
Hysterectomy

Ibrahim Alkatout • Liselotte Mettler
Editors

With the Assistance of Dawn Rüther

Hysterectomy

A Comprehensive Surgical Approach

 Springer

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Dedicated to all patients placing their trust in us.

Foreword 1

The most common gynecological surgeries performed in the world are hysterectomies which date back to ancient time and were mainly associated with noncancerous conditions. The Italian anatomist Berengario da Carpi of Bologna carried out the first authenticated vaginal hysterectomy in 1507. In Manchester, England, Charles Clay performed the first recorded abdominal hysterectomy in 1843, and in 1853, by accident Walter Burnham performed the first successful abdominal hysterectomy in Lowell, Manchester. The early hysterectomies, either vaginal or abdominal, were performed without anesthesia, and with a fatality rate ranging from 70 to 90%. In the absence of an alternative management of cervical cancer, the radical hysterectomy was introduced. The first radical hysterectomy was performed by John Clark at Johns Hopkins in 1885, and in 1898, Ernst Wertheim of Vienna performed the first extended radical hysterectomy. The more radical extension of vaginal hysterectomy was developed by Karl Schuchardt of Gottingen, and in 1901, Friedrich Schauta described radical vaginal hysterectomy in detail. With the advent of antiseptics, anesthesia, antibiotics, blood transfusion, new technologies, and advances in surgical techniques, by the 1940s, total abdominal hysterectomy had become the norm, and hysterectomy had become a safer surgical procedure for women worldwide. The fatality rate dropped significantly.

As science and technology advanced, Kurt Semm, in Kiel, Germany, in 1984, was the first to describe a technique for laparoscopic assistance in vaginal hysterectomy, thereby laying the foundation for all endoscopic procedures. Laparoscopic hysterectomy is increasingly performed in many countries in the world; however, conservative and less invasive operative managements, such as hysteroscopic surgery and the application of ulipristal acetate, may reduce the traditional indications for hysterectomy. The limitations of conventional laparoscopy and advances in robotic surgery have led to the increased use of robotic techniques in hysterectomy. Diaz-Arrastia reported the first series of successful robotic laparoscopic hysterectomies in 2002, and surgeries using robotic techniques for hysterectomy are now rapidly expanding.

The indication and performance of hysterectomies in general have changed with the change in techniques and procedures and have been adapted to the request of women to retain their uterus; therefore, the need for a comprehensive textbook on hysterectomy to improve the knowledge, skills, and competencies of surgeons has become very evident.

Ibrahim Alkatout and Liselotte Mettler have compiled the very first comprehensive medical textbook of its kind, *Hysterectomy: A Comprehensive Surgical Approach*, dealing with all surgical techniques of hysterectomy (vaginal, abdominal, laparoscopic, and robotic-assisted) and their extended operations, such as lymphadenectomy and omentectomy, with excellent illustrations. This textbook contains 132 chapters contributed by over 100 renowned international authors. This book is an important addition to the literature on hysterectomy techniques, accessible to gynecologists worldwide, and thereby contributing towards the global improvement of healthcare for women.

I believe this textbook will be very valuable and find extensive use in developed and developing countries. I am honored and privileged to write this foreword.

Windhoek, Namibia

Prof. Quazi Monirul Islam, MBBS, MPH, FRCOG
WHO Representative to Namibia

Foreword 2

Hysterectomy ranks among the most frequently performed procedures in gynecology. Since modern surgical techniques have allowed the reduction of intra- and postoperative complications to a considerable degree, it has become a well-established option in the treatment of a wide variety of conditions, including cancers of the reproductive system, certain types of endometriosis and adenomyosis, uterus myomatosus, chronic pelvic pain, or uncontrollable bleeding.

The range of procedures used is broad, not only in regard to surgical techniques – laparoscopic, robotic-assisted, vaginal, abdominal – but also in regard to the extent of the surgery, depending on which organs are included, in addition to the uterus itself, e.g., the cervix, the vagina or parts of it, the parametrium, the lymph nodes, the fallopian tubes, the ovaries, or the omentum.

With its comprehensive overview of all surgical techniques and its illustrated step-by-step descriptions, this book will provide not only a valuable decision aid for surgeons in their choice of method but also a training guide for surgeons at every level of education and experience. It can be considered an additional advantage that this book also covers anatomical and diagnostic aspects of hysterectomy, including questions of when hysterectomy is indicated.

