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MESSAGE FROM MARK A. HABER, M.D., F.A.C.S

On behalf of the Physicians and Staff of Georgia Urology, P.A., welcome to the third issue of Urology Update. The publication is dedicated to providing our patients and our colleagues with information about the practice of urology and urologic surgery and keeping them updated on our group.

In this issue of Urology Update, two physicians who recently joined Georgia Urology and are part of our robotic program, Dr. Warren Todd Oberle and Dr. Lambda Msezane, provide information on treatment options for kidney cancer and an update on prostate cancer, respectively. Dr. Bert Chen, who practices in our Conyers and Covington offices, wrote on urinary incontinence and pelvic prolapse and his treatment approaches. An update on pediatric urology is provided by Dr. Wolfgang Cerwinka, one of our pediatric urologists who practices in Duluth and Atlanta, in an article titled “Common Genital Urinary Problems”.

As always, we strive for excellence in urological care and to appropriately apply technological advances. Georgia Urology is in the process of implementing an electronic medical record in all of our twenty five offices.

We hope you find this magazine informative; it is our pleasure to share information. As always, we invite your feedback as well.

A special thank you to our physicians, staff members and partners whose efforts made this edition possible.

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A PROGRESSION OF THERAPIES TO BECOME LESS INVASIVE AND TO PRESERVE KIDNEY FUNCTION

By Warren T. Oberle, MD

Despite recent advancements, kidney cancer remains a challenge. Approximately 58,000 people will be diagnosed with kidney cancer in 2009 and almost 13,000 will die from the disease. For unclear reasons, its incidence has been increasing. Chemotherapies and radiation are limited in their ability to treat renal cancer, and treatment requires surgical removal of the tumor. In the past, this has required large, painful, open incisions along with the removal of the entire affected kidney. Over the last two decades, however, minimally-invasive approaches have been developed, such as laparoscopy or percutaneous treatment, and in most cases this has made possible the preservation of most of the affected kidney.

Kidney cancer, specifically renal cell carcinoma (RCC), has remained a constant challenge due to a high mortality rate and because it occurs in a vital organ. Approximately 30% of all patients diagnosed with kidney cancer with die within 5 years. Patients with metastatic disease have a median survival rate of 13 months. The removal of a kidney may not impact the health of an otherwise well young adult, but 30% of elderly patients with a normal creatinine have some kidney dysfunction, and the loss of a kidney can be detrimental. The incidence of RCC has been increasing at a rate of 3% per year since the 1970s, which is in large part thought to be due to increased imaging and incidental findings of small tumors. But the mortality rate has remained high.

The high mortality rate of RCC is in part due to the lack of treatment modalities. Surgery is the only treatment that can cure kidney cancer, as it is insensitive to radiation therapy and has dismal responses to chemotherapy. Immunotherapies and newer VGEF tyrosine kinases that seemed to be very promising have thus far had low response rates, short durations of response, and onerous side effects of therapy. Kidney cancer remains a disease treated by surgery with no effective adjunctive treatment available.

The surgical treatments available have progressed, especially over the last two decades. Treatment options for RCC include:

- Open Nephrectomy
- Laparoscopic Nephrectomy
- Open Partial Nephrectomy
- Laparoscopic Partial Nephrectomy
- Robot Assisted Partial Nephrectomy
- Ablation
- Single Incision Nephrectomy

For decades, open nephrectomy was used to treat RCC using a large incision to remove the entire kidney and all surrounding tissues, including the adrenal gland and lymph nodes. This involved a painful incision under or through the ribs, requiring several days hospitalization and weeks of recovery. This remains a gold standard for treatment of kidney cancer, and it is still used for lesions that are not amenable to laparoscopy. The treatment is used less often for most tumors due to the increased recovery time and the loss of the entire organ.

The first laparoscopic nephrectomy was described in the 1990’s. Using long instruments and scopes through several 1 cm incisions and a lower, more comfortable extraction incision allowed the removal of the kidney with much less pain. Patients were found to use less pain medicine postoperatively and were able to go home sooner, and return to work sooner, when their kidney cancer was treated with laparoscopy. Importantly, the cure rates remained equal to open surgery.

