

# Advancing

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## Minimally Invasive Gynecology and Urogynecology

### *An Overview of Minimally Invasive Gynecologic Procedures*

Advances in technology and surgical instruments have made minimally invasive gynecologic surgery an option for many women. Procedures that once required large incisions and an open surgical field can now be performed through a few tiny incisions or no incisions at all.

Compared to traditional open surgery, patients who have minimally invasive procedures generally spend less time in the hospital, have a faster recovery, less internal scarring and pain.

The University of Miami's Department of Obstetrics and Gynecology is dedicated to raising awareness among patients about minimally-invasive procedures, as well as training and educating physicians in this field. Below is an overview of some common minimally-invasive procedures.

**Laparoscopy** is the insertion of a long, thin, lighted, telescope-like instrument called a laparoscope into the abdomen through an incision usually in the navel. This procedure allows the physician to visually inspect the contents of the pelvic and abdominal cavities. Other small incisions may also be made and additional instruments inserted to facilitate diagnosis and allow surgical correction of abnormalities.

In **laparoscopic procedures** the laparoscope is inserted through a small incision in the patient's abdomen. The scope displays images of the patient's internal organs on a TV monitor. While watching



Dr. Nahida Chakhtoura (left) and Dr. Peter Takacs (center) practice minimally invasive techniques with Ob/Gyn residents.

the monitor, the physician inserts surgical instruments through other small incisions. Many gynecologic procedures can be performed using this approach including hysterectomy, tubal ligation, and incontinence treatments.

**Hysteroscopy** is the examination of the inside of the uterus using a small fiber optic telescope inserted through the cervix and into the uterus. This procedure can help the doctor identify fibroids or other

anomalies.

**Endometrial Ablation** offers an effective alternative to hysterectomy (the removal of the uterus) for patients suffering from heavy or prolonged bleeding during their period. It is often chosen when other medical treatments have failed or are undesirable. This procedure involves the removal of the lining of the uterus, which is the source of the bleeding. Endometrial ablation is performed during operative hysteroscopy.

#### **Anti-incontinence Procedures**

Urinary incontinence is a common condition in women. There are several ways to treat incontinence including non-surgical management, physiotherapy, pharmacologic therapy, mechanical devices and minimally invasive surgical techniques.

Minimally invasive techniques for the management of stress urinary incontinence include:

**Minimally Invasive Midurethral Sling (MIMUS)** – the MIMUS procedure attempts to create a support structure under the urethra. It involves the passage of a synthetic or biomaterial graft under the midurethra through small incisions with tension-free application. The sling is cre-

ated via a retropubic, or transobturator approach. The needle can be inserted vaginally using different methods or if the surgeon prefers, abdominally.

**Periurethral Bulking Agents** – Bulking agents are designed to bulk up and "tighten" the urethra (the tube leading into the bladder) to treat urinary incontinence. The bulking agent most commonly used is Collagen. The agents are injected into the urethra using a special cystoscope.

### **Minimally Invasive Procedures for the Management of Pelvic Organ Prolapse**

Recent developments in surgical techniques allowed the introduction of new

minimally invasive procedures for the management of pelvic organ prolapse: cystocele, rectocele, uterine or vaginal prolapse. Below are some of the procedures performed at the University of Miami.

**Laparoscopic Uterine Suspension** Some women with uterine prolapse choose to preserve their uterus. Laparoscopic uterine suspension offers a minimally invasive, outpatient surgery to reattach the uterus to its normal position.

### **Laparoscopic Uterosacral Ligament Suspension**

Laparoscopic uterosacral ligament suspension involves suturing the uterosacral ligament to the apex of the vagina. The

laparoscopic uterosacral ligament suspension procedure is normally performed by placing two sutures through each uterosacral ligament and then through the cuff or apex of the vagina.

### **Transobturator Approach For Cystocele Repair with Mesh**

Anterior vaginal wall relaxation (cystocele) is one of the most commonly diagnosed forms of pelvic organ prolapse in women. In some cases addition of a piece of mesh is necessary to achieve adequate support. The transobturator approach allows proper placement of the mesh, covering the entire anterior vaginal wall.

## *Education and Training*

### **CADAVER DISSECTION COURSE**

The Department of Obstetrics and Gynecology offers residents the opportunity to participate in cadaver dissections with the purpose of helping them better understand surgical anatomy and procedures in a no-risk setting. Previous publications have revealed that residents who participated in a cadaver dissection course showed a statistically significant increase in knowledge compared to those without this experience.

Specifically, in this course residents acquire direct experience of practical anatomy and surgical dissection related to pelvic floor gynecological and anti-incontinence surgeries. It also introduces the residents to the surgical anatomy of the female pelvis through a brief and selective dissection focused on the relationship between the different regional systems. Also, residents will practice the use of TVT and TVT-O devices (retropubic midurethral slings).

Cadaver dissection will help residents understand the proximity of nearby structures and understand the course of the needle passage without jeopardizing a human life. Practice of passage of the needle with direct observation may help to reduce intraoperative complications like bladder perforation.