This book is the successor to Liselotte Mettler's *Manual of New Hysterectomy Techniques* (2007), an indispensable handbook on vaginal and laparoscopic hysterectomy. This new volume, edited by a team, Ibrahim Alkatout and Liselotte Mettler, benefits in a similar way from the high standards of the Kiel School of Gynaecological Surgery, of which Liselotte Mettler is one of the distinguished protagonists. Along with Kurt Semm, she initiated the “minimally invasive revolution” of laparoscopic hysterectomy, thus establishing the foundation of today's procedures in the field.

This book's widened scope, now including all available techniques, diagnostic guidance, and in-depth background information, puts itself forward as a standard reference in the field of gynecological medicine.

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Foreword 3

It is with great pleasure that I write a forward for this book edited by Ibrahim Alkatout and Liselotte Mettler. Liselotte Mettler has lived on the cutting edge of advanced laparoscopic surgery from its beginning, and by beginning, I mean 1985 when we presented together at AAGL, known previously as a tubal ligation society. The next year, we were both teaching the advanced course at the AAGL. She has continuously worked as a leader to advance the surgical care of women and still does. She is active as a teacher worldwide, especially concerning hysterectomy, and was a founder of the Kiel School of Gynaecological Endoscopy, one of the first training centers in this specialty.

I have known and worked with Liselotte Mettler for over 30 years. Her work with Kurt Semm progressed along parallel paths with mine until we met in 1985–1986. Kurt and Lilo called me Mr. Electrosurgery at that time as Kurt used sutures for oophorectomy, while I pioneered the use of bipolar desiccation for large vessel hemostasis. It was then that Kurt told me, “If I learned to suture, I would be king.” So I learned how to suture!

Somewhat lost in these discussions is that I started as a vaginal surgeon. Vaginal surgery was my passion! Abdominal mutilation was our common enemy. After 10 years of doing vaginal hysterectomy surgery with the occasional use of the laparoscope for salpingo-oophorectomy, I began to do the whole operation using laparoscopic visualization with desiccation of both the uterine arteries and the ovarian arteries in 1988. Laparoscopic supracervical hysterectomy came soon thereafter by Kurt and Lilo.

Now, Lilo and her associates from the Kiel School of Gynaecological Endoscopy have put everything about hysterectomy together with this textbook describing different techniques in a relatively comprehensive manner. I must admit that my favorites are both the vaginal and the laparoscopic approaches. So, I look forward to reading those sections to determine if the difference between a colpotomy and a culdotomy has been finally resolved.

I believe that this is a much-needed textbook, and I am sure that most gynecologists will benefit from reading it.

Harry Reich, MD, FACOG, FRCOG
Pioneer in the Development of Laparoscopic Hysterectomy, Shavertown, PA, USA

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Foreword 4

Hysterectomy is the most common major surgical procedure in modern gynecology. In the USA alone, approximately 600,000 hysterectomies are performed each year. All gynecologists will, at some stage of their training, learn how to perform the hysterectomy procedure independently. What is so special about a hysterectomy, compared to most other surgical procedures, is that there is such a variation of methods and surgical routes for this surgery. More than 90 % of all hysterectomy procedures are performed for benign indications. Thus, there are special needs concerning safety, efficiency, and cost-effectiveness in relation to this nonvital, quality of life-enhancing surgery.

A hysterectomy procedure can take anytime from 15 min to several hours. However, a hysterectomy that spans several hours may be as rewarding for the patient and the surgeon as a quick hysterectomy. I personally have probably performed the longest hysterectomy procedure. In a series of nine abdominal total hysterectomies that took place in 2013, the surgical duration was between 10.5 and 13 h. What is also so special is that these nine abdominal hysterectomies were performed to increase the quality of life of another woman and not the operated woman herself.

My co-surgeon, Pernilla Dahm-Kähler, and I performed the surgery through a midline incision and apart from the uterus also long extensive vascular pedicles, including the uterine and internal iliac arteries and veins, were harvested. The hysterectomy specimen was flushed and cooled *ex vivo*, before transplantation into the pelvis of the recipient (in most cases the daughter). Up until today, five healthy babies have been born from these transplanted uteri, and three out of these five recent mothers also grew themselves inside the same uterus as their babies.

Dr. Dahm-Kähler and I would never have been able to conduct these successful hysterectomies and uterus transplantations without a structured training in several different hysterectomy procedures during our early years of surgical training and more importantly, without the parallel acquisition of a great understanding of the anatomy of the pelvis. All these important aspects are covered in this comprehensive book. Another important point is that a prolonged duration of surgery does not necessarily equate with inadequate surgical skills. During my early training, I would closely record the time and would not be satisfied by a long duration of a seemingly easy hysterectomy. Today, I try to teach the residents in training that they should strive for minimal bleeding and follow the natural anatomic layers to minimize the tissue damage and thereby shorten the recovery time of the patient.