Partial nephrectomy is the removal of only the kidney tumor and a small rim of normal tissue. The defect is then reconstructed, preserving most of the normal kidney. Concomitant to the trend toward laparoscopic treatment of RCC, a progression toward open partial nephrectomy emerged. Data suggest that in many cases the removal of the entire kidney is not necessary to control cancer. Cure rates for total and partial nephrectomy are equal for tumors up to 4 cm. This treatment technique is more technically demanding, but allows the benefit of keeping most of the functional kidney.

Laparoscopic partial nephrectomy has become a procedure of choice for many small- to mid-sized kidney tumors. It provides the benefit of a minimally-invasive treatment while preserving most of the normal kidney. The treatment requires special surgical techniques that are not yet widespread. As a result, a large percentage of kidneys with tumors that could be treated with a laparoscopic partial nephrectomy are removed completely.

Robotic assisted partial nephrectomy is similar to laparoscopic partial nephrectomy, but it uses mechanical instruments through laparoscopic incisions that are guided by the surgeon remotely. This technique allows easier reconstruction of the kidney after the removal of the lesion. Kidney tumors that might be too complex for laparoscopic partial nephrectomy may be amenable to robotic
partial nephrectomy. Additionally, the transient disruption of blood flow to the kidney during a partial nephrectomy may be less with the robotic assisted partial nephrectomy.

Ablative techniques are being investigated for the treatment of kidney cancer. Following the trend for minimally invasive treatments and preservation of normal kidney, ablative therapies can use extreme cold or heat to destroy the kidney tumor in place, without the need to remove or reconstruct the kidney. Cryotherapy (freezing) or radiofrequency ablation (heating) is performed by placing needles into the cancer lesion guided by laparoscopy, or percutaneously using CT scanner. Cryotherapy appears especially promising, with a 98% cure rate at a mean of three years. These treatments are not yet the standard of care, as more time is needed to evaluate the data. Ablative techniques are currently used in select centers for select patients, such as the elderly, those with poor kidney function, and patients who could not tolerate surgery otherwise. Many patients experience no pain and recover virtually immediately.

Single incision laparoscopic nephrectomy, or umbilical Lapro-Endoscopic Single Site nephrectomy (LESS nephrectomy), is a special form of laparoscopy that uses one incision at the umbilicus and leaves the patient essentially without a scar. It may result in less pain postoperatively. It is for select patients and is offered at only a few select centers.

Surgery remains the only treatment for kidney cancer. Laproscopic or Robotic assisted partial nephrectomy are the treatments of choice for most kidney tumors, as these techniques are minimally invasive and preserve most of the affected kidney. Some tumors will require open surgery. Cryoablution may become more prevalent as data mature. LESS nephrectomy may be appropriate in some patients. The way kidney cancer is diagnosed and treated has changed dramatically with advancements in CT scan, ultrasound, laparoscopy, robotics and ablative treatments. As technology progresses, future treatments will continue to develop for this deadly disease.

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**PROSTATE CANCER UPDATE**

By Lambda Mszane, M.D.

Recently we have been hearing quite a bit in the media about prostate cancer screening and diagnosis. This is due to two landmark articles, released this past year, which had conflicting results as to whether routine screening with PSA is worthwhile. With this article we hope to clarify some of the issues raised and give you some general information about prostate cancer, its diagnosis, and its treatment.

The prostate is a gland that sits beneath the bladder in men that adds liquid to the semen to aid in reproduction. Abnormal growth of this gland can lead to prostate cancer. This is different from the overgrowth of normal glands, which leads to benign prostatic hypertrophy (BPH).

