

MEET THE *Team*

We understand that no surgery is simple. That is why patients need surgeons who are pediatric-trained and experienced in treating a wide range of conditions. Our team of pediatric general surgeons includes:

Egleston physicians

Amina Bhatia, M.D., M.S., F.A.C.S., F.A.A.P.
o: 404-785-8787 c: 404-274-3064

Matthew Clifton, M.D., F.A.C.S., F.A.A.P.
o: 404-785-8787 c: 404-354-4196

Megan Durham, M.D., F.A.C.S., F.A.A.P.
o: 404-785-8787 c: 404-210-2446
Practice Director, Children's Physician Group—Pediatric Surgery

Kurt Heiss, M.D., F.A.C.S., F.A.A.P.
o: 404-785-8787 c: 678-910-6303

Jonathan Meisel, M.D.
o: 404-785-8787 c: 917-301-9144

Paul Parker, M.D., F.A.C.S., F.A.A.P.
o: 404-785-8787 c: 404-317-9016

Mehul Raval, M.D., M.S.
o: 404-785-8787 c: 336-575-7783

Matthew Santore, M.D.
o: 404-785-8787 c: 215-400-1805

Mark Wulkan, M.D., F.A.C.S., F.A.A.P.
o: 404-785-8787 c: 404-275-0007
Surgeon-in-Chief,
Children's Healthcare of Atlanta

Scottish Rite physicians

Samiksha Bansal, M.D. (Sept. 2016)
o: 404-785-6895 c: 315-406-7836

John Bleacher, M.D., F.A.C.S., F.A.A.P.
o: 404-785-6895 c: 404-218-8384
Practice Director, Children's Physician Group—Pediatric Surgery

Joseph Bussey III, M.D., F.A.C.S., F.A.A.P.
o: 404-785-6895 c: 404-317-4391

Julie Glasson, M.D., F.A.C.S., F.A.A.P.
o: 404-785-6895 c: 404-314-2676

Rona Norelius, M.D.
o: 404-785-6895 c: 585-727-2166

George Raschbaum, M.D., F.A.C.S., F.A.A.P.
o: 404-785-6895 c: 404-234-7959



1699 Tullie Circle NE
Atlanta, GA 30329-2303

SURGERY *Update*

A newsletter from Children's
Physician Group—Pediatric Surgery

Surgery Update is a newsletter from Children's Physician Group—Pediatric Surgery intended to keep you informed regarding the latest in pediatric general surgery.

In this issue

- Magnetic resonance imaging-guided laparoscopic-assisted anorectoplasty for imperforate anus
- News and announcements

 Call **404-785-6895** (Scottish Rite) or **404-785-8787** (Egleston) to make a referral or to discuss potential surgical treatments for your patients.

 Visit choa.org/cpgsurgery for more information.

©2016 Children's Healthcare of Atlanta Inc. All rights reserved. SURG 965050.rb.07/16

Pre-Sorted
First Class Mail
U.S. Postage
PAID
Atlanta, GA
Permit No. 525



SURGERY *Update*

A newsletter from Children's
Physician Group—Pediatric Surgery

SUMMER 2016

In this issue

- 2 Magnetic resonance imaging-guided laparoscopic-assisted anorectoplasty for imperforate anus
- 3 News and announcements



Magnetic resonance imaging-guided laparoscopic-assisted anorectoplasty for imperforate anus

George Raschbaum, M.D. (general surgery), John Bleacher, M.D. (general surgery), Damien Grattan-Smith, M.D. (radiology), Richard Jones (physicist, radiology)

Introduction and overview

Anorectal malformations constitute a spectrum of defects involving development of the distal intestinal and urogenital tracts. The incidence of these abnormalities is approximately 1 to 4 in 5,000 newborns with a greater frequency occurring in males than in females. They are classified by their anatomical characteristics and presence or absence of fistulas.

The lowest defects involve perineal fistulas with cutaneous openings that appear like a small anteriorly placed anus. The highest defects involve bladder neck fistulas in males and high vaginal fistulas in females. Alternatively, imperforate anus can occur with no fistula. Another complex abnormality involving the presence of a common channel of rectum, vagina and urinary tract, known as persistent cloaca, can occur.

