

ACUTE URINARY RETENTION

A COMMON PAINFUL UROLOGIC EMERGENCY CHARACTERISED BY A SUDDEN INABILITY TO PASS URINE, ASSOCIATED WITH ABDOMINAL DISTENTION OR PAIN

MOST PATIENTS ARE ELDERLY MEN, AND THE INCIDENCE AND RISK RISKE WITH AGE

MOST COMMON CAUSE IS BENIGN PROSTATIC HYPERPLASIA, INDUCING BLADDER OUTLET OBSTRUCTION

PATHOPHYSIOLOGY:

- Any causes that interfere with the neurologic control of the voiding process can result in voiding dysfunction → in chronic decompensation of urination, diminished detrusor muscle contractility is more pronounced, with a large amount of residual urine volume → compared with acute decompensation

CLINICAL FEATURES:

- Can be categorised into several domains:
 - Obstructive
 - Infectious
 - Pharmacologic
 - Traumatic
 - Neurogenic
 - Psychogenic
 - Childhood
 - Extraurinary

Table 95-2 Gender-Specific Causes of Acute Urinary Obstruction	
Men	Women
Obstructive	Obstructive
Benign prostatic hypertrophy*	Cystocele
Prostate cancer	Ovarian tumor
Phimosis	Uterine tumor
Paraphimosis	Operative
Meatal stenosis	Incontinence surgery
Urethral strangulation	Infection
Infection	Pelvic inflammatory disease
Prostatitis	

Table 95-1 Causes of Acute Urinary Retention in Both Sexes

Obstructive causes
Urethral stricture
Bladder calculi
Bladder neoplasm
Foreign body, urethral or bladder
Neurogenic causes
Multiple sclerosis
Parkinson's disease
Shy-Drager syndrome
Brain tumors
Cerebral vascular disease
Cauda equina syndrome
Metastatic spinal cord lesions
Intervertebral disk herniation
Neuropathy, diabetes mellitus, and other causes
Nerve injury from pelvic surgery
Postoperative retention
Trauma
Urethral injury
Bladder injury
Spinal cord injury
Extraurinary causes
Perirectal or pelvic abscesses
Rectal or retroperitoneal masses
Fecal impaction
Abdominal aortic aneurysm
Psychogenic causes
Psychosexual stress
Acute anxiety
Infection
Cystitis
Herpes simplex (genital)
Herpes zoster involving pelvic region
Local abscess
Operative
Epidural anesthesia
Childhood
Posterior urethral valves
Rhabdomyosarcoma of the bladder
Urethral atresia
Pharmacologic etiologies (Table 95-3)

- Assess for history of BPH → urinary urgency, frequency, hesitancy, decreased force and caliber of stream, terminal dribbling, nocturia, incontinence
- Assess for prior history of causes of outlet obstruction → prostate cancer, urinary bladder cancer, bladder calculi, IDC
- Gross haematuria may indicate infection, bladder calculus or neoplasm
- Ask about new medications → list of implicated agents shown below

