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Michael J. Droller

Pediatric Urologic Conditions, Including Urinary Infections 1
Stacy T. Tanaka and John W. Brock III

Genitourinary complaints are common in children, and the busy primary care provider must determine initial treatment and assess need for specialty referral. Many complaints are self-limited, but some represent disorders that can threaten organ function. In this article, an initial approach in the primary care office and a guide to specialty referral for pediatric urologic conditions of the urinary tract, male genitalia, and female genitalia are suggested.

Long-term Follow-up and Late Complications Following Treatment of Pediatric Urologic Disorders 15
Ardavan Akhavan and Jeffrey A. Stock

Many pediatric urologic disorders have sequelae that may affect patients well into adulthood. Despite adequate treatment, many patients are at risk for progressive urologic deterioration years after surgical reconstruction. While many pediatric urologists follow their patients years after surgery, screening for late complications is a shared responsibility with primary care providers. This article discusses potential late complications and appropriate follow-up for patients who have a history of ureteral reimplantation, pyeloplasty, hypospadias repair, posterior urethral valve ablation, and intestinal interposition.

Urinary Tract Infections in Women 27
Elodi J. Dielubanza and Anthony J. Schaeffer

Urinary tract infection (UTI) is the most common extraintestinal infectious disease entity in women worldwide, and perhaps one of the most formidable challenges in clinical practice given its high prevalence, frequent recurrence, and myriad associated morbidities in the setting of rapidly evolving antimicrobial resistance. Achieving timely symptom relief and infection control and preventing morbidity, growth of resistant organisms, and recurrent infection are often difficult. This article reviews epidemiology and pathogenesis of urinary tract infection in women; characterizes common patterns of infection, clinical red flags, and appropriate laboratory testing and imaging; explores emerging patterns of antimicrobial resistance; and reviews the updated guidelines for the treatment of uncomplicated UTI in women.

Urinary Infections in Men 43
Mathew C. Raynor and Culley C. Carson III

Urinary tract infections are one of the most common bacterial infections and account for significant morbidity and mortality. 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 this article is on clinical presentation, basic diagnostic evaluation strategies, treatment options, and when referral to a specialist is warranted.

**Bladder Pain Syndrome**  
Philip Hanno, Jørgen Nordling, and Magnus Fall

Bladder pain syndrome is a deceptively intricate symptom complex that is diagnosed on the basis of chronic pelvic pain, pressure, or discomfort perceived to be related to the urinary bladder, accompanied by at least one other urinary symptom. It is a diagnosis of exclusion in a patient who has experienced the symptoms for at least 6 weeks in the absence of any confusable diseases that may give rise to the symptoms. Symptoms compatible with the diagnosis are now thought to affect up to 3% of the female population in the United States with a 5:1 female-to-male preponderance. Diagnosis and treatment can be challenging, and misdiagnosis as a psychological problem, overactive bladder, or chronic urinary infection has plagued patients with the problem.

**Prostatitis and Chronic Pelvic Pain Syndrome in Men**  
Naji J. Touma and J. Curtis Nickel

Primary care physicians can and should diagnose, classify, and treat patients presenting with acute and chronic prostatitis syndromes. Although the chronic syndromes are a challenge to manage, this review article provides the necessary background to allow primary care physicians to take on this task. Patients who are unfortunate to be diagnosed with a prostatitis syndrome have the best chance for successful therapy at initial presentation. Those patients will ultimately benefit from an informed and educated physician.

**Male Lower Urinary Tract Symptoms (LUTS) and Benign Prostatic Hyperplasia (BPH)**  
Claus G. Roehrborn

Male lower urinary tract symptoms, benign prostatic hyperplasia, enlargement of the prostate, and bladder outlet obstruction are common among aging men and will increase in socioeconomic and medical importance at a time of increased life expectancy and aging of the baby boomer generation. This article reviews the epidemiology, management, and therapeutic options for these conditions. In patients bothered by moderate to severe symptoms, providers can make educated and differential choices between several classes of drugs, alone or in combination, to treat effectively and improve the symptoms in most men. Despite the efficacy of medical therapy, there will be patients who require referral to a urologist either early, to rule out prostate cancer and other conditions, or later, after initial medical therapy and lifestyle management has failed. Perhaps as many as 30% of patients fail to achieve sufficient symptom improvement with medication, lifestyle adjustment, and fluid management, and may require more invasive or surgical treatment options.

**Urinary Incontinence in Women**  
Donna Y. Deng

Urinary incontinence is a common and vexing problem that affects millions of adults. The main types of incontinence in women are stress, urge, and
mixed. It is important to delineate the different types to target the treatment options better. Treatments include conservative or behavioral modifications, pharmacotherapy, and surgical interventions.