The editors, Ibrahim Alkatout and Liselotte Mettler, have been able to recruit a large number of absolute top clinicians/scientists in the field of gynecology and surgical hysterectomy to contribute chapters to this book. The impressive list of authors guarantees the readers not only up-to-date information on each aspect of hysterectomy but also that the opinions and surgical tips have passed the critical eyes of world-renowned doctors in academic medicine. Notably, this book covers not only the surgical techniques of all various hysterectomy procedures but also the important aspects of indications and presurgical diagnostics.

I am convinced that *Hysterectomy: A Comprehensive Surgical Approach* will become one of the classic books in the field of gynecology.

Mats Brännström

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Preface

This comprehensive surgical approach to hysterectomy rests on the pillars erected by the great masters in our specialty. The first hysterectomy was performed as a vaginal hysterectomy and dates back to ancient times. The procedure was performed in the time of Soranus of Ephesus, 120 years after the birth of Christ. There were many reports of its use in the Middle Ages, nearly always for the extirpation of an inverted uterus, and the patients rarely survived. Hysterectomy became safer with the introduction of anesthesia, antibiotics and antisepsis, blood transfusions, and intravenous therapy. During the 1930s, Richardson introduced the total abdominal hysterectomy to avoid serosanguinous discharge from the cervical remnant and the risk of cervical carcinoma developing in the stump.

Apart from this innovation, and the transverse abdominal incision introduced by Johannes Pfannenstiel of Kiel in the 1900s, there was little advance in hysterectomy techniques until the advent of endoscopic surgery and the performance of the first laparoscopic hysterectomy by Kurt Semm in Kiel in 1984 and Harry Reich in Kingston, Pennsylvania, in 1988. With his never-ending dedication to the teaching of laparoscopy, Kurt Semm stimulated his coworkers in Kiel and courageous followers around the world to move forward with laparoscopic total and radical hysterectomy.

Thoralf Schollmeyer was a pupil of Semm and head of the Kiel School of Gynaecological Endoscopy from 2007 until his early death at the age of 52 in 2014. He continues to inspire us and was the driving force behind the decision of the Kiel School to go ahead with the second edition of the *Manual of New Hysterectomy Techniques (2007)*.

In this age of global communication, it is a great privilege to publish a specialist surgical book on hysterectomy which features the leading surgeons, researchers, and teachers as contributing authors. With the assistance of over 200 multidisciplinary authors, we have been able to compile a book that hopefully meets the requirements of a broad base of readers.

This book brings into balance theoretical background, clinical experience, and scientific findings in a readily comprehensible form with numerous illustrations and tables. For the beginner, this book could become a reliable companion, providing background information and assistance for all procedures associated with hysterectomy. This includes abdominal, vaginal, conventional laparoscopic, and robotic-assisted surgical procedures. But also the experienced surgeon will be able to broaden his spectrum and learn experimental and innovative surgical approaches as this is the first textbook on hysterectomy including traditional, up-to-date, and innovative surgical methods.

Additionally, the book contains a large proportion of interdisciplinary aspects, and we believe it will make a substantial contribution to meeting the growing requirements of interdisciplinary medical treatment. It offers related disciplines (especially general surgery and urology) the opportunity to describe the areas of common overlap and how these can be treated. This multidisciplinary approach is of advantage not only for gynecologists but also for general surgeons and urologists.

The wide range of the contents developed in the course of the conception of the book. Extended hysterectomy procedures cannot be separated from procedures on the internal genital organs or those involving the anatomical and functionally relevant surrounding area.

Finally, we would like to thank Joni Fraser for her continuous support and valuable assistance in preparing the book for production. Special thanks also go to Lizzy Raj, Julia Megginson, and Melissa Morton at Springer International Publishing for allowing us the freedom to design a book according to our ideas and supporting us in the realization of what turned out to be a mammoth project. Tribute is also due to the illustrators for their creative visual implementation of complex issues.

The editors are conscious of the privilege of having access to the most advanced treatment concepts of our time. In an unstable world, our foremost intention is to share the greatest good, the ability to cure one's fellow human beings.

Kiel, Germany, 2017

Ibrahim Alkatout and Liselotte Mettler

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