Long Term Results of Augmentation Enterocystoplasty in Patients with Chronic Progressive Multiple Sclerosis

Daniel E. Nassau, Jerry G. Blaivas
Institute for Bladder and Prostate Research
Lenox Hill Hospital
Weill Cornell Medical College – New York Presbyterian
New York, NY

Introduction: Approximately 250-350K people in the US have Multiple Sclerosis (MS) and 50-90% of MS patients experience LUTS, most commonly due to NDO and DESD. Although a wide range of therapies are available, there is little data on long term management, especially in patients with severe disease.

Aims: To evaluate efficacy, morbidity and long term outcomes of augmentation enterocystoplasty in patients with chronic progressive MS with refractory voiding dysfunction.

Methods:
This was a retrospective observational study of 19 consecutive patients (1984-2008) performed by chart review and telephone interview. Primary outcomes included:

- Patient Satisfaction
- Morbidity and Mortality
- Urodynamic Parameters
- Upper Tract status
- Vitamin B12 levels

Preoperative Eval: History and Physical, Routine Labs and Vitamin B12, videourodynamics, cystoscopy, upper tract imaging with Sonogram or CT

Postoperative Eval: Every 3 months for 1 year, then Bi-annually, with alternating VUDS and renal/bladder sonogram.

Indications for Surgery:
- Augmentation EC: Refractory incontinence for >2 years due to NDO, low bladder compliance
- Continent abdominal stoma: inability/difficulty catheterizing the urethra (ex. Wheelchair bound patient with adductor spasticity)
- Ileovesicostomy: Unable to catheterize at all due to poor hand function or cognitive abnormalities

Results:

<table>
<thead>
<tr>
<th>Patients</th>
<th>19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women</td>
<td>14</td>
</tr>
<tr>
<td>Men</td>
<td>5</td>
</tr>
<tr>
<td>Age</td>
<td>26-70 (mean = 53)</td>
</tr>
<tr>
<td>Wheelchair Bound</td>
<td>13</td>
</tr>
<tr>
<td>Quadraplegic</td>
<td>10</td>
</tr>
<tr>
<td>Paraplegic</td>
<td>3</td>
</tr>
<tr>
<td>Follow-Up</td>
<td>3-28 years (median = 6.5 years)</td>
</tr>
</tbody>
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Primary Dx
- NDO + DESD: 10
- Low Bladder Compliance + DESD: 2
- Urinary Incontinence Sphincteric Incontinence: 2
- Stones: 4
- Reflux: 1
- Hydronephrosis: 1

Type of Surgery
- Bladder segment
- Continent Stoma: 0
- Ileovesicostomy: 5
- Nephrectomy: 1
- Pubovaginal sling: 2
- Bladder Neck Closure: 2

Stomal Stenosis: 2 patients
- Both underwent operative revision 3 and 7 years after surgery
- 1 underwent lysis of adhesions 3 and 7 years after surgery

Recurrent Febrile UTI: 2 patient

De Novo Stones: 1 patient – bladder stone 5 years s/p EC
- Removed from bladder under cystoscopy

No patients developed:
- Hydronephrosis
- Troublesome diarrhea
- Bladder Cancer (1 had nephrogenic adenoma)

Complications:

Small Bowel Obstruction: 2 patients
- 3 and 7 years after surgery
- 1 underwent lysis of adhesions

Stomal Stenosis: 2 patients
- 3 and 6 years after surgery
- Both underwent operative revision

Mortality:

<table>
<thead>
<tr>
<th>Age/Sex</th>
<th>Cause</th>
<th>Years s/p EC</th>
</tr>
</thead>
<tbody>
<tr>
<td>50/F</td>
<td>Leukemia</td>
<td>13</td>
</tr>
<tr>
<td>50/M</td>
<td>MS/quadriplegia</td>
<td>11</td>
</tr>
<tr>
<td>85/M</td>
<td>MS/quadriplegia</td>
<td>21</td>
</tr>
<tr>
<td>50/F</td>
<td>MS/quadriplegia</td>
<td>12</td>
</tr>
<tr>
<td>50/F</td>
<td>MS/quadriplegia</td>
<td>11</td>
</tr>
<tr>
<td>50/F</td>
<td>Seppia (stone dx)</td>
<td>7</td>
</tr>
<tr>
<td>Mean</td>
<td>10.8 (range 6-21)</td>
<td></td>
</tr>
</tbody>
</table>

Conclusions:

This small series is further limited because patients with different functional statuses underwent different surgical procedures.

Despite the limitations, we believe that augmentation enterocystoplasty with or without a continent abdominal stoma is a major surgical procedure in high risk patients, that is effective, with acceptable morbidity and mortality and an underutilized procedure for refractory NVD in MS patients.