
Video Presentation 1

A Web Based Virtual Pelvis Trainer

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Objective: To create a self-guided, web-based, computer learning format for pelvic floor anatomy, fundamentals of Urogynecology, and how to approach a patient with pelvic floor dysfunction.

Description: We set out to build the Virtual Pelvis Trainer (VPT), a menu of several instructional modules. The first module of the VPT is a 3D pelvic model that achieves a real time interactive element for the user. To develop this module, CT and 3D ultrasound scans were analyzed and referenced to assemble a dataset of 3D objects describing human anatomy. 3D anatomy was also resurrected from the digitized photographic images of the Visible Human Project. To create 3D anatomic models, Maya® software was used to resurface data. These lightweight, flexible models were animated to deform smoothly when demonstrating various patient scenarios, such as vaginal wall prolapse. The pelvis was exported from Maya® and transported into a real time 3D authoring environment. The behaviors of the application were programmed with Virtools™, a powerful game engine. The application interface was specifically designed to allow the user to navigate the virtual space of the VPT in an exploratory fashion. In order to assess anatomy knowledge pre- and post- module use, Virtools™ was used to develop a game-like test. Three following modules were developed to teach the fundamentals of pelvic floor dysfunction, and how to perform a targeted Urogynecology history and physical examination. These were created using video footage along with Maya® renders and animations from the created pelvis. A structured use session was carried out with 24 Ob/Gyn residents during which pre- and post-test anatomy knowledge scores were recorded. During the session, residents completed computerized surveys on ease of use and subjective view of utility of the VPT.

The VPT is well received and currently being used by medical students, residents, fellows and attendings at our institution. Survey results show that on average, a majority of users found the VPT “easy” and “very useful” for understanding pelvic floor anatomy. The majority of responders stated that they felt more prepared for an exam, the operating room, and/or patient interaction. In addition, a majority of responders stated that they would use the VPT to study for an exam, prepare for the operating room, teach students, and/or educate patients. An average anatomy knowledge pre- and post-test score change of 20% was observed during a structured use session with Ob/Gyn residents.

CONCLUSION: We achieved in creating a self-guided, web-based, computer learning format for pelvic floor anatomy, fundamentals of Urogynecology, and how to approach a patient with pelvic floor dysfunction. This includes a 3D pelvic model that achieves a real time interactive element for the user. The VPT has gotten a positive response among users, and initial test scores show improvement pre- and post-use.

Key Words: interactive anatomy, education, pelvic floor anatomy

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Video Presentation 2

Laparoscopic Retroperitoneal Pelvic Anatomy of Female Cadaver

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Objective: To identify detailed pelvic anatomy during laparoscopic dissection of female cadaver

Description: Excellent knowledge of anatomy is one of the most important features of the good surgeon. Anatomy of the female pelvis is very complex since it hosts organs involved in reproduction, micturation and defecation. Nerves and vessels originating in the pelvis supply pelvic viscera, pelvic organs, abdominal wall and lower limb. Pelvis contains very intricate autonomic innervation involved in storing and emptying functions of bowel and bladder. Pelvic muscles and their fascias provide support to the pelvic organs when in upright position, provide continence to GI and GU tract and allow passage of fetus during labor. This video presents a fine laparoscopical retroperitoneal dissection of the pelvis on a frozen female cadaver. Internal iliac artery is dissected to its terminal anterior and posterior visceral branches including superior vesical, uterine, obturator, middle hemorrhoidal, pudendal, inferior gluteal, and superior gluteal arteries. Paracervical and pararectal spaces are dissected out and their boundaries are defined. The lateral parametrium, or parametrial web, is delineated and the level of transection in a radical hysterectomy is shown. Sacral nerve roots, S1 and S2, obturator, genitofemoral, pudendal, inferior hemorrhoidal and lumbosacral trunk nerves are identified. Pudendal nerve is dissected by transecting sacrospinous ligament and then aponeurosis of the obturator internus muscle (Alcock's canal). Potential sites of the entrapment of the pudendal nerve are shown. Pelvic splanchnic nerves originating at S2 sacral root are also shown, and its course and potential techniques to spare them during radical hysterectomy are also discussed. The piriformis, coccygeus and ileococcygeus muscle are shown forming the pelvic floor. The sacrospinous ligament is dissected and then divided to follow the course of the pudendal nerve.