Prostate cancer is the second most common cancer in American men, outranked only by skin cancer. According to the National Cancer Institute and American Cancer Society, it is estimated that prostate cancer will affect 192,280 men this year and cause 27,360 deaths\(^1\). Risk factors include age, race (African Americans are particularly susceptible), and positive family history. The disease is uncommon in men younger than 50. The lifetime risk of being diagnosed with prostate cancer is about 17.1% and the lifetime risk of dying from prostate cancer is 2.9%\(^\text{2}\). The majority of cancers are diagnosed while still locally confined to the prostate, with approximately 5-7% being at an advanced stage at diagnosis.\(^3\)

The benefit of screening for prostate cancer is controversial, but screening does lead to diagnosing more prostate cancer that is locally confined. This may allow for more treatment options. Two recent clinical trials reported conflicting data regarding the impact of screening on death from prostate cancer. In the Prostate, Lung, Colorectal, and Ovarian Cancer Screening trial, no benefit to screening was found at 7 years follow-up\(^4\). In contrast, the European Randomized Study of Screening for Prostate Cancer trial found a benefit to PSA screening with a reduction in the rate of death from prostate cancer by 20%\(^5\). The American Urologic Association’s current stance is that risk assessment should be offered to men starting at the age of 40, providing that they have a life expectancy of over 10 years. Other data suggests that men over age 75 with a PSA of <3ng/ml may not need further screening, as their risk of prostate cancer death is low\(^6\).

Obviously, the best “treatment” is prevention. We are always looking for a way to prevent prostate cancer. There are a variety of medications and natural products that have been investigated to see if they reduce the incidence of prostate cancer. The SELECT trial, which evaluated selenium and vitamin E, found these to be of no benefit in preventing prostate cancer. Lycopene and other vitamins

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are also being investigated as to their benefit. A breakthrough study called the Prostate Cancer Prevention Trial (PCPT) found that the drug finasteride, which reduces the size of the prostate gland in the treatment of BPH, also reduced the risk of prostate cancer by about 25% in men over age 55\(^\text{7}\). The initial results seemed to indicate that men who did develop prostate cancer while on finasteride had higher-grade, more aggressive cancers. This finding has proven to be insignificant, with men taking finasteride at no higher risk of developing more aggressive cancers\(^\text{8}\). Careful discussions between the urologists and patients are required to determine whether an individual would benefit from taking finasteride, as there are some side effects to the drug.

PSA, prostate specific antigen, is an enzyme that is released by prostate cells and is currently the best screening blood test for prostate cancer. The confounding factor is that it is also elevated in BPH, which is common in the same age group of men at greatest risk for prostate cancer. There are several methods of interpreting PSA in an attempt to make it more accurate in predicting cancer. These include calculating free versus total PSA, third generation PSA, PSA density, and PSA velocity. The upper limit of the PSA cutoff can be adjusted based on age as well. These strategies are helpful but still do not allow an absolute diagnosis without prostate biopsy.

The digital rectal exam is used in addition to PSA to detect any abnormal areas within the periphery of the prostate gland. It is an important part of prostate cancer detection in that a small number of patients may have a low PSA with a palpable prostate cancer nodule.

To diagnose prostate cancer, an abnormal PSA or DRE will be followed by a prostate biopsy. Whether or not an individual patient should have regular screening or biopsy of the prostate is a delicate decision, and should be made after careful discussions between the patient and his urologist.

Prostate biopsy is done under ultrasound guidance, usually in the office setting. If positive, the biopsy will indicate the Gleason grade of the two most prominent abnormal gland types leading to a sum of the two numbers. This is usually recorded as a number from 6-10. From the biopsy, PSA, and DRE, the urologist can determine the clinical stage of the cancer.

Based on the overall health of the patient and the clinical characteristics of the cancer, an individualized treatment plan can be proposed. The main treatment options include active surveillance, surgery (either minimally invasive or open), radiation therapy, or hormone therapy. Only rarely is chemotherapy used in the case of advanced disease. There are other therapies that are being investigated, such as cryoablation and proton therapy.

Prostate cancer screening, diagnosis, and treatment options can be confusing, especially with the recent media attention to the benefits of screening. It is best for each individual to discuss these topics with a qualified urologist. We at Georgia Urology welcome thorough discussions about the benefits of screening. We are equipped to offer the most up-to-date treatment options, including robotic prostatectomy and brachytherapy. We pride ourselves in offering individualized care for each patient in this complex disease.


Lambda Msezane, MD, earned a Doctor of Medicine degree from Temple University in Philadelphia, PA. She completed her Residency in Surgery and in Urology at the University of Chicago in Chicago, Illinois. Dr. Msezane was awarded the American Urology Association’s Travel Urology Award and Novecea Gerald M. Murphy Scholar Award, as well as the Schoenberg Research Scholar Award at the University of Chicago for her research on prostate, urothelial biology, and bladder cancer.
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Residency: Urology; Washington University School of Medicine in St. Louis, Mo.
Fellowship: Male Reproductive Medicine and Microsurgery; University of Illinois in Chicago
Certifications: American Board of Urology- Board Certified Fellow American College of Surgeons
Areas of Interest and Expertise:
- General Urology
- Infertility
- Male Infertility

Barry M. Zisholtz, M.D.
F.A.C.S.
Camp Creek & Riverdale

Medical School: New York Medical College in Valhalla, New York
Internship: General Surgery; Beth Israel Medical Center in New York City, New York
Residency: Urology; Beth Israel Medical Center in New York City, New York
Certifications: American Board of Urology- Board Certified Fellow American College of Surgeons
Areas of Interest and Expertise:
- Urology
- Prostate Disease
- Urinary Control
- Interstitial Cystitis

LOCATIONS

1. ALPHARETTA - Fulton County
   (ADULT and PEDIATRIC)
   3400-C Old Milton Parkway, Suite 185
   Alpharetta, GA 30005
   (770) 772-4427

2. AUSTELL - Cobb County
   1700 Hospital South Drive, Suite 201
   Austell, GA 30101
   (770) 948-7228

3. CAMP CREEK - Fulton County
   3890 Redwine Road, Suite 112
   Atlanta, GA 30331
   404-766-7151

4. CANTON - Cherokee County
   320 Hospital Road, Suite 101
   Canton, GA 30114
   (770) 720-7246

5. CARTERSVILLE - Bartow County
   970 Joe Frank Harris Parkway, Suite 260
   Cartersville, GA 30120
   (707) 607-1893

6. CRAWFORD LONG - Fulton County
   550 Peachtree Street, Suite 1150
   Atlanta, GA 30308
   404-222-0292

7. CONVYERS - Rockdale County
   1501 Mildred Road, Suite 100
   Conyers, GA 30012
   (770) 760-9900

8. COVINGTON - Newton County
   4142 N. Mill Street
   Covington, GA 30014
   (770) 787-7311

9. CUMMING - Forsyth County
   1400 Northside Forsyth Drive, Suite 220
   Cumming, GA 30041
   (770) 889-9737

10. DAWSONVILLE - Dawson County
    200 Dawson Commons Circle
    Dawsonville, GA 30534
    (678) 417-0400

11. DECATER - DeKalb County
    (ADULT and PEDIATRIC)
    2685 Milscott Drive
    Decatur, GA 30033
    (404) 292-3727

12. DOUGLASVILLE - Douglas County
    6095 Professional Drive, Suite 200B
    Douglasville, GA 30134
    (770) 942-2478

13. DULUTH - Gwinnett County
    (ADULT and PEDIATRIC)
    1700 Three Lakes Drive, Suite 100
    Duluth, GA 30096
    (770) 979-9427

14. FAYETTEVILLE - Fayette County
    1260 Highway 54, Suite 204
    Fayetteville, GA 30214
    (770) 463-9777

15. JASPER - Pickens County
    220 J.L. White Drive, Suite 160
    Jasper, GA 30143
    (706) 692-4384

16. JOHNS CREEK - Fulton County
    11459 Johns Creek Parkway, Suite 170
    Johns Creek, GA 30097
    (678) 417-0400

17. LAWRENCEVILLE - Gwinnett County
    (ADULT and PEDIATRIC)
    500 Medical Center Boulevard, Suite 220
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    (770) 963-2451

18. LITHONIA - DeKalb County
    910 Hillandale Drive, Suite 201
    Lithonia, GA 30038
    (770) 981-2090

19. MARIETTA - Cobb County
    (ADULT and PEDIATRIC)
    1700 Tree Lane Road, Suite 420
    Marietta, GA 30060
    (770) 429-9100

20. MERIDAN MARK - Fulton County (PEDIATRIC)
    5445 Meridian Mark Road, Suite 420
    Atlanta, GA 30342
    404-252-5206

21. NORTHSIDE TOWER - Fulton County
    5670 Peachtree Dunwoody Road, Suite 1250
    Atlanta, GA 30324
    (404) 256-1844

22. RIVERDALE - Clayton County
    (ADULT and PEDIATRIC)
    81 Upper Riverdale Road, Suite 200
    Riverdale, GA 30274
    (770) 991-0020

23. SNEILLVILLE - Gwinnett County
    1700 Tree Lane Road, Suite 420
    Snellville, GA 30078
    (770) 979-9427

24. STOCKBRIDGE - Henry County
    (ADULT and PEDIATRIC)
    115 North Park Trail, Suite 119
    Stockbridge, GA 30281
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25. WOODSTOCK - Cherokee County
    100 Stone Forest Drive, Suite 140
    Woodstock, GA 30189
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Urinary incontinence (the accidental release of urine) can be a vexing problem at any stage of life. From young mothers to aging boomers, one in four women over the age of 30 cope with incontinence. Bladder control problems are common, and over $16.3 billion is spent annually in caring for an estimated 13 million Americans with urinary incontinence. Health care providers and the general public either routinely underestimate the emotional impact of incontinence, or they accept it as an inevitable consequence of aging. Though it is not life-threatening, the effect on a patient’s quality of life is enormous. Fear of accidents in public places can limit social activities. Healthy activities like walking, jogging, and working out can lead to more embarrassment, and if patients stop participating in these activities the subsequent weight gain can worsen incontinence.

Incontinence can be extremely upsetting for women and is usually an awkward topic to discuss with their health care providers. However, those who seek help from qualified urologists can improve with treatment. In the past, available treatment options were limited and surgeries were invasive. Recent advances have resulted in improved medical therapies and minimally-invasive surgeries. Patients suffering from incontinence can benefit from these life-changing medical interventions.

Successful treatment starts with proper diagnosis. The causes of urinary incontinence can be multi-factorial and diagnosis can be challenging. A complete medical history will lead the physician in the right direction. Previous treatments and surgeries and medical conditions such as diabetes, stroke, and lower back disease can all contribute to urinary incontinence. Physical exam, including pelvic examination, may identify anatomic factors and associated conditions, such as pelvic organ prolapse. Urinalysis and urine culture may be performed to rule out infection and a voiding diary may assist the physician in determining the cause and severity of the leakage. Additional testing may be necessary if surgery is being considered or if initial treatments have been unsuccessful. Urodynamics are tests that examine bladder function. Cystoscopy may be performed to look inside the urethra and bladder for patients with persistent urgency, bladder pain, or blood in the urine. Patients may grow frustrated by what seems to be a long and laborious diagnostic process, but it is important to remember that an accurate diagnosis of their incontinence is directly related to the success of their treatment.

Many women with urinary incontinence have co-existing vaginal prolapse. Childbirth, hysterectomy, and the effects of aging can result in the loss of muscle, ligament and connective tissue support along the pelvic floor. Prolapse of the bladder (cystocele), rectum (rectocele), bowel (enterocele), or uterus may be asymptomatic and discovered on pelvic exam or can cause “dropping” sensations, pain or pressure in the vagina and pelvis. The spectrum of architectural weaknesses in the pelvic floor may require a combined procedure to correct the various defects of prolapse and incontinence.

The timing and conditions that cause leakage distinguish the two most common causes—urge incontinence and stress incontinence. A sudden “surprise” leak that gives the patient the sense that she needs to urinate is the classic sensation associated with urge incontinence. It is the undesirable outcome of an overactive
Management of Common Genitourinary Problems in Children

By Wolfgang H. Cerwinka, M.D.

