Robotic Appendicovesicostomy

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Roadmap for Presentation

Part 1  Pre-surgical/historical neurogenic bladder - Baxter

Part 2  Robotic appendicovesicostomy/ video discussion - DaJusta

Part 3  Postoperative care and follow up - Booth
Historical Perspectives
Neurogenic Bladder

Pre-Surgical Patient Selection in Robotic Appendicovesicostomy (Mitrofanoff)

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Spina Bifida (SB)

Spina bifida is the second most common congenital condition (1,500 babies/year)

- Hispanic: 3.80 per 10,000 live births
- Non-Hispanic black or African-American: 2.73 per 10,000 live births
- Non-Hispanic white: 3.09 per 10,000 live birth
- Source – Centers for Disease Control (CDC)
Folic Acid Fortification

1998 Grain products labeled as enriched such as breads, cereals, and rice have folic acid added to help reduce the risk of SB

Risk reduction of 31% (estimate 1,300) of SB babies per year

Source: CDC
Historical Perspective
Neurogenic Bladder in SB

• 1972 Dr. Lapides – Clean Intermittent Catheterization

• 1980 Dr. Mitrofanoff – “trans-appendicular continent cystostomy” and bladder neck closure (Slow to acceptance until Dr. Marc Cendron translated French paper for Dr. John Duckett)

1981 Dr. McGuire first showed increased risk for upper tract dilation in children with SB with detrusor leak point pressures greater than 40 cm H2O.

Goals of Neurogenic Bladder (NB) Urinary Management

Preservation of renal function

Promoting urinary continence
Common Diagnoses in Surgical Urinary Continence

- Neurogenic/Neuropathic bladder
- Posterior urethral valves
- Prune belly syndrome
- Nonneurogenic neurogenic bladder
- Bladder exstrophy, epispadias
- Cloacal anomalies and cloacal exstrophy
- Anal rectal malformation (ARM)
- Spinal cord injury (SCI)
- Urethral injuries and strictures
Major Indications for Surgical Intervention in SB

- Presence of upper tract changes and/or renal deterioration despite maximal medical management

- Continence and independence in older children to enhance the Quality of Life (QOL)

Pre-Surgical Patient Selection

• Discussion points
  • Initial newborn urology evaluation
  • Time of “toilet training” age
  • Videourodynamics may provide guidance on surgical management
  • Have we maximized the medical management of this patient?
    » Medications
    » CIC every 3 hours
    » Nighttime bladder emptying (NBE)
Why is My Patient Incontinent?

- Is it detrusor overactivity causing leaking?

- Is the sphincter incompetent?

- Is it both?
Mitrofanoff Technique

• Tip of appendix into the bladder at “the end of an antireflux submucosal tunnel with the other end hemmed to the skin”

• Antirefluxing tunnel borrowed from Dr. Coffey’s work in 1911 for ureteral reimplantation technique/sigmoid
4 Components of the Channel

1) Continent, catheterizable channel
2) Accessible, cosmetically acceptable stoma
3) Good capacity, low pressure reservoir
4) Ability to perform CIC (self or parent)
Bowel Incontinence Management

- 1990 Dr. Malone reported on an antegrade continence enema (ACE)
- Commonly referred to a MACE
- Split appendix technique
  - Portion for bladder
  - Portion for the bowel
Congruence for Success

Patient

Parent

Provider
Factors to Consider in Surgical Management

- Patient readiness
- Parent readiness
- Age
- BMI
- Desired continence
- Comorbidities
- Previous surgeries
- Access to care (distance traveled to tertiary care)
Factors to Consider in Surgical Management

Biggest risk is ?

and the answer is....
Factors to Consider in Surgical Management

POOR COMPLIANCE

com·pli·ance
kəmˈpliːəns/
noun
• the action or fact of complying with a wish or command
Non Elective Bladder Reconstruction Indications

• Deterioration of the upper tract (kidneys)
• Soft indications may include:
  – Elevated resting bladder pressures
  – Incomplete bladder emptying
Complications of Mitrofanoff and Malone Procedures

• “Complications developed in a minority of patients, mostly in the noncompliant group. A statistically significant difference in outcome based on compliance status was observed in most complication categories.”

Limitations

- Decision making for ELECTIVE reconstruction is somewhat subjective

- Surgical outcomes are influenced by disease processes and severity