728

Fletcher S[1], Liu J[2], Boone T[1]
1. *The Methodist Hospital,* ***2.*** *Baylor College of Medicine*

A NOVEL TECHNIQUE FOR SURGICAL MANAGEMENT OF THE NEUROGENIC BLADDER: CONTINENT ILEOCECAL AUGMENTATION CYSTOPLASTY (THE "INDIANA AUGMENT")

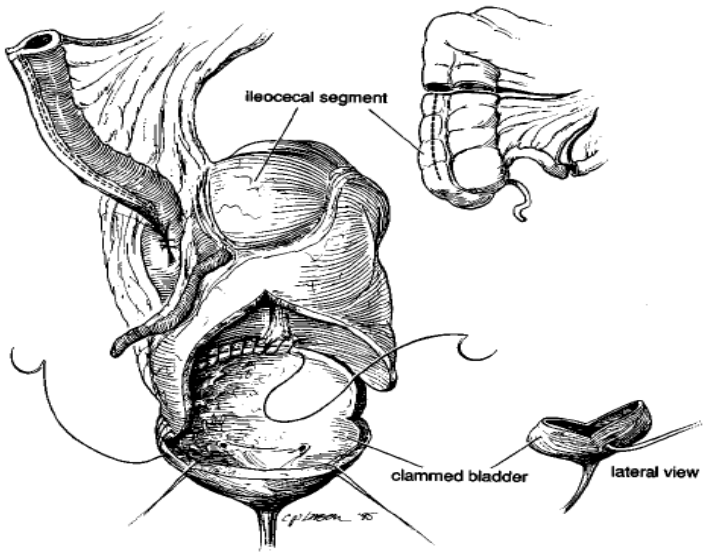
Hypothesis / aims of study

Neurogenic bladder with or without incontinence can be devastating for patients with neurologic illness. High pressure storage and voiding, as well as chronic urinary tract infections due to incomplete emptying are significant sources of morbidity for these patients.

Therefore, when conservative measures fail, the indications for urinary diversion are: continence, low pressure storage of urine, and complete emptying via self intermittent catheterization. Augmentation cystoplasty with a continent channel creates a continent, low pressure storage system, with an easily catheterizable cutaneous stoma. The primary aim of this study was to evaluate the success of a novel procedure, the continent ileocecal augmentation cystoplasty, or "Indiana augment", in terms of continence rates and ease of self intermittent catheterization. As a secondary aim, we evaluated intra-operative, early and late complication rates of the procedure.

Study design, materials and methods

Retrospective chart review of Indiana augment procedures by a single surgeon between 1993 and 2009 was performed. Subjects with neurogenic bladder and minimum 1-year follow up were included. All patients underwent the modified Indiana continent urinary reservoir procedure in which the large bowel portion of the ileocecal segment is used to augment the native bladder. The efferent limb of ileum proximal to the ileocecal valve is tapered. The ileocecal valve provides the continence mechanism for the catheterizable limb. Patient demographics, neurologic illness, NGB diagnosis, surgery details, concurrent operations, short term complications, estimated blood loss, continence outcomes and long term complications were recorded.



The continent ileocecal augmentation cystoplasty: bowel segment pictured upper right; frontal plane cystotomy pictured lower right.

Results

Fifty eight patients underwent Indiana augment, 35 of those were patients with neurogenic bladder who met inclusion criteria. Mean age at time of surgery was 39.8 (SD 12.8) years. Neurologic diagnoses included MS (n=12), spina bifida (n=9), and spinal cord injury (n=14). Urodynamic findings: decreased capacity (n=4), decreased compliance (n=4), detrusor external sphincter dyssynergia (n=5), DO incontinence (n=3), hypocontractility (n=5), or combination (n=14). Concurrent surgeries included: bladder neck closure (n=3), pubovaginal sling (n=4), hysterectomy (n=3), artificial urinary sphincter (n=1), and cystolithotomy (n=1). Mean EBL was 253.6 (SD 136.5). There were no intra operative complications. Short term Short term complications included: prolonged ileus (n=1), wound infection (n=1), acute post operative anemia requiring transfusion (n=1). Median follow up was 31 months. Long term complications occurred in 10 (29%), and included: recurrent symptomatic urinary tract infections (n=4), bladder stones (n=2), small bowel obstruction (n=1) and stomal revision (n=3). All patients were continent at latest follow up.

Interpretation of results

The Indiana augment provided continence for all subjects in the study. Other than three patients who underwent successful revision for stomal stenosis, all patients could easily perform SIC without re-intervention. The procedure was found to be technically feasible, with no intra-operative complications. Short and long term complication rates were similar to those seen with other urinary diversion techniques such as ileal augmentation cystoplasty with Mitrofanoff or Monti stomas.

Concluding message

This unique modification of the Indiana continent urinary reservoir is not technically difficult to perform. It is an excellent surgical option providing a low-pressure reservoir with a reliable continence mechanism and easily catheterizable stoma with few complications or need for re-operation.

References

1. Sutton M, Hinson JL, Nickell KG, Boone TB. Continent Ileocecal augmentation cystoplasty. Spinal Cord 1998;36:246-51.

Specify source of funding or grant	**Internal Funding**
Is this a clinical trial?	**No**
What were the subjects in the study?	**HUMAN**
Was this study approved by an ethics committee?	**Yes**
Specify Name of Ethics Committee	**The Methodist Hospital IRB**
Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**No**