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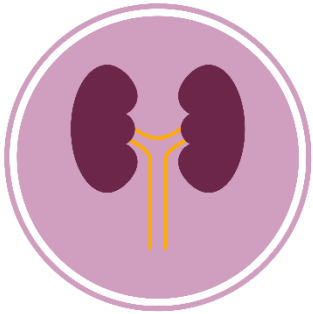
Urology Role in Spina Bifida



What is the role of the urologist in spina bifida?

Neurogenic bladder and bowel involve dysfunction in controlling urination and bowel movements due to nerve damage or disruption. Neurogenic bladder issues include:

- Loss of bladder control.
- Incomplete emptying.
- Frequent urination.
- Increased risk of urinary tract infections.

Neurogenic bowel refers to problems such as:

- Loss of bowel control
- Constipation
- Difficulties with bowel movements, or irregular habits
- Bowel frequency

What is the role of the urologist in spina bifida?

These conditions can arise from spinal cord injuries, multiple sclerosis, spina bifida, or other neurological disorders.

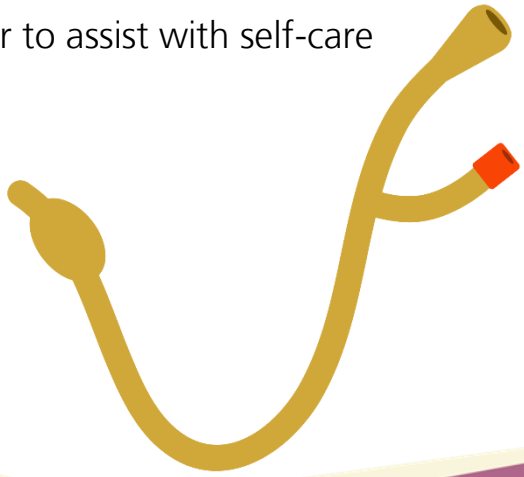
How is neurogenic bladder treated?

The primary goals for managing neurogenic bladder in patients with myelomeningocele are to maintain kidney health and enable independent bowel and bladder control at a suitable age. The treatment plan is tailored to each patient's specific condition, considering factors like ultrasound results, symptoms, bladder function tests, and their readiness to manage their care.

How is neurogenic bladder treated?

Key Management Strategies:

- Clean Intermittent Catheterization (CIC): All patients with neurogenic bladder should be taught CIC to empty their bladder regularly.
- Medication: Anticholinergic drugs might be prescribed for patients with overactive or high-pressure bladders.
- VUR Management: If vesicoureteral reflux (VUR) is present, anticholinergics and preventive antibiotics may be used.
- Surgery: Surgical options may be considered if medical treatments are ineffective or to assist with self-care and bladder control.

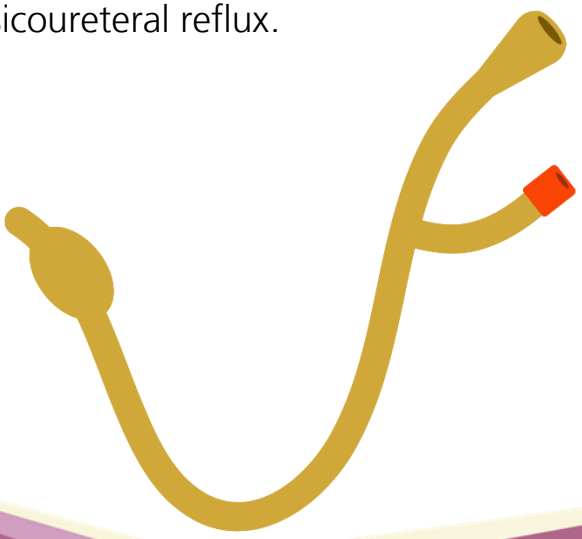


How is neurogenic bladder treated?

Medical management:

Patients with myelomeningocele who experience high pressure or overactive bladders, or who have vesicoureteral reflux (VUR) related to their neurogenic bladder, may benefit from anticholinergic medications.

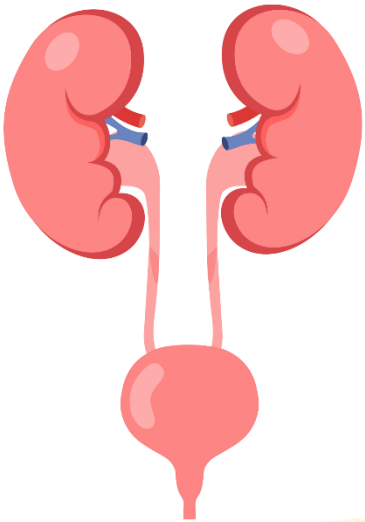
Early initiation of clean CIC is suggested for all infants with neurogenic bladder short after birth. It reduces the risk of urinary tract infections (UTIs) and bladder overdistension, which can lead to complications like CKD, hydronephrosis, and vesicoureteral reflux.



Are there any benefits to Initiate CIC early?

