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CONTINENT URINARY DIVERSION IN WOMEN WITH SPINAL CORD INJURY.

Hypothesis / aims of study

Patients with spinal cord lesion mostly have bladder symptoms such as urinary incontinence and voiding disorders. If conservative measures are unable to resolve these problems, a continent urinary diversion might be an option. In this article we describe the long term results of 24 women with a neurogenic bladder due to a spinal cord lesion and a continent urinary diversion.

Study design, materials and methods

It's a retrospective study combined with a small questionnaire about quality of life. Twenty four female patients with a spinal cord lesion had surgery between 1993 and 2008. The mean age was 41 years (16-65) and the duration of the spinal cord lesion before this operation was 6.7 years (0.7-64.7). The cause of the spinal cord lesion was predominantly traumatic (15 times), but also iatrogenic (3 times), vascular (3 times), oncological (2 times) or infectious (1 time). Nineteen females had a complete spinal cord lesion and 5 females an incomplete one. Eight females ware tetraplegic with limited hand function; the other 16 females were paraplegic. Urodynamic investigation was performed before the operation: 17 patients had neurogenic detrusor overactivity (Upper Motor Neuron lesion) and 7 patients showed a neurogenic acontractile detrusor (Lower Motor Neuron lesion). Seventeen women performed clean intermittent catheterisation (CIC), 11 women were depended on help from care takers. Five women had an indwelling catheter before the operation. In spite of catheterisation and medication 19 women still had incontinence.

From 1993 till 1999 a complete Indiana pouch was made in 7 patients, with detubularisation of the colon ascendens made into a pouch with reimplantation of both the ureters and creation of an umbilical stoma with the native bladder left in situ. From 1999 the operative technique was changed and 15 women got a modified continent urinary diversion. The bladder neck is closed, the native bladder is augmented with detubularised colon ascendens made into a semi-pouch and attached to the sagitally opened bladder. The last step is to create a continent outlet. The appendix (used 9 times) or terminal ileum (used 6 times) is attached to the umbilicus to create a hidden continent stoma. (See figure 1). In two patients with a LMN lesion an appendico-vesicostomy according to Mitrofanoff was performed. All operations were performed by the same urologist.

The small questionnaire consisted of a visual analogue scale (VAS) about improvement of Quality of Life due to the operation and whether or not they would have underwent the same surgery again.

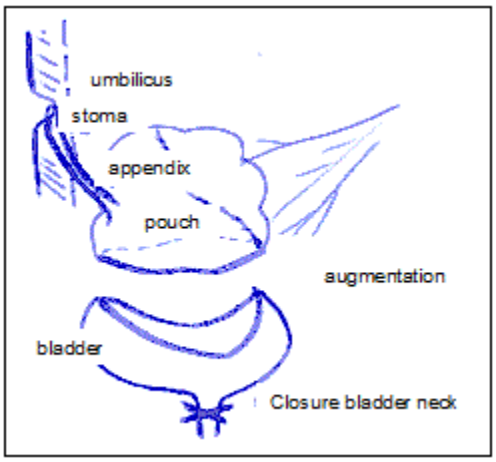

Figure 1: operative technique

Results

The mean follow up was 8.7 years (0.5-15) and the mean hospital stay was 25.8 days (12-55). Twenty three re-operations were performed in eleven patients. Early re-interventions were because of bleeding (1) or an abdominal wall abcess (1). In 4 of the 16 women where the bladder neck was closed a re-closure was necessary. The most pre-dominant complication was stoma stenose in ten patients (41.6%); this cc solved in an outpatient setting with excision of granulation tissue or dilatation. One time it was needed to re-attach the appendix to the pouch and one time a revision of the outlet was performed. There was a bladder empyema for which a cystectomy was performed in a patient were a classical Indiana pouch was made. Stone problems occurred in 2 patients (8.4%); this led to a lithotripsy or poucho-lithotomy. In the early post-operative period there were a number of problems which could be managed conservatively. They consisted of pulmonary problems (3 patients) and an urinoma in one patient. A few years after the operation one patient had a pouch rupture 3 times due to late catheterisation; this could be managed with a catheter for a week.

All stomata are dry and 23 out of 24 women (95%) can independently catheterise themselves in the wheelchair without a time consuming transfer. They regained a high amount of freedom and some of them could even return in the working process. According to data in the patients charts 23 out of 24 women are very satisfied with the result.

The small questionnaire was answered by 18 women. The mean improvement in QoL according to the VAS (1 no improvement-10 enormous improvement in Quality of Life after the operation) was 8.88. The mean VAS about whether they would do the operation again (with their present knowledge) was 8.66.

Interpretation of results

Comparison of our results to the literature isn't easy because of differences in operative techniques. It seems that the complication and re-operation rate is comparable with other studies (1.2, 3). An important outcome of the operation is to regain independency from care-takers. In the present study this was so for 95% of the women. This is higher than described earlier (3) were 50% of the women still needed help after the surgery.

Concluding message

A continent urinary diversion can be a good indication for serious bladder problems in women with spinal cord injury. Taken into account that this is major surgery with a high percentage re-operations therefore patient selection is crucial. Nevertheless the results are good and all the women can catheterise themselves and are highly satisfied.

References

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Is this a clinical trial?	**No**
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Was this study approved by an ethics committee?	**No**
This study did not require ethics committee approval because	**NONE needed: retrospective study**
Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**Yes**