**Pediatric Urology** manages potentially surgical genitourinary problems that involve the kidney, ureter, bladder, penis, scrotum, and testicles. Patient age of boys and girls ranges from newborns to young adults (up to 20 years of age). However, in rare cases it may include older adults if a urological problem is considered specific to pediatrics and requires special training to be appropriately addressed, such as hypospadias or urinary tract reconstruction. Another age-related exception would be prenatal consults when expecting parents are counseled about genitourinary abnormalities that have been detected by ultrasound in the fetus. Since our patients present at a young age, congenital abnormalities of the genitourinary tract are predominant. The following paragraphs will describe common problems in pediatric urology.

**Physicians and Locations**

Seven fellowship-trained pediatric urologists with a cumulative experience of more than 90 years provide their services in the Atlanta metropolitan area at offices in Atlanta, Decatur, Lawrenceville, Duluth, Marietta, Alpharetta, and Riverdale. Georgia Pediatric Urology is part of one of the largest private urology practices in the nation, and it attracts patients from all over Georgia as well as from neighboring states. While patients are seen in private offices, imaging studies and surgeries are performed at four Children’s Healthcare of Atlanta (CHOA) facilities: Egleston, Scottish Rite, Scottish Rite Ambulatory Surgery Center, and Outpatient Surgery Center at Satellite Boulevard. As a rule, all procedures are performed under general anesthesia and are monitored by a pediatric anesthesiologist. Except for surgical emergencies, most procedures are deferred until the patient is six months of age, in order to minimize the likelihood of surgical and anesthetic complications. For operations of the groin, penis, and scrotum, additional regional anesthesia is administered to ease pain for up to six hours postoperatively. General anesthesia in the hands of pediatric specialists is very safe, and complications are extremely rare. However, cooperation between patients and parents is vital in areas such as preoperative cessation of feeding, discontinuation of certain medications, reporting of pertinent medical problems, and possibly a preoperative anesthetic visit. Small procedures on the penis (such as lysis of adhesions or division of penile bands) may be performed in the office under local anesthesia with EMLA cream.

**Common Problems in Pediatric Urology**

When the scrotum or groin is filled with fluid, a hydrocele exists. If the hydrocele persists longer than two years or changes in size, a communication with the abdomen is likely and surgery is necessary. However, if the hydrocele does not communicate, the fluid may be absorbed over time and thus surgery can be avoided. Once abdominal contents cause the scrotum or groin to bulge, an inguinal hernia exists and should be repaired promptly because of a small but potentially dangerous risk of bowel injury. Hernia and hydrocele repair involves a small incision in the groin followed by closure of the hernia sac, which is performed as an outpatient procedure. Risk factors for the presence of a hydrocele or hernia on the other side include premature birth, young age, or a positive family history. In such cases we routinely insufflate the abdomen with gas, as done with laparoscopy (diagnostic pneumoperitoneum) to assess the other side for a defect and to avoid a hernia later in life. Recurrences are rare.

An undescended testicle is defined as a testicle outside its normal position in the scrotum and may exist anywhere between the upper scrotum and abdominal cavity. An undescended testicle requires surgical correction. Undescended testicles are unlikely to descend after six months of age and surgery is recommended thereafter to minimize the risk for infertility, testicular cancer, inguinal hernia, testicular injury, and torsion. In contrast to an undescended testicle, a retractile testicle is often pulled outside the scrotum by a strong muscle reflex. However, it can be manually replaced into the scrotum and reside there for an extended period of time. A retractile testicle does not require surgery, but observation is needed because it may ascend in the future. It is important to distinguish undescended testicles that can be felt (palpable) from those that are non-palpable. A palpable undescended testicle is managed with orchiopexy, which places the tes-
icle in a normal scrotal position by either a small groin or scrotal incision done as an outpatient procedure. A non-palpable testicle may be congenitally absent, residing within the abdomen or in the groin. Exploration of the abdomen by laparoscopy reveals the presence and viability of a testicle and will result in either orchiopexy or removal of a non-viable testicle. Success rates are very high.