Yes, starting CIC early has several benefits:

- Improved Outcomes: Starting treatment early can lead to better results.
- Initiate treatment within the first three months offers additional advantages.
- Reduced Need for Bladder Augmentation: Consistent use of CIC has decreased the need for more invasive procedures.



Are there any benefits to Initiate CIC early?

Most individuals with myelomeningocele will eventually require CIC for bladder control or kidney health. Starting CIC in infancy improves tolerance and compliance. Many children can perform CIC independently by age five with minimal complications.

How is neurogenic bladder treated?

- Botulinum Toxin: While botulinum toxin injections can reduce bladder pressure, not all patients benefit from this treatment.
- Prophylactic Antibiotics: Routine prophylactic antibiotics are generally not recommended for patients with myelomeningocele who use CIC, even those with VUR.
- Latex Precautions: Given the frequent exposure to latex during catheterization and surgeries, implementing latex precautions from birth is recommended to minimize the risk of allergic reactions.

How is neurogenic bladder treated?

Surgical management:

Fetal surgery for myelomeningocele is performed in specialized centers. However, bladder dysfunction is a common outcome following this procedure.

- Bladder Augmentation:

For patients with persistently high bladder pressures, despite using CIC and medications, bladder augmentation may be necessary to preserve kidney function. This surgical procedure is also considered for individuals with severe incontinence that doesn't respond to medical treatment.

How is neurogenic bladder treated?

Surgical management:

- Bladder Augmentation:

There are two main approaches to bladder augmentation:

1. Enteric Bladder Augmentation (Enterocystoplasty): This involves adding a section of intestine to the bladder to increase its capacity and reduce pressure.
2. Bladder Auto-Augmentation: This procedure involves removing a portion of the bladder wall's muscle. Its success can depend on factors like the patient's initial bladder capacity. While bladder auto-augmentation might delay the need for intestinal augmentation, enteric bladder augmentation is more commonly performed due to its greater clinical experience.

What is Bladder Neck/Outlet Surgery?

It is performed to address weak bladder outlets and achieve urinary continence.

Are there types of bladder neck surgery?

Yes, there are different types of bladder neck/ outlet surgeries available such as Endoscopic bulking agents, artificial urinary sphincters, and bladder neck slings. The choice of surgery depends on the individual characteristics and especially the gender of the patient.

Continent Catheterize Stoma Surgery:

- **Target group:** patients who are unable to catheterize their own urethra.

Are there types of bladder neck surgery?

Continent Catheterize Stoma Surgery:

- **Procedure:** Creates a continent abdominal catheterize channel (e.g., appendicovesicostomy, ileovesicostomy).
- **Location:** Umbilicus or lower abdomen, more accessible than the urethra.
- **Complications:** Stenosis or leaking of the stoma.

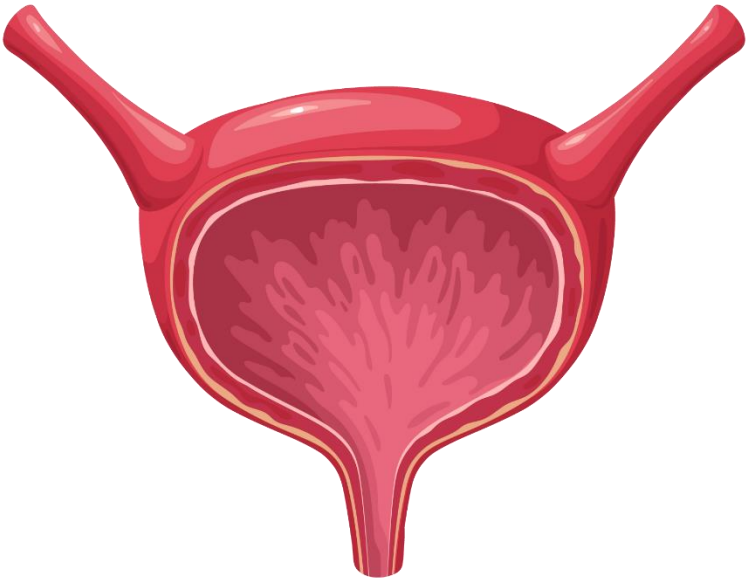
Ureteral Reimplantation

Rarely Necessary: Used in selected patients with persistent reflux, upper tract deterioration, or recurrent UTIs.

Are there types of bladder neck surgery?

Vesicostomy

- Rarely Indicated: For bladder drainage in infants with high bladder pressure.
- Temporary Diversion: Usually used for short-term purposes.



What is the role of neurosurgery in urology and spina bifida?

Neurosurgery is necessary when a patient develops a tethered spinal cord to preserve their existing urologic function and prevent further neurological deterioration. The effectiveness of other neurosurgical techniques, such as lumbar sacral nerve rerouting (commonly known as the "Xiao procedure"), in improving bladder function is uncertain. Therefore, it is not recommended for this purpose. Furthermore, there have been reports of complications associated with this procedure, such as foot drop.

References and resources:

UpToDate, IAU library

Mayo clinic

Review and audit

The content of this booklet has been reviewed by neurosurgery consultants at King Fahad Hospital of the University.

Neurosurgery Department

Health Awareness Unit

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