



Review of the Hands-On Laparoscopic Cadaveric Dissection for Retroperitoneal Pelvic Anatomy, Advanced Gynaecological Surgery and Robotic Simulation Course

Author: Alena Sofieva, EMJ, London, UK

Citation: EMJ. 2026; <https://doi.org/10.33590/emj/8261CWB2>



A DETAILED understanding of pelvic anatomy underpins safe gynaecological surgery, but developing advanced surgical skills requires opportunities to move beyond simulation. At the University of Leeds, UK, the European Society for Gynaecological Endoscopy (ESGE) brought together senior trainees and consultant gynaecologists for hands-on cadaveric dissection and robotic simulation. This feature explores the course's practical lessons, the expertise behind its delivery, and the generosity of body donors who make this training possible.

CLOSING THE GAP BETWEEN SIMULATION AND SURGERY

Minimally invasive gynaecological surgery continues to evolve rapidly, with increasing complexity in the management of endometriosis, gynaecological malignancies, and benign pelvic disease. While simulation has transformed surgical education, many advanced procedures still require an understanding of anatomical planes and tissue handling that can only be fully appreciated through cadaveric dissection.

These themes formed the focus of the Hands-On Laparoscopic Cadaveric Dissection for Retroperitoneal Pelvic Anatomy, Advanced Gynaecological Surgery and Robotic Simulation Course, held at the University of Leeds, UK, and organised by the European Society for Gynaecological Endoscopy (ESGE). Bringing together senior trainees and consultant gynaecologists, the course combined expert lectures, robotic simulation, and extensive hands-on cadaveric dissection to strengthen practical skills in advanced pelvic surgery.

Throughout the meeting, organisers repeatedly emphasised that the course would not have been possible without the

extraordinary generosity of individuals who chose to donate their bodies to medical education.

"We have huge respect for the people who donated their bodies," Lina Antoun, Chair of Laparoscopic Training, Birmingham Women's NHS Foundation Trust, UK, explained. "The whole purpose is to educate future surgeons. You simply cannot get a better model than a cadaver with real human tissue."

Unlike many cadaveric training programmes that rely on imported specimens, all donors for the Leeds course came through the University of Leeds Body Donation Programme, allowing local donors to contribute directly to surgical education within their own community.

WHY CADAVERIC TRAINING STILL MATTERS

Although virtual reality platforms, laparoscopic simulators, and synthetic models have become established components of surgical training, Antoun explained that they cannot fully replicate the complexity of operating on human tissue.

"There is still a gap in training," she said. "No matter how many models you use, you cannot get a better model than a cadaver with real tissues."

Fresh soft-embalmed cadavers allow surgeons to experience realistic tissue planes, anatomical variation, and tactile feedback while practising procedures in a completely safe environment. Rather than learning during live surgery, participants are able to refine techniques, repeat complex dissections, and gain confidence before applying these skills in the operating theatre.

"The aim is to educate future surgeons who will ultimately be operating on patients," Antoun said. "They can experience the real anatomy first and then transfer those skills into clinical practice."

MASTERING RETROPERITONEAL PELVIC ANATOMY

The educational programme focused on one of the most technically demanding areas of gynaecological surgery: retroperitoneal pelvic anatomy.

Following a lecture on key steps in laparoscopic hysterectomy, delegates spent the majority of the day performing cadaveric dissections under direct faculty supervision. Practical sessions covered opening the paravesical and pararectal spaces, surgical techniques for deep endometriosis, laparoscopic hysterectomy, contained in-bag morcellation, and laparoscopic suturing. Robotic simulation was also available throughout the course, allowing delegates to explore robotic techniques alongside conventional laparoscopy.

Understanding retroperitoneal anatomy is fundamental to several advanced gynaecological procedures. In gynaecological oncology, these spaces provide access to pelvic and para-aortic lymph nodes, while allowing surgeons to identify and protect critical structures including the ureters and major blood vessels. In advanced endometriosis surgery, where fibrosis and adhesions frequently distort normal anatomy, familiarity with these spaces becomes essential for safe excision of disease.

"When disease has caused everything to become stuck together, you need to understand these anatomical planes," Antoun explained.





"Opening the retroperitoneal spaces allows surgeons to safely identify important structures before operating."

For this reason, the course was specifically designed for senior trainees and consultant gynaecologists already performing advanced laparoscopic procedures.

