Successful closure was achieved in all the other patients (follow-up 18–114 months, mean 55). Post-operative complications included one deep venous thrombosis, one recurrent epididymitis and one intractable bladder spasm. Two patients have since died, one of a ruptured bladder due to an uncatheterizable Mitrofanoff stoma and the other from end-stage multiple sclerosis.

Conclusion: We believe that transabdominal urethral closure in carefully selected cases is an effective treatment strategy for the control of urinary incontinence. We attribute our superior results to the use of omentum to protect the closure. Failure to achieve closure on the first procedure is not acceptable. The significant morbidity of this procedure is related to the general infirmity encountered in this category of patients.

17

An analysis of the competence of the sphincter mechanism of the supramembranous male urethra and its reconstruction after injury

C.R. Chapple, R. Turner Warwick and J.C. Wong *The Royal Hallamshire Hospital, Sheffield, The London University, Institute of Urology, The Royal Prince Alfred Hospital, Sydney, Australia*

Introduction: The competence of the distal sphincter mechanism is destroyed by circumferential sub-prostatic pelvic fracture urethral disruption defect injuries (PFUDDs); the anastomotic resolution of these provides ideal models for the functional assessment of the residual supra-verumontanal bladder neck sphincter (BNS) mechanism in isolation. Normally this is watertight and cough-competent; most patients are dry between voidings but have some leakage when their bladder is full and therefore, in effect, some frequency. Idiopathic unstable detrusor contractions also cause leakage. All pelvic fractures have a pelvic floor haematoma (irrespective of any urethral injury). When this is massive it retracts as it is replaced by dense retropubic haematoma-fibrosis (HF), surrounding the BNS antero-laterally often 'tethering it open' and impairing its competence.

Patients and methods: We conducted a retrospective review of a consecutive sample of 329 of a series of more than 600 PFUDD repairs between 1960 and 1990.

Results: One hundred and twenty-one patients had a meticulous resection of extensive antero-lateral HF, with a wrap of supple omentum, as part of the synchronous perineo-abdominal anastomotic repair required for particularly extensive PFUDD injuries; 85% of these subsequently had preservation of bladder neck control. However, 77 patients had a grossly patulous or sector-damaged BN as a result of the original accident or subsequent surgical misendeavours. A synchronous definitive reduction sphincteroplasty (DRS) resulted in restoration of BN control in 66% of these and manageable leakage in a further 10%.

Conclusion: A successful DRS avoids the expense and complications of an artificial sphincter. The skewed incidence of particularly complex cases in this internationally referred series is reflected in the 10% incidence of coincident rectal injuries. In a current prospective study of 27 of the 29 nationally referred PFUDDs, most had relatively short defects that were repaired perineally; two subsequently required a BN-plasty.