Table 95-3 Pharmacologic Agents Associated with Urinary Retention		
α -Adrenergic agents (selected)		Hormonal agents
Ephedrine sulfate		Progesterone
Phenylephrine HCl		Estrogen
Phenylpropanolamine HCl		Testosterone
Pseudoephedrine HCl		Antipsychotics (selected)
β -Adrenergic agents		Haloperidol
Isoproterenol		Thiothixene
Metaproterenol		Thioridazine
Terbutaline		Chlorpromazine
Antidepressants (selected)		Fluphenazine
Imipramine		Prochlorperazine
Nortriptyline		Clozapine
Amitriptyline		Risperidone
Doxepin		Ziprasidone
Amoxapine		Antihistamines (selected)
Maprotiline		Diphenhydramine HCl
Reboxetine		Promethazine
Selective serotonin reuptake inhibitors with other psychotropic drugs		Chlorpheniramine
		Brompheniramine
Antiarrhythmics (selected)		Cyproheptadine
Disopyramide		Hydroxyzine
Flecainide		Antihypertensives (selected)
Quinidine		Calcium channel blockers
Procainamide		Hydralazine
Anticholinergics/antispasmodics (selected)		Trimethaphan
Atropine		Analgesic drugs (selected)
Scopolamine hydrobromide		Morphine sulfate and other opiates
Belladonna		NSAIDs
Homatropine methylbromide		
Hyoscyamine		Muscle relaxants (selected)
Clidinium bromide		Diazepam and other benzodiazepines
Glycopyrrolate		Baclofen
Mepenzolate bromide		
Methantheline bromide		Cyclobenzaprine
	Oxyphenonium bromide	Miscellaneous (selected)
	Propantheline bromide	Indomethacin
	Dicyclomine HCl	Carbamazepine
	Oxybutynin	Amphetamines
	Flavoxate HCl	Dopamine
	Tolterodine	Vincristine
	Operative	Ecstasy (3, 4 methylenedioxymethamphetamine)
	Anesthesia agents	
	Antiparkinsonian agents (selected)	
	Trihexyphenidyl HCl	
	Benztropine mesylate	
	Biperiden	
	Amantadine HCl	
	Levodopa	
	Bromocriptine mesylate	

- Detailed neurologic history → especially identification of spinal cord injury or compression
- HT/tachycardia → may be transient
- Assess lower abdomen for painful, distended bladder
- Look at external genitalia to identify phimosis, paraphimosis, meatal stenosis or stricture or evidence of trauma
- Perform PR to assess prostate but also anal tone and perineal sensation
- After successful drainage of the distended bladder → a repeat physical exam of the lower abdomen is indicated to help exclude and unresolved extraurinary bladder problem that will need further management

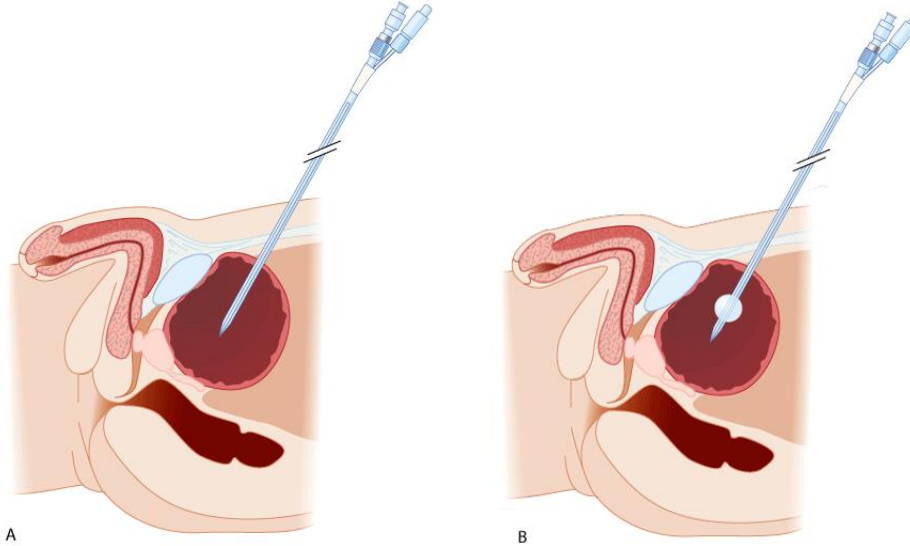
DIAGNOSIS:

- Bedside US is recommended
- Bladder catheterization both treats and helps to diagnose the cause of urinary retention
- UA and culture are needed
- Haematuria that is secondary to trauma of IDC insertion clears over time and is common
- FBC should be checked for those with massive haematuria with possible hypovolaemia or haematologic diseases
- Prolonged obstruction may result in impaired renal function and electrolyte disturbance
- Neuro or spinal imaging is needed if exam identifies neurologic deficits

TREATMENT:

