Obstructive Uropathy

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KEYWORDS

• Obstructive uropathy • Hydronephrosis • Urinary tract obstruction
• Benign prostatic hypertrophy • Nephrolithiasis • Retroperitoneal fibrosis
• Percutaneous nephrostomy • Ureteral stent

HOSPITAL MEDICINE CLINICS CHECKLIST

1. Obstructive uropathy is a blockage of urinary flow anywhere along the urinary tract.
2. Obstructive uropathy can be asymptomatic or present as pain, nausea, vomiting, hematuria, or change in urinary flow.
3. When obstructive uropathy is considered, a full physical examination should be performed including a rectal examination in men and a gynecologic examination in women.
4. Laboratory tests used to diagnose obstructive uropathy include a basic metabolic panel, complete blood count, and urinalysis.
5. Ultrasonography, computed tomography, and MRI are the most common imaging tests used to diagnose obstructive uropathy, with ultrasonography being the most cost-effective and safe for patients and therefore a good initial modality.
6. Medical treatment options depend on cause and include:
   a. Alpha and calcium channel blockers to help facilitate stone passage
   b. Increased water intake to prevent stone development
   c. Urinary catheterization and the combination of doxazosin and finasteride in benign prostatic hypertrophy
   d. Immunosuppressants in retroperitoneal fibrosis
7. Surgical treatment of obstructive uropathy includes ureteral stents and percutaneous nephrostomy tubes.
8. Patients with obstructive uropathy-associated postobstructive diuresis should have their electrolytes monitored closely and be given free access to fluids.

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EPIDEMIOLOGY

What is obstructive uropathy?

Urinary drainage begins in the kidneys at the minor calyces then passes to the major calyces, renal pelvis, ureter, bladder and finally into the urethra. Obstructive uropathy is defined as a blockage of urinary flow that can occur at any point along this tract. This obstruction can be within the urinary tract, such as nephrolithiasis, termed intrinsic obstruction, or secondary to factors outside the tract, such as retroperitoneal fibrosis, termed extrinsic obstruction (**Table 1**).[1] If obstructive uropathy impairs renal function, it is called obstructive nephropathy, and if hydrostatic pressure from obstruction causes further upstream dilatation, hydronephrosis can develop.[2]

How common is obstructive uropathy?

Approximately 1 in 500 people are hospitalized in the United States each year with the diagnosis of obstructive uropathy.[3] Incidence of disease is low after congenital abnormalities of childhood until about the age of 60 years. It is most common in older men, probably secondary to benign prostatic hyperplasia and, according to one study, is responsible for about 4% of end-stage renal disease.[4] The US Nationwide Inpatient Sample in 2006 recorded 41,144 discharge diagnoses of urinary tract obstruction, which accounted for 0.1% of all discharge diagnoses recorded in the database.

Table 1
The possible causes of renal tract obstruction

Renal	Ureter	Bladder and Urethra
Polycystic kidney	Stricture	Posterior urethral valve
Renal cyst	Ureterocele	Phimosis
Peripelvic cyst	Obstructing megaureter	Hydrocolpos
Ureteropelvic junction obstruction	Retrocaval ureter	Neoplastic bladder carcinoma
	Prune-belly syndrome	Prostate carcinoma
Wilms tumor	Primary carcinoma of ureter	Carcinoma of urethra
Renal cell carcinoma	Metastatic carcinoma	Carcinoma of penis
Transitional cell carcinoma of the collecting system	Tuberculosis	Inflammatory prostatitis
	Amyloidosis	Paraurethral abscess
Multiple myeloma	Schistosomiasis	Miscellaneous benign prostatic hypertrophy
Tuberculosis	Abscess	
Echinococcus infection	Ureteritis cystica	Neurogenic bladder
Metabolic calculi	Endometriosis	
Sloughed papillae	Retroperitoneal fibrosis	
Trauma	Pelvic lipomatosis	
Renal artery aneurysm	Aortic aneurysm	
	Radiation therapy	
	Lymphocele	
	Trauma	
	Urinoma	
	Pregnancy	
	Radiofrequency ablation	

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