General examination

History and examination in the neonate can aid in the classification of imperforate anus. Those with perineal fistulas and posterior forchette fistulas (low vestibular) are readily evident on examination. Higher defects, with genitourinary fistula, can be determined by history or findings of meconium in the urine in males or passage of meconium from the vagina in females.

Temporary colostomy will be required in the newborn period in an infant with a high defect. The exact anatomy in these higher defects may not be fully elucidated until a contrast study can be performed through the distal end of a colostomy stoma. A thorough evaluation for associated defects is important in the evaluation of imperforate anus since anorectal abnormalities can occur as a component of the VACTERL complex. In addition, spinal dysraphism can be associated with imperforate anus.

Surgical repair

The basis for current surgical repair of imperforate anus was largely due to the work of Alberto Peña, M.D., and his associates. The anatomy of the muscles involved in rectal control and continence was simplified into two muscle groups. The parasagittal muscle fibers make up the external sphincter and the vertical fibers make

up the puborectal sling. In Peña's procedure, these two muscle complexes are divided along their sagittal midline to allow for placement of the rectum in its anatomically correct location.

Low defects can be repaired through a posterior sagittal approach while higher defects may require a combined posterior sagittal and abdominal approach. The principle of minimally invasive surgery applied to the posterior sagittal anorectoplasty for high imperforate anus led to the laparoscopic-assisted anorectoplasty (LAARP). This had the theoretical advantage of merely radially expanding the muscle complexes rather than dividing the complexes anteriorly and posteriorly.

Procedure

The theoretical problem with LAARP is that a correct path of the needle advanced from the center of the external sphincter through the 3mm vertical muscle complex and into the abdomen through the pelvic floor cannot be ensured. A more recent approach to the repair of high imperforate anus is the use of intra-operative MRI guidance to place a needle through the narrow parasagittal and vertical muscle complexes, thereby allowing radial expansion of the complexes in the appropriate position.

Images obtained by MRI are seen in three planes. This ensures the pull-through of the rectal segment will be in the correct path in the center of the muscle complexes with minimal injury to the muscles. This technique was developed and described by surgeons at the Children's Physician Group—Pediatric Surgery at Scottish Rite using the intra-operative MRI suite at Children's Healthcare of Atlanta and reported recently in the Journal of Pediatric Surgery.

Follow-up and postoperative care

Long-term follow-up is essential for the management of all children with imperforate anus. In the initial phase of management after pull-through, calibration and progressive dilatation of the anoplasty is required. This becomes the daily responsibility of the child's caretakers. Dilatations can be discontinued once the patient's anoplasty is of adequate size, stable and established.

News and announcements

Rona Norelius, M.D., to join Children's Physician Group

Rona Norelius, M.D., is board certified in general and pediatric surgery. She is joining the Children's Physician Group—Pediatric Surgery at Scottish Rite and comes to us from Anchorage, Alaska, where she served as the medical director of pediatric surgery for the Children's Hospital at Providence Alaska Medical Center. Prior to that, she was an assistant professor of surgery at the University of Colorado School of Medicine and the medical director of pediatric surgery at Children's Hospital Colorado in Colorado Springs, where she received a prestigious service award and was voted a top doctor in her field twice by her peers.

Dr. Norelius earned her medical degree from Baylor College of Medicine, where she helped establish the International Track for medical students with special interest in global medicine. She completed her general surgery training in Rochester, New York, where she served as chief administrative resident. She completed her pediatric surgery fellowship at the University of Texas in Houston at Children's Memorial Hermann Hospital and MD Anderson Cancer Center.

Dr. Norelius has broad experience and interests in pediatric surgery, with special interest in the correction of congenital anomalies and the use of minimally invasive technology. She is a member of the Pan-African Academy of Christian Surgeons' Pediatric Surgery Council. She travels to Africa annually to provide care and hands-on training to African general surgery residents.

Dr. Norelius and her husband live in Brookhaven, where they share their home with their dog and are excited to welcome a baby girl

later this year. In their free time, they enjoy doing yoga, hiking, biking, skiing and traveling.

ERAS protocol

In selected patients we have piloted an enhanced recovery after surgery (ERAS) protocol. The ERAS protocol is designed to reduce inflammation and post-surgical stress in patients, enabling their bodies to regain normal function and return to activity more quickly.

