

URINARY INCONTINENCE FOLLOWING RADICAL SURGERY IN RECTAL CANCER

Aims of Study

This study was made to analyze postoperative incontinence following radical surgery in rectal cancer with special reference to effectiveness of pelvic autonomic nerve preservation and clean intermittent self-catheterization.

Methods

163 patients (93 males, 70 females) with an age distribution of 29-89 (mean 57.1 ± 12.3) were studied. Incidence and type of incontinence were compared with the following categories.

1) method of surgical procedure, 2) method of pelvic autonomic nerve preservation, 3) relationship to radiation therapy, 4) results of conventional cystometry and external urethral sphincter EMG, 5) effect of clean intermittent self-catheterization (CIC) in controlling incontinence.

Surgical procedures included 53 sacro-abdominal amputations (S), 46 Mile's procedures (M), 17 pull through operations (PT) and 47 anterior resections (A). Cases were classified in three groups under the method of pelvic autonomic nerve preservation. They were 53 BNP (at least the bilateral S4 nerve is preserved), 43 UNP (at least the unilateral S4 nerve is preserved) and 67 ED (without nerve preservation). In 30 cases, preoperative radiation therapy of 30-60 Gy was given. Effect of radiation therapy in postoperative incontinence was compared. In all cases postoperative detrusor activity was studied by conventional gas cystometry and was classified as normal detrusor (N), underactive detrusor (UAD), overactive detrusor (OAD) and low compliance bladder (LC). The external urethral sphincter EMG was evaluated in 141 cases. Result was classified as normal (N) and non-relaxing (NL). Effectiveness of CIC in controlling incontinence was judged by the disappearance of incontinence.

Results

Incidence of postoperative incontinence was 67 /163 (41.0%). Types of incontinence observed were, overflow 54 (80.6%), stress 9(13.4%) and urge 4 (6.0%) . 54.7% of overflow incontinence was associated with low compliance bladder due to preoperative radiation therapy.

Incidence of incontinence was significantly lower in anterior resection 12/47 (25.5%) than in other procedures associated with perineal surgical procedures. S21/53(39.6%), M24/46(52.1%), PT10/17(58.8%)($p < 0.025$)

As regards to pelvic autonomic nerve preservation, incidence of incontinence in ED 35/67 (52.2%) was significantly higher than in BNP 15/53 (28.3%) and in UNP 17/43 (39.5%). ($p < 0.05$)

In conventional urodynamic study, 114/163 (69.9%) found to have abnormal CMG. In cases of ED, 47.8% had UAD with delayed sensation of bladder filling and large bladder capacity compared with BNP, UNP and cases with preoperative radiation therapy. ($P < 0.001$) Abnormal pattern of the external urethral sphincter were found in 71/141 (50.7%). It failed to relax on voiding, resulting in a large amount of residual urine. This condition was significantly higher in cases without pelvic autonomic nerve preservation. BNP 12/45(26.7%), UNP 14/38 (36.8%), ER 45/58 (77.6%).

67 cases required clean intermittent self-catheterization (CIC) after surgery. After the introduction of CIC, final disappearance of incontinence was obtained in 129/163 (78.6%) . The incidence of dryness was 90% in normal detrusor and 76.2% in underactive detrusor, while only 23.5% became dry in cases with low compliance bladder. ($P < 0.005$) 31 cases continued CIC more than 3 years (up to 28 years). All of the cases underwent extensive lymphnode dissection with non-relaxing type of the external urethral sphincter.

Conclusions

1. Incidence of incontinence was significantly lower in anterior resection than the other procedures associated with perineal surgery.
2. Pelvic autonomic nerve preservation reduced postoperative incontinence.
3. Preoperative radiation therapy resulted in a higher incidence of low compliance bladder with urinary incontinence.
4. Effect of intermittent self-catheterization in controlling incontinence was satisfactory in cases with underactive detrusor of large capacity, but was not so in low compliance bladder.