**The Neurogenic Bladder: An Update with Management Strategies for Primary Care Physicians**

Adam P. Klausner and William D. Steers

Patients with lesions of the central nervous system often have neurogenic bladder dysfunction. Lifelong bladder monitoring and management in these patients is necessary to prevent severe complications, including renal damage. The urodynamic test, performed by neuourologists or other specially trained providers, is the definitive test for diagnosis and management of neurogenic bladder dysfunction. This article describes the indications and technique of urodynamic testing and the interpretation of the results of such testing. The management of patients with neurogenic bladder dysfunction is also discussed.

**Assessment and Management of Irritative Voiding Symptoms**

Michael L. Guralnick, R. Corey O’Connor, and William A. See

Irritative voiding symptoms are to the urinary tract much as a cough is to the pulmonary system, that is, a nonspecific manifestation of multiple potential underlying causes. Key to the evaluation and management of patients with these symptoms is a clear understanding of the differential diagnosis, the diagnostic tests required for evaluation, and the role of specialists in diagnosis and treatment. This article outlines a general diagnostic approach for patients with irritative voiding symptoms. Treatment approaches for the diseases, as well as the initial management that may be performed in the primary care setting, are also discussed.

**Urologic Aspects of HIV Infection**

Alan W. Shindel, Ardavan Akhavan, and Ira D. Sharlip

Although lifespan has dramatically improved in the human immunodeficiency virus–positive (HIV+) population, HIV and its treatment continue to be a source of substantial morbidity in many organ systems, including the genitourinary tract. As the number of long-term survivors increases with advances in antiretroviral therapy, age-associated urologic symptoms are also becoming increasingly relevant considerations for people living with HIV. Primary care physicians have a major role to play in maintaining the genitourinary health of their HIV+ patients. This role is of great importance not just for the well-being of the individual patient but for the public health, as the genitourinary tract is a common vector for HIV transmission. In this article the authors review the management of the genitourinary system in patients with HIV infection. Particular consideration is given to urinary tract infections, lower urinary tract symptoms, renal insufficiency, sexual and fertility problems, and cancers of the genitourinary tract. Management algorithms are outlined and indications for referral to a urologist are emphasized.

**Assessment of Hematuria**

Vitaly Margulis and Arthur I. Sagalowsky

The most common causes of hematuria in adults include urinary tract infections, urolithiasis, benign prostatic enlargement, and urologic
malignancy. Once hematuria is confirmed, its cause should be investigated through a comprehensive history, a focused physical examination, laboratory studies, an image-based assessment of the upper urinary tract, and a cystoscopic evaluation of the lower urinary system. Prompt evaluation and appropriate referral of patients with documented hematuria should be initiated in the primary care setting according to the proposed guidelines, and aimed at cost-effective and early detection of urologic abnormality.

Urologic Assessment of Decreasing Renal Function 161
Mohummad Minhaj Siddiqui and W. Scott McDougal
The discussion of renal failure as it relates to urology is largely a discussion of obstructive uropathy. Obstructive uropathy has been identified in multiple series to account for approximately 10% of all cases of renal failure. On a total population scale, autopsy series have shown the prevalence of hydronephrosis in 3% of men and women who are younger than 65 years and 6% of men older than 65 years. When benign prostatic hypertrophy and renal stone disease are considered, obstructive uropathy is also one of the most common indications for surgery. In this review, the different causes of obstructive renal insufficiency and management options available are discussed.

Medical and Medical/Urologic Approaches in Acute and Chronic Urologic Stone Disease 169
Timothy Y. Tseng and Marshall L. Stoller
Urinary stone disease is a condition with far-reaching implications. Patients with their initial instance of acute renal colic enter the health care system through 2 routes. Severe cases are generally seen in the emergency room, whereas more tolerable cases may be seen by primary care physicians. Patients with urinary stone disease are then managed in the long-term by a urologist. Timely and appropriate treatment of patients with urinary stone disease is essential to prevent the development of sepsis and progressive renal insufficiency. This article reviews the epidemiology, pathogenesis, presentation, and short- and long-term management of acute and chronic urinary stone disease.

Evaluation and Management of the Renal Mass 179
David Y.T. Chen and Robert G. Uzzo
The evaluation and management of renal cell carcinoma (RCC) has evolved in recent decades in response to the changing clinical presentation of the disease. Traditional teaching suggested that RCC usually presents with signs or symptoms. However, RCC discovered this way was usually locally advanced and often metastatic, requiring radical nephrectomy in most cases but often having a poor prognosis. As contemporary general medical practice began routinely using axial body imaging in the evaluation of many nonspecific abdominal complaints, today more than 70% of RCC cases identified are “screen-detected” as incidental findings having no attributable symptoms. This change has prompted a significant RCC stage migration over the past 20 years, with most kidney tumors seen in 2010 being smaller, organ-confined, and appropriate for nephron-sparing approaches with the anticipation of a favorable outcome.
approach to addressing patients with these incidentally detected, often localized, small renal masses raises different concerns than those for traditional patients presenting with symptomatic RCC. This article reviews the modern epidemiology of RCC, outlines the components of the evaluation of the incidental renal mass, details the current options of management, and discusses the long-term expectations for these patients.