Prior to the ERAS protocol implementation, patients fasted for both solids and liquids for eight hours before surgery. Then they were given modest amounts of replacement fluids and routine narcotics in the operating room. This caused some puffiness from the I.V. fluids and delayed diet advancement until the first or second postoperative day. The ERAS protocol calls for patients to drink a high-carbohydrate clear liquid drink two hours prior to surgery to help maintain a high metabolic rate and prevent dehydration. They are given a loading dose of Tylenol and Neurontin prior to surgery. Then they receive regional anesthesia, or a "block" or epidural, to complement the general anesthesia. This allows the patients to receive a lower amount of I.V. fluids while in the operating room and provides better postoperative pain control. A diet is started immediately following the operation, and a majority of patients eat a regular dinner on the day of surgery. Patients studied on the protocol have shown an average hospital stay of two to three days, a minimal amount of narcotic usage and an overall faster recovery once discharged. With the success of this protocol, we plan to offer ERAS to more of our surgical patients.

Children with repair of an imperforate anus must be monitored and treated for constipation. Prolonged constipation can lead to mega-rectum and need for rectal resection or pull-through revision. Follow-up should continue beyond toilet-training years. Bowel training management can aid in achieving social continence.

Results

In general, the higher the anorectal abnormality, the poorer the functional outcome will be. This is largely attributed to an inadequately developed muscle complex and poorly developed innervations to those muscles. Successful outcomes for repair

of perineal and vestibular fistulas should be greater than 90%. Approximately 80% of boys with a bulbar urethral fistula, 66% with prostatic urethral fistulas and only 15% of boys with bladder neck fistulas will develop continence by current surgical techniques.

Outcomes from the MRI-guided laparoscopic-assisted anorectoplasty are not yet available. Intuitively, it would seem that patients with high imperforate anus and predictably worse outcomes would benefit the most from a procedure minimizing injury to the muscle and precision in placing the rectum in its correct location within the center of the muscle complex. We will continue to investigate outcomes for this new and innovative procedure.

This paper garnered Dr. Grattan-Smith the 2016 Caffey Award for Best Clinical Research Paper from the Society for Pediatric Radiology. From "Magnetic resonance imaging-guided laparoscopic-assisted anorectoplasty for imperforate anus," by G.R. Raschbaum, J.C. Grattan-Smith and R.A. Jones, 2010, Journal of Pediatric Surgery, Volume 45, p. 220-223. Copyright 2010. Reprinted with permission from Elsevier.

Contact us

Children's Physician Group—Pediatric Surgery provides comprehensive general and thoracic pediatric surgical care for children and adolescents throughout Georgia and the Southeast. Our offices are located at:

Main offices

Children's at Century Boulevard

1975 Century Blvd., Suite 6
Atlanta, GA 30345
P: 404-785-8787, F: 404-785-8788
Drs. Bhatia, Clifton, Durham, Heiss, Meisel, Parker, Raval, Santore and Wulkan

Children's Medical Office Building

5455 Meridian Mark Road, Suite 570
Atlanta, GA 30342
P: 404-785-6895, F: 404-785-6896
Drs. Bansal, Bleacher, Bussey, Glasson, Norelius and Raschbaum

Outpatient clinics

Children's at Cobb (Marietta)

P: 404-785-8787, F: 404-785-8788
Dr. Meisel

Children's at East Cobb (Marietta)

P: 404-785-6895, F: 404-785-6896
Dr. Bleacher

Children's at Fayette (Fayetteville)

P: 404-785-8787, F: 404-785-8788
Dr. Bhatia

Children's at Forsyth (Cumming)

P: 404-785-6895, F: 404-785-6896
Drs. Bleacher, Norelius and Raschbaum

Children's at Old Milton (Alpharetta)

P: 404-785-6895, F: 404-785-6896
Drs. Bansal and Bussey

Children's at Satellite Boulevard (Duluth)

P: 404-785-8787, F: 404-785-8788
Drs. Bhatia, Heiss, Meisel and Santore
P: 404-785-6895, F: 404-785-6896
Dr. Glasson

Athens Clinic (Athens)

P: 404-785-8787, F: 404-785-8788
Dr. Clifton

Columbus Clinic (Columbus)

P: 404-785-8787, F: 404-785-8788
Drs. Heiss and Wulkan

Surgical locations

We perform surgeries at Egleston hospital, Scottish Rite hospital, Children's at Meridian Mark Outpatient Surgery Center and Children's at Satellite Boulevard Outpatient Surgery Center.