CONCLUSION: Female pelvic anatomy is very complex. This video will assist all the surgeons in learning pelvic innervation, blood supply and musculature.

Key Words: retroperitoneal anatomy, parametrial web, pelvic innervation, pudendal nerve

Disclosure - Nothing to disclose.

Video Presentation 3

New Surgical Treatment for Pelvic Organ Prolapse

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Objective: To demonstrate instrumentation and surgical technique of this innovative approach for pelvic floor restoration in a case of severe Pelvic Organ Prolapse and Stress Urinary Incontinence by using Prolift Total Floor Repair (Gynecare) and the Inside-Out TVT Obturator System.

Description: An innovative design using anatomical guides, cannulas and retrieval devices assist in the placement of Gynecare Gynemesh PS non-absorbable prolene soft mesh implant to achieve a complete anatomic repair of pelvic floor defects.

Depending upon the site of the defect the repair can be either anterior, posterior or total. These implants are designed to achieve the repair in a tension free manner. Additional operations for Incontinence can be performed at the same time. The procedure requires a wide vaginal dissection in order to access anatomic landmarks i.e. Sacrospinous Ligament and Arcus Tendineous Fascia Pelvis. A large pre-cut mesh with 2 cm wide pre-shaped straps improves tension free fixation and stabilization of the implant.

Anatomical guides facilitate cannula placement through the Arcus Tendineous fascia pelvis using the transobturator approach anteriorly and via the ischioanal fossa and through the Sacrospinous ligament posteriorly. Retrieval devices are designed for easy mesh retrieval. Mesh placement completes this evolutionary pelvic restoration system.

CONCLUSION: This New Pelvic Restoration System offers a complete anatomic repair in a tension free-manner by using an innovative design and a unique surgical approach

Key Words: prolapse, mesh, Prolift

Disclosure - Preceptor: Enrique Jacome MD, Gynecare; none: Sheldon Baroff, none.

Video Presentation 4

Transvaginal Surgery for Periurethral Diverticulum: Optimizing Preoperative Evaluation and Key Points in Surgical Technique

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Objective: To present the surgical technique for urethral diverticulectomy and to emphasize the value of magnetic resonance imaging (MRI) for diagnosis and surgical planning.

Description: A retrospective review of relevant medical records from January 1, 2000 - December 31, 2004 was performed for all women who had undergone urethral diverticulectomy. Patient demographics and diagnostic techniques were recorded; furthermore, intraoperative and postoperative outcomes were reviewed. A video of one such surgical procedure is presented.

27 women were identified with a periurethral diverticulum. The patients had a wide variety of presenting symptoms and the average time from symptom onset to diagnosis

was 47 months (range 0-360 months). 8 (30%) women had undergone prior urethral diverticulectomy. MRI identified a filling defect within the diverticulum of one woman who was ultimately diagnosed with urethral adenocarcinoma. This malignancy was treated with radical cystourethrectomy. In 3 (15%) women, a urethral diverticulum was diagnosed by MRI when other imaging modalities had failed. In all women, MRI provided topography of the diverticulum which allowed for intraoperative guidance and insured complete surgical resection. Average follow up was 9 months. There were no intraoperative complications. One woman (3.8%) had a recurrent/residual diverticulum. **CONCLUSION:** MRI is a valuable tool for the diagnosis of urethral diverticulum and surgical planning. Surgical excision, while intimidating, can be successfully accomplished even in complex cases.