- The goal of ED management is not only the decompression of the bladder but also identification of precipitating factors, prevention of catheter-related complications
- Also start indicated medications and arrange urological follow up
- URETHRAL CATHETERISATION:
 - The primary treatment method due to its commonality and lower complication rate compared to suprapubic catheterization
 - If the IDC is in the URETHRA and not the bladder → urine will not drain freely and inflation of the balloon will cause extreme pain
 - If attempts at passing a standard IDC fail → TRY A COUDE CATHETER with a firm, angulated tip → difficulties may arise from BPH, urethral strictures, or postsurgical bladder neck contracture
 - If the patient recent underwent urologic surgery → consult the urologist before attempts at catheter placement
 - If you suspect creation of a false passage → consult urology
- SUPRAPUBIC CATHETERISATION:
 - Can be performed in patients after failure of several attempts of IDC insertion as long as there is no obvious pelvic trauma or abnormal anatomy and may be the only option to decompress an extremely painful, distended bladder

- See diagrams below → visualize the bladder on US → clean/drape as appropriate → advance a 22g spinal needle under US guidance at a 30 degree angle from the true vertical (60 degrees from horizontal), 3-4cm above the pubic symphysis while withdrawing on an attached syringe → use the return of urine as a depth gauge → insert cystostomy catheter in the same manner and secure with sutures



- Patients with long-standing obstruction are at risk for POSTOBSTRUCTIVE DIURESIS AND RENAL FAILURE
 - Monitor for FOUR HOURS MINIMUM for significant urine output (>200mL/hour over input)
 - If this degree of output continues, admit the patient with volume replacement adjusted hourly according to urine putput
- Pharmacological therapy with an α -adrenergic blocker, which exerts its effects on the bladder neck and prostate, may relax bladder smooth muscle, reducing outlet resistance to urinary flow → those started on ALFUZOSIN had nearly double the frequency of successful voiding after catheter removal → counsel about postural hypotension

SPECIAL CONSIDERATIONS:

FEMALES WITH URINARY RETENTION:

- **RELATIVELY UNCOMMON**
- The obstructive causes in women are USUALLY GYNAECOLOGIC PROBLEMS, but neurogenic causes can develop
- Detailed history, exam, UA and pelvic US should help identify causes → if there is no apparent cause, refer to a gynaecologic urologist for urodynamic studies

GROSS HAEMATURIA AND CLOT RETENTION:

- Gross haematuria can lead to CLOT RETENTION → resulting in pain from acute bladder distention → management involves placement of a 20-24Fr TRIPLE

LUMEN CATHETER → one lumen for urine drainage, one port for balloon inflation, one port for bladder irrigation

- Generally admitted as clot retention may reoccur and may require cystoscopic clot removal
- These patients should have their clotting parameters normalized as appropriate

SPONTANEOUS VERSUS PRECIPITATED URINARY RETENTION:

- **PRECIPITATED CAUSES INCLUDE** → preceding surgery, stroke, UTI, ingestion of alpha-sympathomimetics, cold medications, antihistamines or anticholinergics
- **The importance of this differentiation becomes notable when EVALUATING OUTCOMES:**
 - Those with spontaneous urinary retention have a higher rate of a recurrent spontaneous episode and a higher rate of required surgery

DISPOSITION AND FOLLOW UP:

- Approximately 90% of patients with urinary retention are discharged with urology outpatient appointment arranged
- A list of ALARM FEATURES should be given, prompting the patients return to ED:
 - Fever
 - Return of symptoms
 - Repeated vomiting
 - Abdominal pain
 - Catheter blockage
 - Penile pain → suggesting migration of the catheter
- Feelings of urgency or bladder spasm are expected and can be treated with OXYBUTYNIN 2.5mg bd → beware that this has anticholinergic properties
- There is NO SATISFACTORY TREATMENT FOR URINARY LEAKAGE AROUND THE CATHETER → placement of a larger IDC is not typically effective
- Follow up in 3-7 days for TOV → longer if residual volume >1.3L as this will improve chances of success
- Algorithm below summarises approach:

