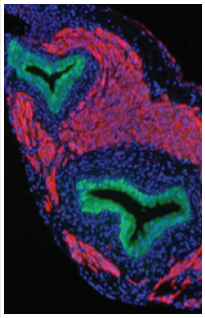
UCSF PEDIATRIC UROLOGY

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO | SCHOOL OF MEDICINE | 2008

Michael DiSandro, MD, with pediatric patient Ryan Fletcher.



A microscopic view of bladder cells being formed

INSIDE THIS ISSUE

Michael DiSandro Joins Staff

A pediatric urologist with more than 10 years of experience, Michael DiSandro, MD, joined the UCSF clinical faculty earlier this year. He and Laurence Baskin, MD are responsible for the treatment of children who are seen through the UCSF pediatric urology program. DiSandro has a particular interest in hypospadias, an increasingly common birth abnormality in baby boys, in which the urethral opening is abnormally positioned. (See Spotlight on Research story).

DiSandro has extensive experience and is responsible for the treatment of children who are seen through the UCSF Pediatric Urology Program.

DiSandro has extensive experience in the surgical repair of the condition, which is typically performed when a child is six months of age.

DiSandro obtained his medical degree at the University of Vermont College of Medicine. His postgraduate training included an internship and residency in surgery and urology at the University of California, Davis, followed by a fellowship in pediatric urology at UCSF. He comes to UCSF from the University of Miami School of Medicine, where he served on the faculty and coordinated the residency and fellowship training programs at Miami Children's Hospital. DiSandro previously served as Director of Pediatric Urology at the University of Minnesota Medical School.

Helping Children with Incontinence

Urinary incontinence can be a frustrating problem for both parents and children. UCSF's pediatric urology continence clinic now offers a free evening seminar that gives parents basic information and techniques that they can use at home to help their child stay dry. At the conclusion of the program, parents can make an appointment to be seen in the pediatric urology continence clinic or they can try some of the techniques first and make an appointment, if necessary, at a later date.

Called the Pediatric Urology Parent (PUP) seminar, the meetings are

CONTINUED

Letter from the Chief

Laurence Baskin, MD

On behalf of the UCSF pediatric urology team I extend a warm welcome to Michael DiSandro, MD, our newest member of the Pediatric Urology team at UCSF. Dr. DiSandro is an outstanding surgeon and fantastic clinician. He is presently enrolled in the Department of Epidemiology & Biostatistics' Advanced Training in Clinical Research Certificate Program. His participation in this program adds to our expertise in clinical studies.

Our most recent fellow, Jason Wilson, MD, is to be congratulated for his appointment as Associate Professor at the University of New Mexico Health Sciences Center in Albuquerque. Jason will be greatly missed, but I know that the children of New Mexico are lucky to have this skilled clinician.

I would like to acknowledge our nurse practitioner team members, Anne Arnhym, CPNP, Angie Hinds, CPNP and Courtney Moll, CPNP for their efforts in spearheading the educational Pediatric Urology Parent (PUP) Seminar. It has been a wonderful success for children with bladder and continence problems.

Our collaboration with James Betts, MD at the Children's Hospital and Research Center Oakland continues to grow. Both Dr. DiSandro and I have regular clinics and operating time in Oakland where we work closely with the pediatric nephrology, radiology and anesthesia services.

Our research efforts continue to thrive. At the most recent American Academy of Pediatrics' meeting in San Francisco our team presented seven papers, including one selected as the third best research paper from over 300 submissions. Mei Cao, MD, an outstanding researcher in our laboratory, was the first author of this paper entitled, "Urothelial Patterning Controls Bladder Smooth Muscle Formation." Postdoctoral fellows Benchun Liu, MD, PhD, and Nicolas Kalfa, MD, each gave two scientific presentations at the meeting. Dr. Wilson presented our team's two clinical papers prior to his departure for Albuquerque. We are pleased that our research studies will continue uninterrupted thanks to another five-year grant from the National Institutes of Health. The NIH grant funds our "Genes and Bladder Smooth Muscle Development" project. More details about the research program in pediatric urology can be found online at http://ucsf.edu/baskinlab/index.html.

I thank our staff in the clinic, academic offices, operating room and hospital; they are an integral part of the team. It is a great honor to share in the care of pediatric urology patients in northern California. I hope you enjoy our newsletter, and please do not hesitate to contact us should you have any questions or suggestions.

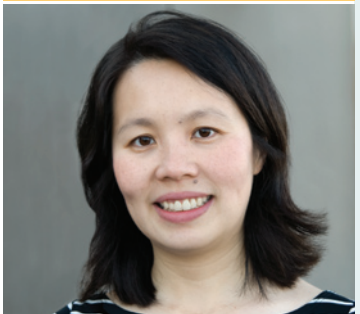
Sincerely,

Larry Baskin

Laurence S. Baskin, MD
Chief, Pediatric Urology, Department of Urology
Professor of Urology and Pediatrics, University of California, San Francisco

Adam Hittelman, MD, PhD

Ming Hsien Wang, MD



Fellowship and Residency

Training

The pediatric urology program at UCSF offers training for residents and fellows.

Residents receive pediatric urology training through the integrated four-year UCSF urology residency program. By engaging in clinical and research activities and attending conferences, residents are introduced to all the subspecialties, including pediatric urology.

The ACGME approved pediatric urology fellowship consists of one to two years of research and one year of clinical pediatric urology. Laboratory research is sponsored by a training grant from the National Institutes of Health. The pediatric urology fellowship program is closely tied to departmental activities.

More information about the pediatric urology fellowship and urology residency program can be found online at http://urology.ucsf.edu

Current Fellows

UCSF has a robust pediatric fellowship program. Current fellows are listed below:

Adam Hittelman, MD, PhD
July 2007-June 2008

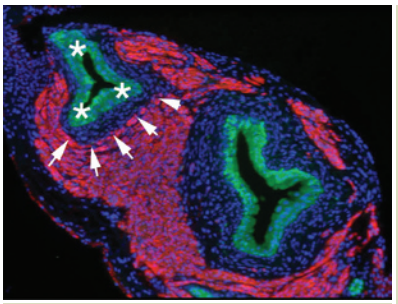
Ming Hsien Wang, MD
July 2007-June 2009

Jennifer Yang, MD
July 2008-June 2010

Spotlight on Research

The UCSF pediatric urology program has an international reputation for innovative basic and clinical research. Current projects are focused on three areas that have the potential to improve treatment for several common conditions.

A hyena named Zonker with her baby Kadogo. Zonker and Kadogo are members of the hyena colony being studied to understand the effects of androgens and genital growth.



Ectopic Sonic hedgehog secreting urothelium (*) inhibiting a ring of bladder smooth muscle formation (arrows).

Sonic Hedgehog and Bladder Development

If you have heard the term, Sonic the Hedgehog, before, it is probably in connection with the Sega computer game in which it is a character. But Sonic hedgehog is also the name of a powerful genetic signaling pathway that appears to play a key role in bladder development.

Identifying the role of this signaling pathway in orchestrating bladder smooth muscle formation was the culmination of 10 years of research at UCSF with gene array experiments. Sonic hedgehog had been shown by other researchers to affect the development of many organs, but the UCSF team is the first to demonstrate its role in the bladder.

The UCSF team is the first to demonstrate the importance of Sonic Hedgehog in the bladder.

UCSF researchers were recently awarded a five-year continuation of an NIH grant that has supported their investigations. “This work eventually could lead to help for children with urinary incontinence,” says Laurence Baskin, MD, chief of Pediatric Urology. “If we can understand the normal process of bladder development, we can understand abnormal development.”

Conditions that arise from abnormal bladder smooth muscle development include posterior urethral valves, an anatomical abnormality in males in which excess tissue flaps block urine flow. The problem can cause severe bladder and kidney damage. The nervous system abnormalities associated with spina bifida (myelomeningocele) can also cause too much smooth muscle development in the bladder. With a clearer understanding of what causes smooth muscle to grow, physicians hope to develop ways to block its formation.

Hyenas

UCSF pediatric urologists can thank the spotted hyena for improved ways to perform corrective surgery in girls who are born with masculinized genitalia. These animals provide a useful model of the condition because, due to an enzyme defect, female spotted hyenas are naturally exposed to very high levels of the male hormone androgen during gestation. As a result, all females of this species are born with masculine appearing genitals. Researchers in Baskin’s laboratory have been working with a colony of the animals maintained at UC Berkeley where psychologist Stephen Glickman studies the effects of androgen on the animals’ behavior.

By studying the pelvic anatomy of spotted hyenas, researchers have learned new techniques for preserving nerve function, including continence and sexual function, in girls who are overexposed to androgen during fetal development and are born with masculinized genitalia. This occurs in conditions such as congenital adrenal hyperplasia and in several other enzyme disorders.

Hypospadias

Heart defects are the most common congenital abnormality in children, but hypospadias occupies the number two slot, affecting 1 in every 250 to 300 male babies. In hypospadias, the urethral opening is located in an abnormal spot, either along the penile shaft, in the scrotum, or in the perineum. Hypospadias is also associated with foreskin abnormalities and curvature of the penis. In 95 percent of cases, the cause of the condition is not known. But hypospadias has been increasing in industrialized countries over the last 30 years, suggesting that environmental factors, such as exposure to estrogens and other hormonally active substances that act as endocrine disruptors, may be a factor.

UCSF has received an NIH grant to study the causes of the disorder. Based on extensive previous research, UCSF scientists know that children with hypospadias have an increase in expression of a number of different genes. The hypothesis, according to Baskin, is that genetic susceptibility combined with a first trimester exposure to some environmental agent causes hypospadias.

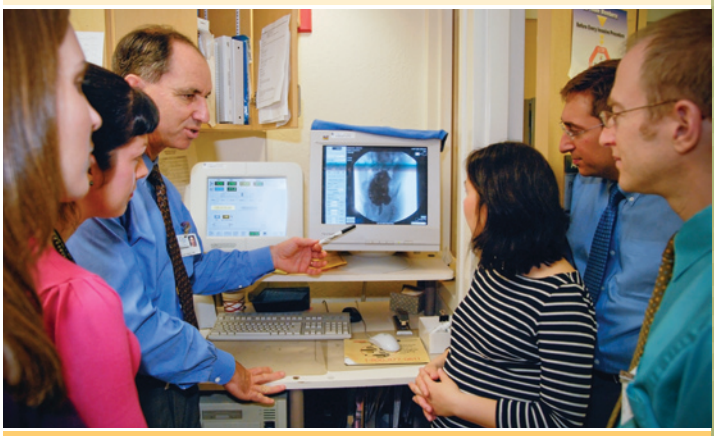
UCSF is a major center for the repair of hypospadias. Baskin has performed more than 1,500 surgeries for the condition, and new faculty member Michael DiSandro, MD is also a specialist in this type of surgery, which is typically performed on an outpatient basis when the child is six months of age.

Disorder of Sexual Development Clinic

The term, disorders of sexual development (DSD), refers to a range of conditions that lead to atypical development of sex characteristics. Sexual differentiation is a complex physiological process comprised of many steps. Problems associated with sex differentiation occur when errors in development take place at any of these steps.

We are delighted to announce that we have implemented a DSD Clinic at UCSF. Members of the disorders of sexual development team include renowned UCSF experts in pediatric urology, pediatric endocrinology, child psychology, social work and nursing.

For more information or to schedule a patient for the DSD Clinic please call Angie Hinds, CPNP at 415/353-2200



Laurence Baskin, MD shares a teaching moment with the pediatric urology team.

Incontinence CONTINUED

held the second Tuesday of every month from 6:00-7:30 p.m. The seminars are run by a pediatric urology nurse practitioner at UCSF Children's Hospital who covers such topics as nighttime wetting, daytime wetting, urinary tract infections, pain or difficulty with urination, frequent or infrequent urination, and constipation and stool problems.

A Common Problem

Fifteen percent of five-year-olds and 10 percent of six-year-olds experience difficulty staying dry. Nighttime enuresis, the involuntary loss of urine during sleep after the age of five years, is the most common bladder control problem, but some children have trouble with daytime continence as well. The problem is believed to be caused by a delay in the rate at which the bladder develops and matures. Almost all cases resolve as the child grows older, but in the meantime, wetting can be a source of embarrassment and discomfort. In some cases, more serious conditions such as an anatomic problem or infection may be causing wetting.

Treatments that can be used to help children stay dry include behavior modification, alarms and drug therapies. Parent evaluations have consistently given the seminars high marks for usefulness.

Fifteen percent of five-year-olds and 10 percent of six-year-olds experience difficulty staying dry.

Treatment Tips

"The PUP seminars are a useful way to cover important information and answer parents' questions," says clinical pediatric nurse practitioner Courtney Moll, who conducts the programs with Anne Arnhym and Angie Hinds. The seminars review the causes of wetting and urinary tract infections and treatments for these problems.

The seminars are designed for parents, but pediatricians are also welcome to attend. Sessions are limited to 30 participants, and preregistration is required. To make a reservation to attend the next PUP seminar, please call Shirkeri Badger at 415/353-2798. A registration packet, including directions, will be mailed to you in advance.

Anne Arnhym, CPNP

Angie Hinds, CPNP

Courtney Moll, CPNP

What We Do:
the specialty of pediatric urology

There are multiple ways to manage pediatric urology disorders, and we tailor treatment to each individual. When a child requires surgery, we offer both open and minimally invasive surgical techniques and work closely with the pediatric anesthesiologist to minimize pain.

- Antenatal hydronephrosis (Fetal Hydronephrosis)
- Genital Anomalies
  - Adolescent varicoceles
  - Epispadias and exstrophy
  - Hydrocele and hernia (male and female)
  - Hypospadias
  - Intersex and genitalia reconstruction (vaginoplasty)
  - Undescended testes
- Hematuria
- Minimally-invasive surgery (laparoscopy and endoscopy)
- Myelomeningocele urinary tract management (incontinence)
- Neurogenic bladder
- Treatment of genitourinary malignancies
  - Rhabdomyosarcomas
  - Wilms tumors
- Urinary incontinence and enuresis
- Dysfunctional Elimination Syndrome
- Urinary stone disease
- Urinary tract infections
- Urinary tract obstruction
  - Megaureters
  - Posterior urethral valves
  - Prune Belly Syndrome
  - Ureteroceles
  - Uretero-pelvic junction obstruction
  - Urinary tract strictures
- Urinary tract reconstruction
  - Artificial urinary sphincter and urinary continence surgery
  - Gastric, ileal, colonic and ureteral bladder augmentation
  - Pre-renal transplantation reconstruction
  - Urinary undiversion and diversion
- Vesico-ureteral reflux and reflux nephropathy

Recent Publications

Members of the pediatric urology team have published extensively. A few recent highlights are noted below.

Baskin LS, Ebbers MB: Hypospadias: anatomy, etiology, and technique. *J Pediatr Surg,* 2006;41(3):463-472.

Krishnan A, de Souza A, Konijeti R, Baskin LS: The anatomy and embryology of posterior urethral valves. *J Urol,* 2006;175(4):1214-1220.

Li J, Shiroyanagi Y, Lin G, Haqq C, Lin CS, Lue TF, Willingham E, Baskin LS: Serum response factor, its cofactors, and epithelial-mesenchymal signaling in urinary bladder smooth muscle formation. *Differentiation,* 2006;74(1):30-39.

Liu B, Agras K, Willingham E, Vilela ML, Baskin LS: Activating transcription factor 3 is estrogen-responsive in utero and upregulated during sexual differentiation. *Horm Res,* 2006;65(5):217-222.

Shiroyanagi Y, Liu B, Cao M, Agras K, Li J, Hsieh MH, Willingham EJ, Baskin LS: Urothelial sonic hedgehog signaling plays an important role in bladder smooth muscle formation. *Differentiation,* 2007.

Awards & Activities

Laurence Baskin, MD was honored to give the annual John Duckett Lecture at the European Society of Pediatric Urology's Annual Congress. The 2007 meeting was held in Brugge, Belgium. Baskin's presentation, "Can Hypospadias be Prevented?" was especially fitting, as it honored John W. Duckett, Baskin's mentor and the father of modern hypospadias surgery.

Baskin was selected from a competitive pool of applicants to participate in the 2006-07 UCSF Faculty Leadership Collaborative. This program of the Coro Center for Civic Leadership develops faculty to build community and effect change on campus through personal and professional development of skills, awareness and knowledge.

Laurence Baskin, MD is recognized for his participation in Faculty Leadership Collaboration by UCSF Vice Chancellor Sally Marshall, PhD and Lizabeth Cutler of the Coro Center.

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Web Links

UCSF Pediatric Urology
http://urology.ucsf.edu/clinicalRes/CRpedUro.html

Patient handouts
http://urology.ucsf.edu/patientGuides/pedUro.html

Baskin research laboratory
http://ucsf.edu/baskinlab/

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The UCSF pediatric urology team: Courney Moll, Michael Disandro, Anne Arnhym, Laurence Baskin, Ming Hsien Wang, and Adam Hittleman. Angie Hinds is not pictured.

PUP Seminar

Free of charge
Open to all parents

2nd Tuesday of every month
6:00-7:30 p.m. at UCSF Medical Center

Must call to register:
Shirkeri Badger 415/353-2798

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