Congenital abnormalities of bladder and urethra in boys and girls: an overview and imaging approaches.

M. Mearadji
International Foundation for Pediatric Imaging Aid
Choice of imaging procedures in congenital anomalies of bladder and urethra

1. Sonography
2. Micturation cystourethrography
3. Excretory urography
4. CT or MRI
5. Antegrade ureterography
6. Retrograde urethrogramphy
Abnormalities of the bladder

- Primary vesico-urethral reflux
- Primary obstructive mega ureter
- Ureteral ectopia
  A. Intravesical ureteral ectopia
  B. Extravesical ureteral ectopia (boys and girls)
  C. Ureterocele
Excessieve vesicale ureterale reflux
Duplicated ureter
Obstructed ureterocele.
Duplicated kidney
Duplicated kidney
Double ureterocele
Ureterocele
Ureteroceles
Locations of ectopic opening of urether in girls and boys
Duplicated right kidney with ectopic ureter on CT
Duplicated left kidney with opening in the vagina
Opening of the ectopic ureter in persistent Gartners’ duct
Ectopic ureter in persistent Gartners’ duct
Cystic dysplastic left kidney with opening in vagina resulting in hydrocolpos.
Duplicated kidney with dysplastic cystic upper pool. Additionally the ureter was complicated with an ectopic ureterocele
Ectopic opening of dilated ureter in urethra in a girl
Abnormal position of a ectopic ureter on US
Abnormalities of the bladder

- Urachal anomalies
- Bladder divericula (primary of secondary)
- Megacystic
Urachal fistula
Urachal diverticulum
Urachal cyst
Patent urachus channel
MULTIPLE DIVERTICULA OF THE BLADDER, ONE CONTAINING CALCULI; PROSTATIC HYPERTROPHY AND TRABECULATION OF THE BLADDER WITH CELLULE FORMATION.
Bladderdiverticulum
Bladder diverticulum
Trabeculated bladder with pseudo-diverticula

Trabeculated bladder with pseudo-polyposis
Paraureteral bladder diverticulum
Bladder retention is falsely interpreted as a mesenteric cyst
Abnormalities of urethra in boys

- Posterior urethral valves
- Prostatic utricle
- Abnormalities of the Cowper glands
- Male hypospadia
- Mega urethra
- Urethral diverticulus
- Urethral duplication
- Meatal stenosis
Posterior urethral valve
Posterior urethral valve with less urodynamic effect
Posterior urethral valve after treatment with reflux in ductus deferens and in the seminal vesicae as a result of obstruction
Utricle
Utricle
Hypospadias utricele. Deny’s Drash syndrome
Urethradiverticulum
Duplication of external orifisium
Mega-urethra
Diafragma in the urethra with obstructed distal urethra
Phimosis
Epispadias-Extrophy Complex

- Epispadia
- Extrophy of the bladder
Epispadia. Urethradiverticulum
Extrophy of the bladder
Miscellaneous

- Prune Belly syndrome
- Anorectal malformations
- Urogenital anomalies
Prune Belly syndrome with urachus cyst
Prune Belly syndrome
Prune Belly Syndrome
Abnormalities of the lower urogenital tract in girls

- Neonatale hydrocolpos
- Inperferate hymen (hematocolpos)
- Urethra diverticula
Hydrocolpos
Hydrocolpos
Hydrocolpos
Hematocolpos. Hymen atresia
Para-urethral diverticula with urethra calculi
Conclusion

- There are numerous types of abnormalities in lower urinary tract.
- Sonography is the first choice for evaluation of bladder abnormalities.
- In cases of urinary infections and enuresis, special attention should be paid to anatomic and functional changes of the bladder.
- The abnormalities of the urethra can be recognized mostly by cysto-urethrography.
- To visualize an ectopic extravesical ureter, antegrade ureterography after upper pool resection of duplicated kidney is indicated.
- In complicated cases, CT or MRI should be additionally carried out.