Varicoceles are dilated scrotal veins which have been compared to a “bag of worms,” and are most commonly found in the left scrotum. Varicoceles rarely cause pain, discomfort, or distortion of the scrotum. However, if patients are symptomatic or have a significantly smaller testicle associated with the varicocele, then surgery (varicocelectomy) is recommended. This may be performed laparoscopically or through a small groin incision as an outpatient procedure. Recurrences are uncommon.

Hypospadias is a congenital abnormality of the penis resulting in an abnormal location of the urethral opening anywhere between the scrotum or just below its normal position. This is often associated with penile curvature (chordee) and asymmetric foreskin (dorsal hood). Surgery is recommended after six months of age to allow normal urination, to achieve a normal appearance, and in severe cases to maintain fertility. Surgical repair places the urethra in a normal location, straightens the penis, and removes the abnormal foreskin. In severe cases of hypospadias, complete repair is accomplished in two stages, which are performed six months apart. Hypospadias are repaired on an outpatient basis and children are discharged home with a urethral catheter that drains into the diaper for approximately one week. Complications are uncommon, but are more likely to occur with more severe forms of the disease.

Phimosis is defined as the inability to retract the foreskin of the penis. The vast majority of boys are born with a normal or physiologic phimosis due to a tight foreskin and adhesions to the head of the penis. Whereas physiologic phimosis resolves spontaneously over years, true phimosis or abnormal scarring of the foreskin is usually associated with recurrent infections of the penis, pain and bleeding with retraction, difficulties urinating, ballooning of the foreskin, or painful erections. Steroid cream (betamethasone) may be used to promote healing and softening of the foreskin, and it is successful in up to 90 percent of cases when applied twice daily for one month. In cases where the scar is too severe to permit foreskin retraction, a circumcision is performed.

Newborn circumcisions may be complicated postoperatively by the formation of foreskin adhesions. Such adhesions may resolve either spontaneously or with application of steroid cream or can be separated in the office with EMLA cream. If foreskin adhesions persist for a prolonged time, penile skin bridges may form, which require division under either local or general anesthesia. In cases of incomplete newborn circumcisions where the head of the penis is either partially or fully covered with foreskin, a circumcision revision is indicated.

A small urethral opening, termed meatal stenosis, may cause a deflection of the urinary stream, blood spotting in the underwear, or may be associated with pain at the penile tip. A minor outpatient procedure to open the urethra at the penile tip (meatoplasty or meatotomoy) is usually curative.

Urinary tract infections are among one of the most common types of bacterial infections occurring in children. Most often it is caused by bacteria that invade the urinary tract by passing up the urethra into the bladder. The bacteria causing urinary infections are those that usually live on the skin near the opening of the urethra. Some may come from the child’s rectum. Symptoms of a urinary tract infection can be different in each child and may depend on age and affected organs. Infections of the bladder may lead to wetting episodes, burning, frequency of urination, or abdominal pain. They are treated with antibiotics for one week. Infections of the kidney are in general associated with high fever and in 30 percent of cases may be promoted by an abnormal flow of urine from the bladder to the kidney (vesicoureteral reflux). Kidney infections are treated by antibiotics for two weeks and should be further evaluated with kidney ultrasound and a bladder X-ray (voiding cystourethrogram) to rule out urinary tract abnormalities such as urinary tract obstruction or vesicoureteral reflux.

Vesicoureteral reflux promotes kidney infections that may require hospitalization and can lead to scarring of the kidney. Spontaneous resolution of vesicoureteral reflux is likely if the child is young, the degree of reflux is low, and reflux occurs on only one side. Treatment options include observation with or without antibiotics (antibiotic prophylaxis) if resolution of reflux is expected and surgical correction. Surgery is indicated if the child suffers from recurrent kidney infections despite antibiotic prophylaxis, if new kidney scars develop, or if reflux persists for an extended period of time. Either an open procedure directed at re-implanting the ureters into the bladder or an outpatient endoscopic procedure (Deflux® injection) may be performed. A high success rate is achieved with both techniques and complications are rare.