**Use and Assessment of PSA in Prostate Cancer**

Carl K. Gjertson and Peter C. Albertsen

Since the introduction of prostate-specific antigen (PSA) screening in the late 1980s, more prostate cancers have been detected, and at an earlier stage. As a consequence, the majority of prostate cancers are now detected years before the emergence of clinically evident disease, which usually represents locally advanced or metastatic cancer. PSA screening has remained controversial, because many of the prostate cancers detected are low grade and slow growing. With this long natural history and a median survival without treatment that often approaches at least 15 to 20 years, many clinicians and researchers have questioned if prostate cancer screening and treatment actually improves survival, as many patients will die with prostate cancer rather than of prostate cancer. In this review, the authors discuss the rationale for prostate cancer screening and present the current guidelines for the use of PSA.

**Evaluation and Treatment of Erectile Dysfunction**

Maarten Albersen, Kuwong B. Mwamukonda, Alan W. Shindel, and Tom F. Lue

Erectile dysfunction (ED) is a prevalent and important disease that has been associated with various comorbidities. The evaluation of patients with ED should include a general health assessment followed by a discussion of reversible factors and lifestyle changes that might help preserve erectile capacity. Numerous effective treatment options are currently available. A frank discussion about use and side effects of these therapies is required to optimize success. Although oral pharmacologic treatments can be initiated and monitored by the primary care physician, patients who do not experience response to these treatments may be best served by referral to a sexual medicine specialist for further assessment and consideration of other treatment options. This article discusses the physiology and pathophysiology of erectile function in men, how the primary care physician may address the clinical problem of ED in practice, and when specialty referral is indicated.

**Medical Implications of Erectile Dysfunction**

Boback M. Berookhim and Natan Bar-Chama

Erectile dysfunction (ED) is a common condition in aging men, with a prevalence of 52% in men aged 40 to 70 years. It is frequently associated with several comorbid conditions, including cardiovascular disease, lower urinary tract symptoms, and testosterone deficiency. These conditions often have major consequences on the quality of life of patients and require adequate evaluation by the primary care practitioner. Complaints of ED, therefore, serve as a marker for these conditions and give the practitioner an opportunity to prevent the consequences of a delay in treatment. In this article, the evidence behind these associations is described.
Male Factor Assessment in Infertility

Zami P. Patel and Craig S. Niederberger

Male infertility assessment is more than a semen analysis. By interpreting a semen analysis, clinicians recognize its uses and limitations. Once understood, clinicians can then apply modern techniques of endocrine and radiologic evaluation to diagnosis of male reproductive dysfunction. It is important to identify patients with infertility not only to allow reproductive potential but also to identify a population susceptible to future disease states.

The Diagnosis and Management of Scrotal Masses

Jeffrey S. Montgomery and David A. Bloom

When evaluating a patient with a scrotal mass, a careful history and inguinoscrotal examination are necessary. Malignant scrotal wall, paratesticular, or spermatic cord tumors are rare. Scrotal ultrasound can confirm the precise location of a mass or rule out the presence of an inguinal hernia. Testicular masses deserve a formal workup, with serum tumor markers, a scrotal ultrasound as needed, and prompt consultation with a urologist for further staging and intervention. Scrotal masses in children are much rarer than in adults and should be evaluated by a urologist.

Assessment and Initial Management of Urologic Trauma

Jeremy B. Tonkin, Britton E. Tisdale, and Gerald H. Jordan

This article discusses the appropriate assessment, initial management, timely referral to a urologist for abdominal, bladder, urogenital, and renal/renal collecting system injury. Appropriate laboratory and physical examinations, as well as radiologic imaging, are paramount to obtaining accurate diagnosis and to providing appropriate treatment.

Major Urologic Problems in Geriatrics: Assessment and Management

Thomas J. Guzzo and George W. Drach

Elderly urologic patients require the same cautions as used in development of treatment programs for them in other disciplines. Because of potential interference with poor renal function or crossover effects with central or peripheral nervous system, however, many urologic drugs must be titrated appropriately. In treating cancer, erectile dysfunction, incontinence or urinary infection, patient quality of life and life span become dominant factors in making therapeutic decisions, by behavioral change, medication, or surgical intervention.