

CONTINENT URINARY DIVERSION USING A CATHETERISABLE CHANNEL; THE MITROFANOFF PRINCIPLE: A SYSTEMATIC APPROACH TO THE KNOWN COMPLICATIONS

Hypothesis / aims of study

To report our series of patients who have had a catheterisable continent urinary diversion according to the mitrofanoff principle, in adulthood (1). It is known that this procedure has significant short and long term morbidity, with revision surgery often occurring (2). We aim to discuss the multitude of recognized complications with a view to suggesting an approach to their prevention and management.

Study design, materials and methods

A retrospective review of records of patients who underwent continent urinary diversion at our institution between 1996 and 2014 was undertaken. In addition a semi structured qualitative telephone satisfaction interview was carried out. The information extracted from the medical records includes basic demographic data, surgical technique particularly the type of channel used, the indication for surgery and the complications of surgery. In addition to a description of the complications we have reviewed the management of these according to the chronology of their occurrence.

The complications reported include leakage along the tract, inability to self catheterise, stomal stenosis requiring dilatation, surgical revision (partial or complete), recurrent urinary tract infection and other complications such as stone formation. Surgical technique is demonstrated by photographic illustration.

Statistical analysis of the telephone satisfaction interview was carried out using GraphPad Prism (version 5.01, www.graphpad.com). To compare the rate of stomal stenosis amongst different surgical techniques, a fisher exact test was used for statistical analysis. Time to surgical revision or tract dilatation was also analyzed and reported using Kaplan Meier curves.

Results

A total of twenty nine patients have been included in the study of which 9 were male and 20 female. The mean age of the cohort is 43.9 years (24 to 63). The underlying diagnosis triggering surgery in the majority of patients was idiopathic bladder dysfunction e.g. Fowlers syndrome (14/29) followed by neuropathic bladder (10/29), four patients had continent diversions following radical cystectomy for bladder cancer. 38% of patients had a standard appendiceal mitrofanoff, a further 48% had a yang-monti catheterisable stoma. These are further subdivided into single monti, standard double monti and a modified double monti. The location of the stoma is important and in our series 48% had their stoma in the right iliac fossa with the remainder at the umbilicus or midline lower abdomen. In more than half the patients their native bladder was the reservoir used with alternatives including an ileal neo-bladder or augmentation cystoplasty.

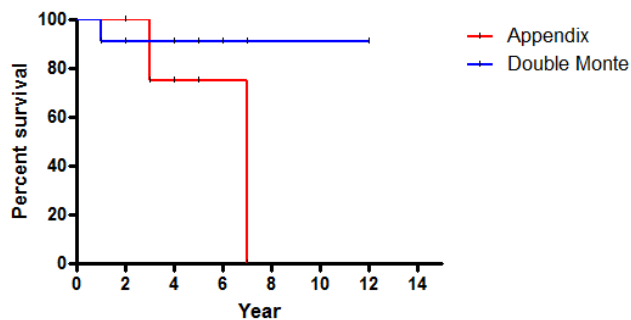
The complication rate as expected was significant (complete data available for 26/29 patients):

Table 1

Stomal stenosis requiring dilatation	9/26 (34%) – most required multiple dilatations
Skin stenosis requiring surgical revision	6/26 (23%)
Surgical revision (apart from skin stenosis)	7/26 (27%)
Leakage along channel	14/26 (54%)
Recurrent UTI	5/26 (19%)

Sub-analysis using the type of catheterisable stoma revealed a clinically significant difference in length of time to first surgical procedure between the yang-monti channel and appendix. The modified double monti appears to be the most durable and least stenotic.

Figure 1



Despite multiple surgical revisions 6/26 (23%) of patients have subsequently had ileal conduit urinary diversions.

Our telephone interview resulted in leakage to be reported as the most troublesome complication. The results of patient satisfaction with the procedure were equivocal with an equivalent number being happy and disappointed with the outcome of the procedure.

Interpretation of results

Our series shows that the construction of a catheterisable continent urinary diversion is a procedure with high risk of complication. It is, however, comparable to similar series in the published literature (3). It is clear from the results that patient selection is critical, particularly important is the indication for surgery. From our data it appears neuropathic patients do better. Our own modification to the standard double monty catheterisable channel by creating a spiral seems to be more durable.

Concluding message

The catheterisable continent urinary diversion is an extremely morbid procedure. However, with subtle modifications, we have demonstrated that the outcome can be slightly improved resulting in better quality of life for our patients.

References

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Disclosures

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