Urinary Infections in Men

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KEYWORDS

• Urinary infection • Sexually transmitted disease
• Pyelonephritis • Epididymitis • Abscess

Urinary tract infections (UTI) are one of the most common bacterial infections and account for significant morbidity and mortality. Additionally, evaluation and treatment of UTIs account for a significant amount of health care expenditures, estimated at more than $3 billion annually.[1,2] Most of these expenditures result from management of community-acquired infections, representing a common complaint among patients in an outpatient setting. Overall, the incidence of UTIs is higher in women, but men account for a large percentage of infections, especially complicated UTIs.

This review of urinary infections in men provides an overview of the general presentation, diagnosis, and management of common genitourinary infections in men. The focus of the article is on clinical presentation, basic diagnostic evaluation strategies, treatment options, and when referral to a specialist is warranted.

KIDNEY INFECTIONS

Pyelonephritis

Pyelonephritis refers to inflammation of the kidney and is considered an upper urinary tract infection. Acute pyelonephritis is a clinical diagnosis based on the classic presentation of fever (>100°F); chills; and flank or costovertebral angle pain. These signs and symptoms may be associated with urinary urgency, frequency, and dysuria. However, patients do not always present with classic symptoms. Gastrointestinal symptoms, such as nausea and emesis, may be present. Patients often have a history of previous UTI.

Diagnosis of acute pyelonephritis is based mainly on clinical symptoms. Laboratory diagnosis consists of urinalysis, urine culture, complete blood count, and serum chemistries. Urinalysis usually demonstrates evidence of inflammation and infection

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with hematuria, pyuria, and bacteriuria. Leukocytosis is usually present with a predominance of neutrophils. Serum creatinine is usually normal. However, an elevated creatinine could indicate the presence of obstruction (bilateral obstruction or obstruction of a solitary kidney), dehydration, or severe infection. Blood cultures are not routinely drawn, unless the patient exhibits signs of significant illness (sepsis) or has risk factors for a complicated UTI. Blood cultures have been shown to be positive in about one quarter of patients with uncomplicated pyelonephritis in women.[3] However, this finding does not alter management decisions regarding therapy. Therefore, blood cultures can be omitted in cases of uncomplicated pyelonephritis.

The use of imaging studies in the diagnosis of acute pyelonephritis is a difficult clinical decision. The presence of urinary tract obstruction or stone in the setting of acute infection alters treatment strategies. However, most cases of uncomplicated pyelonephritis do not result from a stone or obstruction. Imaging options include plain radiograph, intravenous pyelogram, renal ultrasound, or CT. The use of plain radiograph has a very limited role in the management of the urinary tract. It may be useful to investigate other causes of abdominal pain. Likewise, intravenous pyelogram has fallen out of favor, given the routine availability and better anatomic detail with other modalities. Renal ultrasound is a useful screening tool to rule out the presence of hydronephrosis. CT can be performed with or without intravenous contrast agents to assess for hydronephrosis or calculus disease. There are no specific radiologic findings on CT to diagnose pyelonephritis. Some subtle findings to suggest the diagnosis include renal enlargement and perinephric fat stranding.

For practical purposes, if a patient presents with acute fever and flank or abdominal pain, most patients undergo cross-sectional abdominal imaging to evaluate for other causes, such as appendicitis, diverticulitis, or urolithiasis. Imaging should be strongly considered in a patient with clinical signs and symptoms of pyelonephritis and risk factors for complicated UTI. These include known functional or anatomic abnormalities in the urinary tract, the possibility of obstruction, recent instrumentation, recent antibiotic use, immunosuppression, or history of diabetes.

Management of acute pyelonephritis depends on properly classifying patients into uncomplicated and complicated groups. Any patient with presumed acute pyelonephritis without complicating factors and minimal symptoms without significant nausea or emesis can be treated as an outpatient. Empiric oral antimicrobial therapy should be initiated until results of urine cultures are finalized. In most cases, *Escherichia coli* are the causative bacteria. A much smaller percentage demonstrates gram-positive bacteria as the cause of pyelonephritis (*Staphylococcus epidermidis*, *Staphylococcus aureus*, and *Enterococcus faecalis*). Therefore, antimicrobial therapy can be chosen based on the presumed causative bacteria. Typically, a fluoroquinolone for 10 to 14 days is sufficient in an otherwise healthy man with a normal urinary tract. Alternatively, trimethoprim-sulfamethoxazole can be used for 10 to 14 days. If a gram-positive organism is suspected, amoxicillin or amoxicillin-clavulanic acid can be used.[4]

Patients who are severely ill or are suspected of having complicating factors require hospital admission. These patients should undergo abdominal imaging to evaluate for obstruction or other causes of illness. Urine and blood cultures should be obtained. Broad-spectrum parenteral antibiotics should be instituted, including a fluoroquinolone, aminoglycoside with or without ampicillin, or extended-spectrum cephalosporin with or without an aminoglycoside.[4] If there is any evidence of urinary tract abnormality or obstruction, urgent urologic consultation is needed because drainage of the urinary tract may be required with either ureteral stent or percutaneous nephrostomy. Parenteral antibiotic therapy should be continued until susceptibilities are returned or until the patient demonstrates clinical improvement. Patients may remain febrile after