**Emergencies in Pediatric Urology**

Emergencies in pediatric urology are fortunately rare events. However, they frequently require time-consuming transportation to a children’s hospital where the problem can be appropriately addressed.

Priapism is a painful erection that does not result from sexual desire and lasts longer than four hours. Prolonged priapism may damage the penile tissues and decrease the ability to achieve erections due to an accumulation of oxygen-poor blood in the penis. The most common cause of priapism in children is sickle cell disease and occurs in 5% of affected patients. If medical treatment such as pain medication, oxygen, fluids, and blood transfusions fails, vasoconstricting substances (phenylephrine) are injected into the penis and the penis irrigated. If penile irrigations fail, a shunt procedure is performed in the operating room that allows the blood in the penis to leave on an alternate route and permits entry of oxygen-rich blood.

Testicular torsion occurs when the testicle twists together with its blood supply and blood flow becomes interrupted. One in 4000 adolescent males...
(usually between 12 and 18 years of age) presents with testicular torsion. If testicular torsion persists longer than six hours, the testicle may be lost. Symptoms of testicular torsion are sudden onset of severe testicular pain (often radiating to the groin which may include nausea and vomiting). On physical exam, the testicle is tender, swollen, often high riding, and the scrotal skin is red. In cases of high suspicion for testicular torsion, the patient is taken to the operating room without prior ultrasound and the testicle is untwisted. If the testicle appears infarcted, it is removed and the other testicle is secured to prevent a similar event in the future. On average, 40 percent of torsed testicles need to be removed.

Genitourinary trauma in children comprises less than 10% of all trauma and is managed in collaboration with pediatric surgery. Athletic activities and motor vehicle accidents constitute the most common causes for blunt genitourinary trauma and affect most frequently the kidney. After initial evaluation with CT scan, most patients with kidney injuries are observed on bed rest and bladder catheter drainage. In cases of significant bleeding and unstable vital signs, surgical intervention becomes necessary.

Videourodynamic studies are performed in the Georgia Pediatric Urology main office in order to assess the function of the bladder and bladder outlet with X-rays and pressure measurements of bladder and abdomen. Placement of two small catheters into the bladder and rectum are facilitated with the use of local anesthetic gel and, more importantly, with a DVD player. Children who require catheter placement by cystoscopy and/or sedation undergo videourodynamic studies at Egleston Children’s Hospital.

A genitourinary tract abnormality is diagnosed by prenatal ultrasound in one out of a hundred pregnancies. Diagnosis of prenatal hydronephrosis may create substantial anxiety due to the uncertainty of its significance, prognosis, and necessity of either fetal intervention or postnatal treatment. A prenatal consultation with pediatric urology provides reassurance to parents and family by discussing underlying causes, postnatal management, and surgical treatment options. Recommendations are in accordance with guidelines established by The Society of Fetal Urology, a non-profit organization whose main purpose is to promote fetal and prenatal urology, appropriate practice, education, as well as exchanges between practitioners involved in the treatment of hydronephrosis.

Robot-assisted laparoscopic surgery is offered to pediatric patients at North Side Hospital. Robotic surgery improves the performance of complicated laparoscopic surgery such as dismembered pyeloplasties for kidney obstruction under controlled conditions.

Georgia Pediatric Urology covers calls statewide for pediatric urologic emergencies, 24 hours a day, 7 days a week. For more information please refer to the websites www.gaurology.com and www.choa.org.
Shown in studies to reduce both the incidence of UTIs and use of prophylactic antibiotics in children with VUR\textsuperscript{1,2}

Deflux\textsuperscript{®} is indicated for the treatment of children with VUR Grades II-IV. Contraindications include: non-functioning kidney(s), Hutch diverticulum, ureterocele, active voiding dysfunction, ongoing urinary tract infection. The following treatment-related adverse events occurred in clinical trials: urinary tract infection, ureteral dilatation and nausea, vomiting and abdominal pain. Rare cases of postoperative dilatation of the upper urinary tract with or without hydronephrosis leading to temporary placement of a ureteric stent have been reported.