This course will also allow residents to practice performing a transobturator sling procedure like the TVT-O. Since the trocars are being passed through the obturator foramen, residents must thoroughly understand the anatomy of this part of the pelvis. Most residents receive no training in the anatomy of the obturator region. Cadaver dissection meets this educational goal, as the obturator region will be carefully dissected in order to visualize the passage of the TVT-O trocars.

Dissections are held at the [Center of Excellence for Laparoscopic and Minimally Invasive Surgery](#).



A student uses a training simulator for laparoscopic surgery.

## LAPAROSCOPY TRAINING FOR RESIDENTS

Laparoscopic surgical training is an integral part of our resident education. Following a curriculum developed by our faculty, residents will learn basic and advanced laparoscopy skills and techniques.

The Laparoscopy training is scheduled for the Academic Days, every other Thursday, allowing protected learning time for our residents. Upper level residents will have the option to take a certification exam in laparoscopy, the Fundamentals of Laparoscopic Surgery (FLS) administered by the Society of American Gastrointestinal and Endoscopic Surgeons (SAGES).

FLS is a comprehensive, CD-ROM-based education module that includes a hands-on skills training component and assessment tool designed to teach the physiology, fundamental knowledge, and technical skills required in basic laparoscopic surgery.

The Assessment Component is a two-part, proctored exam that covers cognitive knowledge and manual skills. The cognitive component is a timed, multiple-choice exam administered via computer.

The manual skills component is a timed, hands-on skills exam administered via the FLS Laparoscopic Trainer Box. The Center of Excellence for Laparoscopic and Minimally Invasive Surgery at the University of Miami, Miller School of Medicine is one of the regional testing centers.



One of the labs at the Center of Excellence for Laparoscopic and Minimally Invasive Surgery.

laparoscopy and laparoscopic skills with special emphasis on laparoscopic suturing.

### Educational Methodology

- Targeted lectures on common gynecologic conditions pertaining to the use of minimally invasive surgical procedures.
- Exercises in laparoscopic techniques for suturing and knot tying
- Simulated exercises on laparoscopic trainers
- Live surgical exercises on porcine models supervised by Faculty Mentors

### University of Miami Miller School of Medicine Faculty

#### *Course Director*

Peter Takacs, M.D., Ph.D.  
Associate Professor  
Division of Female Pelvic Medicine  
and Reconstructive Surgery

#### *Course Co-Director*

Nahida Chakhtoura, M.D.  
Assistant Professor  
Director, Division of General Obstetrics  
and Gynecology

#### *Course Co-Director*

Matt Pearson, M.D.  
Assistant Professor  
Division of Gynecologic Oncology

## ADVANCED LAPAROSCOPIC TECHNIQUES FOR GYNECOLOGISTS WITH SPECIAL EMPHASIS ON SUTURING

### Course Description

This is a two-day course which provides intensive practical, hands-on laboratory and live animal experience in various laparoscopic techniques needed by gynecologic surgeons. It will encompass a half day of lectures provided by the Faculty of the University of Miami, Department of Obstetrics and Gynecology, followed by intensive training sessions and live animal surgeries in which the participants can apply the techniques and skills acquired.

### Education Need

This course is supplemental to the training provided during residency. It will add knowledge and proficiency in selection of patients and surgical skills. Participants complet-

ing this course will learn how to perform laparoscopic suturing and receive a certificate of attendance.

### Educational Objectives

Upon completion of this course, participants should be able to:

- Describe the indications for and criteria for patient selection for laparoscopic procedures
- Understand the technology and techniques used in laparoscopic surgery
- Utilize skills learned and apply it to direct patient care
- Understand the ergonomics, theory and rationale for laparoscopic suturing
- Apply laparoscopic suturing skills learned in relevant surgical situations

### Target Audience

This course has been designed for Obstetrics and Gynecology Residents, Fellows and Attending Physicians with the desire to advance their knowledge of gynecologic

**Additional Faculty**

George Attia, M.D.  
Associate Professor  
Director, Division of Reproductive  
Endocrinology and Infertility

Joseph Lucci III, M.D.  
Professor of Gynecologic Oncology  
Director, Division of Gynecologic  
Oncology

Carlos Medina, M.D.  
Associate Professor  
Director, Division of Female Pelvic  
Medicine and Reconstructive Surgery

Babac Shahmohamady, M.D.  
Assistant Professor of Clinical Obstetrics and Gynecology  
Division of General Obstetrics and

**Gynecology**

**Course Dates:**

Saturday, October 13, 2007 and Sunday, October 14, 2007

**Venue**

The course will be held at the Center of Excellence for Laparoscopic and Minimally Invasive Surgery in the McKnight Research Building on the University of Miami Miller School of Medicine campus.

**Course Fee**

For information on course fees, please contact Susan Mazzola, administrator for the Center of Excellence for Laparoscopic and Minimally Invasive Surgery, at 305-326-6480 or by e-mail at [smazzola@med.miami.edu](mailto:smazzola@med.miami.edu).

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Many of the educational sessions offered by the Department of Obstetrics and Gynecology are industry sponsored. The Department would like to thank generous sponsors such as Ethicon, Women's Health and Urology, Ethicon Endo-Surgery, Inc., ValleyLab, Inc., and Karl Storz Endoscopy-America, Inc.