Key Words: urethral diverticulum, periurethral diverticulectomy, magnetic resonance imaging

Disclosure - Consultant: Cindy Amundsen, Allegran, Inc.; Research Grant: Cindy Amundsen, Pfizer, Inc., LifeTech, Inc., NDI, Inc., George Webster, LifeTech, Inc, AMS, Inc., NDI, Inc..

Video Presentation 5

McIndoe Neovagina for Vaginal Agenesis

J. B. Gebhart

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Objective: To educate the participant on the surgical techniques employed in creation of a neovagina, utilizing the McIndoe procedure, for patients with vaginal agenesis.

Description: Edited and narrated video footage of the surgical procedure will be shown and pertinent clinical advice given.

CONCLUSION: We present our approach to the surgical treatment of vaginal agenesis utilizing the McIndoe technique.

Key Words: McIndoe, neovagina, surgical techniques

Disclosure - Consultant: John Gebhart, Novartis, CR Bard; Grant Research Support : John Gebhart, CR Bard.

Video Presentation 6

Robotic Resection of Invasive Endometriosis

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Objective: To illustrate the advantages of robotic surgery in complex gynecologic diseases as in invasive endometriosis.

Description: Two cases of invasive endometriosis are shown in this video. The first case involved endometriosis in the deep pelvis extending to the rectum and the other, involved

the anterior lower uterine segment invading into the bladder mucosa.

CONCLUSION: Robotic surgery provides improved optics and precise movements from articulating instrumentation that allow the surgeon to perform complex cases through a minimally invasive approach.

Key Words: surgery, Robot, endometriosis

Disclosure - Nothing to disclose.

Video Presentation 7

Vaginal Stenosis: Surgical Treatment With Bilateral Groin Flaps

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Objective: To educate the participant on the use of bilateral groin flaps in selected patients with vaginal stenosis.

Description: Edited and narrated video footage of the surgical procedure will be shown. This is a patient with Behcet syndrome who developed vaginal scarring and stenosis and failed multiple previous surgical attempts at maintaining a functional vagina.

CONCLUSION: We present the use of bilateral groin flaps to create a functional vagina in a multi-operated patient with Behcet syndrome. This technique may have application in other cases of vaginal stricture/stenosis.

Key Words: vaginal stenosis, groin flaps, Behcet syndrome

Disclosure - Consultant: John Gebhart, Novartis, CR Bard; Grant/Research Support: John Gebhart, CR Bard.

Video Presentation 8

Modified LeFort Colpocleisis With Puborectalis Plication & Perineorrhaphy for Total Pelvic Procidentia

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Objective: To effectively illustrate the technique of a modified LeFort colpocleisis with puborectalis plication & perineorrhaphy for the treatment of total pelvic procidentia.

Description: An 89 year old physically active, but sexually inactive, patient with total pelvic procidentia is presented and her surgical treatment is illustrated videographically with accompanying narration. Techniques which are depicted include:

- (1) Excision of rectangular areas of vaginal wall mucosa anterior and posterior to the cervix,
- (2) The use of a continuous, running suture to approximate the mucosal borders of the excised rectangular areas, thereby creating a central, horizontal, mucosa covered canal

leading to bilateral, vertically positioned mucosa covered canals extending to the distal vagina,

(3) Approximation of the central connective tissue with imbricating sutures to reduce the prolapse cephalad,

(4) Plication of the puborectalis muscles to further reduce the approximated vagina, to support the distal rectum, and to narrow the genital hiatus, and

(5) An exaggerated perineorrhaphy to further narrow the genital hiatus giving more caudal support.

CONCLUSION: A modified LeFort colpocleisis with puborectalis plication & perineorrhaphy is an effective treatment option for patients with total pelvic procidentia. It is suggested that such procedures need not be limited to debilitated patients.

Key Words: colpocleisis, LeFort, procidentia

Disclosure - Nothing to disclose.