“**The educational programme focused on one of the most technically demanding areas of gynaecological surgery: retroperitoneal pelvic anatomy**”

"This is not basic laparoscopic training," Antoun said. "Cadaveric education is an expensive resource. The aim is to take surgeons to the next level."

LEARNING FROM AN INTERNATIONAL FACULTY

The multidisciplinary faculty reflected the breadth of expertise required in modern pelvic surgery.

Teaching was led by Ertan Saridogan, Consultant Gynaecologist and Lead Clinician for the Reproductive Medicine

Unit at University College London Hospitals (UCLH) NHS Foundation Trust, Professor of Gynaecological Surgery at University College London, UK, and President of ESGE; Andreas Hackethal, Consultant Gynaecological Oncologist, Frauenklinik an der Elbe, Hamburg, Germany; Helder Ferreira, Head of the Minimally Invasive Gynecological Surgery Unit, Centro Hospitalar Universitário de São João, Porto, Portugal; and Smruta Shanbag, Consultant Gynaecological Oncologist, NHS Greater Glasgow and Clyde, UK.

Eighteen delegates were divided between six cadavers, allowing only three participants per specimen and ensuring extensive practical experience throughout the day. Faculty members rotated continuously between groups, providing real-time feedback and demonstrating different surgical approaches.

COMMENTARY: THE PEOPLE WHO MAKE SURGICAL EDUCATION POSSIBLE

Delivering a cadaveric course requires far more than experienced faculty and motivated delegates. Behind every dissection session is an extensive programme of donor recruitment, specimen preparation, laboratory management, and ethical governance.

Sarah Wilson, Anatomy Facilities Manager, University of Leeds Medical School, UK, oversees the University's Body Donation Programme, which provides donors for medical education and specialist surgical training.

"We have thousands of people on our donor register," Wilson explained. "Many choose to donate because they want to contribute to education after they've died."

Body donation in the UK is tightly regulated through the Human Tissue Authority (HTA) and requires explicit written consent from donors during their lifetime. Wilson explained that general statements about donating a body "to science" are insufficient; donors must specifically consent to donation for medical education and anatomical examination.

Preparing cadavers for advanced surgical training also requires specialised preservation techniques. Unlike traditional formalin embalming used for undergraduate anatomy teaching, this course utilised soft-embalmed cadavers, which preserve realistic tissue colour, flexibility, and handling characteristics.

"Traditional embalming is excellent for demonstrating anatomy, but the tissues become rigid," Wilson said. "Soft embalming allows the tissues to remain much more lifelike, making them ideal for surgical training."

Preparing appropriate specimens for this particular course required careful planning over several months. Because delegates would perform hysterectomy and advanced pelvic dissection, organisers specifically required female donors with an intact uterus. Wilson explained that this proved challenging, as hysterectomy was commonly performed in women who now comprise much of the Body Donation Programme.

"It took around 6 months to prepare the course," she said. "Finding six female donors who had not previously undergone hysterectomy was probably the biggest challenge."

The University also provides laboratory facilities, specialist equipment, and technical support throughout each course, working closely with the faculty to ensure a safe and realistic learning environment.

INVESTING IN ADVANCED SURGICAL TRAINING

Cadaveric education represents one of the most resource-intensive forms of surgical training. Laboratory facilities, donor preparation, specialist equipment, and experienced faculty all contribute to the complexity and cost of delivering programmes of this kind. For this reason, the course was intentionally limited to 18 delegates, ensuring every participant received extensive hands-on operating time under close faculty supervision.

The Leeds course also marked an important milestone for ESGE, representing the first hands-on cadaveric course organised by the society in the UK. Bringing together faculty from the UK, Germany, and Portugal, it reflected ESGE's wider commitment to harmonising surgical education across Europe through international collaboration and practical skills training.



LOOKING AHEAD

As minimally invasive gynaecological surgery continues to advance, opportunities for realistic, hands-on anatomical training remain invaluable. New technologies, including robotic surgery and simulation, continue to transform surgical education, yet cadaveric dissection still provides an experience that cannot be fully replicated elsewhere.

Across the meeting, one message remained clear: understanding anatomy remains the foundation of safe surgery.

Perhaps the strongest message, however, extended beyond technical excellence. Every practical session during the course was made possible by individuals who chose to donate their bodies to science. Their generosity allows surgeons to refine complex procedures in a safe environment before performing them on patients, ultimately improving surgical care for countless women in the future.