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Educational Abstract

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Voiding Cystourethrogram in Children: Vesicoureteral Reflux and Anomalies of the Urinary System

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Learning Objectives

- Identify the key features for each grade of vesicoureteral reflux (VUR).
- Describe a wide spectrum of anomalies involving urethra, bladder, ureter and kidney in voiding cystourethrogram(VCUG).

Background

VCUG has gained wide acceptance in the diagnosis of VUR and it is also the method of choice in evaluation various anomalies of the urinary system, particularly the urethra, urinary bladder and distal ureter as well as the kidney when there is associated high-grade reflux.

Findings & Procedure Details

VCUG is a fluoroscopically monitored examination involves retrograde instilling of a detectable substance into the bladder by urethral catheter into the bladder in mimicking the process of filling and emptying of the bladder. Intermittent fluoroscopic monitoring was carried out throughout the entire examination to detect the presence and extent of the VUR, as well as the evaluation of both anatomic defects and functional anomalies of the urinary system. The principle of "as low as reasonably achievable" (ALARA) was adhered to assure that radiation doses to the children are appropriate. To optimize the performance and interpretation, cyclic VCUG for at least twice with oblique or lateral position was recommended to improve the accuracy of the examination and to identify the severity of VUR together with anomalies of urinary systems in children.

Conclusion

VCUG is an efficient, accurate and reproducible method to detect and characterize VUR and urinary tract abnormalities in children. Adherence to basic principles in performing the examination and interpretation are essential in establishing a diagnosis and treatment plan.