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## Research

The Department's Division of Research has identified various federal, industry, foundation, state and local venues for research funding.

Our areas of interest include:

- Minimally Invasive Laparoscopy
- Pelvic Floor Dysfunction
- Perinatal HIV
- Gestational Diabetes
- Cervical Cancer
- Menopause
- Infertility
- Polycystic Ovarian Syndrome
- Family Planning
- Prematurity
- Sexually Transmitted Diseases

**Current Research**

Current research projects include the testing and evaluation of investigational medications and therapies for the treatment of cervical dysplasia, heavy menstrual bleeding, HPV vaccinations and SpectRX, a device which uses light to examine the cervix.

For more information, please contact Research Division Director JoNell Potter, Ph.D., at 305-243-2173 or by e-mail at



[jpotter2@med.miami.edu](mailto:jpotter2@med.miami.edu).

In June 2007, the Scientific Awards Committee awarded a grant to Dr. Peter Takacs. The grant will fund a research project titled, "The role of apoptosis and matrix molecules in the aging of the female pelvic floor and in the development of pelvic organ prolapse."

Other participants in the project include Dr. Carlos Medina and Anesthesiologist Dr. Keith Candiotti.

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## Clinical Services

For patient convenience, clinical sites for the Department of Obstetrics and Gynecology are located throughout South Florida.

New patients should call the referral office at 305-243-4530, Monday through Friday from 7:30 a.m. to 5:30 p.m. EST. to make an appointment.

### OB/GYN at Cedars

#### **Services:**

General Ob/Gyn, HPV Vaccination, Female Pelvic Medicine and Reconstructive Surgery (Urogynecology)

#### **Address:**

Cedars Medical Center, 1400 NW 12th Ave. Suite

#### **Phone:**

305-585-5160

### UM Infertility Center

#### **Services:**

Assisted Reproductive Treatments, Treatments for Poly-

cystic Ovarian Syndrome, Endometriosis, and Menopause.

#### **Address:**

Cedars Medical Center, 1400 NW 12th Ave., Suite

#### **Phone:**

305-243-8642

### OB/GYN at Professional Arts Center

#### **Services:**

Diagnostic Ultrasound, Prenatal Diagnosis, Genetic Counseling, General Ob/Gyn, and High Risk Pregnancies.

#### **Address:**

Professional Arts Center, 1150 NW 14th St. Suite 300 (diagnostic services) and Suite 507 (Ob/Gyn)

#### **Phone:**

For diagnostic services call 305-243-4365, for Ob/Gyn call 305-585-5610

### UM Reproductive Health Services at Cedars

#### **Services:**

Confidential options counseling, routine and complex contraception, termination of pregnancy (medical or surgical), and family planning.

#### **Address:**

Cedars Medical Center, 1321 NW 14th St. Suite 201W

#### **Phone:**

305-325-1455

### UM/Sylvester Comprehensive Cancer Center

#### **Services:**

Gynecologic Oncology, Genetic Counseling

#### **Address:**

1475 NW 12th Ave., Suite 3500

#### **Phone:**

305-243-2233

### OB/GYN at Jackson South

#### **Services:**

General Ob/Gyn, Female Pelvic Medicine, and Reconstructive

Surgery.

#### **Address:**

9380 S.W. 152 St., Suite 290B, Miami FL 33157

#### **Phone:**

305-256-5130

### UM Kendall Medical Center

#### **Services:**

Diagnostic Ultrasound, Prenatal Diagnosis, General Ob/Gyn and High Risk Pregnancies

#### **Address:**

8932 S.W. 97th Ave., (diagnostic services, suite 4)

#### **Phone:**

Call 305-270-3437 for diagnostic ultrasound; call 305-270-3400 for Ob/Gyn.

## About Us

Established in 1953, the Department of Obstetrics and Gynecology offers comprehensive care for women of all ages.

The Department consists of several divisions including:

- Maternal Fetal Medicine
- Gynecologic Oncology
- General Obstetrics and Gynecology
- Reproductive Endocrinology and Infertility
- Female Pelvic Medicine and Reconstructive Surgery
- Diagnostic Ultrasound.

The department also offers post-graduate fellowships in Gynecologic Oncology, Female Pelvic Medicine, and Gynecologic Ultrasound. A residency training program in family planning and reproductive health services is also available.

### **Our Mission**

The Department of Obstetrics and Gynecology is committed to a process-oriented, team-driven, multidisciplinary approach to

women's health that underscores learning and research. The mission of OB/GYN is three-fold, to sustain itself as a valuable asset to the university, its medical school and its strategic partners through:

- Comprehensive clinical care
- Dynamic educational programs
- Progressive research studies

For more information, visit the department's website: [www.ob-gyn.med.miami.edu](http://www.ob-gyn.med.miami.edu).

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UNIVERSITY OF MIAMI



DEPARTMENT OF

**OBSTETRICS AND GYNECOLOGY**  
THE WOMEN'S HEALTH SPECIALISTS

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