

## POST-ORTHOTOPIC NEO-BLADDER FEMALE URINARY INCONTINENCE: 10 YEARS EXPERIENCE

### Hypothesis / aims of study

Few reports in literature have discussed the causes and management of new onset urinary incontinence in women following orthotopic reconstruction. We present our experience with causes and treatment of urinary incontinence after cystectomy and orthotopic ileal neobladder substitution in women.

### Study design, materials and methods

Between January 1995 and December 2004, 48 female patients with primary invasive bladder cancer were treated with radical cystectomy and orthotopic ileal neobladder reconstruction. Eight patients (7.8%) 45 to 62 years old had urinary incontinence; 5 patients with total urinary incontinence due to pouch-vaginal fistula of them one had a short urethra, while 3 patients with severe stress urinary incontinence. All patients had an excellent pre-cystectomy continence. Six patients had muscle invasive transitional cell carcinoma, while 2 patients had muscle invasive squamous cell carcinoma and all had negative urethral margins. All patients were subjected to detailed history, physical examination, cystography, pelvic CT scan and cystoscopy. Treatment of incontinence was initiated at least 6 months following diversion. For objective analysis, patients requiring 2 or less pads daily were considered to have mild incontinence, those requiring 3-4 pads daily were classified to have moderate incontinence and those requiring more than 4 pads were considered to have severe incontinence.

### Results

All patients with pouch-vaginal fistulas were proved to have severe urinary incontinence. All were treated through transvaginal repair of the pouch-vaginal fistula in multiple layers with a Martius flap. One of those patients was proved to have a short urethra therefore; urethral elongation using a proximally based anterior vaginal wall tube was added. Post-operative follow-up of this group of patients showed complete cure in 4 patients, while in one patient closure of pouch-vaginal fistula was failed. That patient was treated 6-months after the previously failed closure of the fistula through a second transvaginal repair of the pouch-vaginal fistula with a martius flap and post-operatively showed complete dryness. Long-term follow-up of this group of patients showed both objective and subjective cure.

Of the 3 patients with stress urinary incontinence, 2 patients were considered to have moderate stress urinary incontinence while one patient was considered to have severe stress urinary incontinence due to short urethra. All 3 patients were treated by urethral elongation using a proximally based anterior vaginal wall tube. The developed anterior vaginal wall tube was advanced subcutaneously distal to urethral meatus and delivered just proximal to the clitoris. All patients were considered cured by objective and subjective measurements. However, one patient complained of urinary frequency despite complete dryness.

### Interpretation of results

Current treatment alternatives of urinary incontinence following radical cystectomy and orthotopic neobladder creation in women include transurethral injection of bulking agents, pubovaginal slings and conversion to cutaneous diversion. The incidence of urinary incontinence after radical cystectomy and orthotopic lower urinary tract reconstruction in women included in our study correlates with that of the literature. Most of the patients included in our study were diagnosed to be incontinent due to pouch-vaginal fistulas. The high incidence of pouch-vaginal fistula in our patients is due to non-routine omental interposition between the vaginal stump and neobladder at cystectomy and lower urinary reconstruction in those female patients.

Treatment of stress urinary incontinence in females with orthotopic neobladder using an anterior vaginal wall tube provides a unique alternative for such challenging group of patients. Transurethral injection of bulking agents has been complicated with short-term outcomes as well as pouch-vaginal fistulas. Traditional pubovaginal sling procedures are considered as the gold standard therapy for intrinsic sphincter deficiency in women. However, pubovaginal slings in women with urinary incontinence following radical cystectomy and orthotopic neobladder creation have been complicated with non-satisfactory results, the risk of hypercontinence with subsequent dependence on intermittent catheterization and the potential for bowel or neobladder injury due to dissection in the retropubic space. Unlike incontinent male patients, the placement of artificial urinary sphincter in women is especially difficult and associated with high rates of erosions and infection.

It is clear that the best way to manage the very specific complication associated with orthotopic bladder substitution in females is the prevention. This can be done through careful attention to surgical technique, better understanding of the anatomy of the female urethra and the routine use of a well-vascularized omental pedicle flap to be placed between the reconstructed vagina and the neobladder and properly secured to the levator ani muscles to separate the suture lines and prevent fistulization between the vaginal and urethroenteric anastomosis or neobladder.

### Concluding message

Urinary incontinence following radical cystectomy and orthotopic lower urinary tract reconstruction in women could be either secondary to pouch-vaginal fistula or sphincteric deficiency. Vaginal closure of pouch-vaginal fistulas and/or urethral elongation using an anterior vaginal wall tube are effective in treatment of urinary incontinence following radical cystectomy and orthotopic lower urinary tract reconstruction in women.

**FUNDING: NONE**

**DISCLOSURES: NONE**

**HUMAN SUBJECTS:** This study was approved by the Ethical Health Committee of Alexandria University, Egypt and followed the Declaration of Helsinki Informed consent was obtained from the patients.