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Chapter 1

Introductory Chapter: Prostatectomy - Challenge in the Past and Today

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Additional information is available at the end of the chapter

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1. Prostate and prostate surgery through the centuries

This short historical review shows the meaning of the prostate and the main points in the development of prostatectomy techniques through the centuries. The historical documents reveal the contribution of a large number of names of distinguished doctors and scholars from the ancient centuries to the present day. It is difficult to present this contribution in detail within an article, but it is possible to identify the main points of prostate surgery and their significance these days.

Documents show that the term "prostate" has an ancient origin. The term has been described by ancient anatomists but has become important for urine retention around the middle of the sixteenth century. A century later, metal catheters and tools for urinating through the prostate began to be used.

At the end of the seventeenth and the beginning of the eighteenth century, the urinary stone surgery marked a turbulent development through perineal access to the urethra and bladder. After the profound anatomical studies of the peritoneum by the Douglas brothers, it is clear that the peritoneum can be preserved and separated from the bladder during surgery. John Douglas performed a suprapubic surgery for bladder stones, which he calls as high operation. It replaces the perineal surgery for a short time. This finding can be considered the basis of suprapubic urological surgery. These two surgical techniques—perineal and suprapubic—become the basis of modern prostate surgery.

The introduction of anaesthesia and aseptic treatment began the violent development in urological surgery in the second half and the end of the nineteenth century. A number of remarkable surgeons perform for the first time operations to remove bladder stones and prostate parts through suprapubic access. A new problem faces them—the bladder healing that remains open

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after surgery. Surgical progress achieves surgery with primary bladder closure. The enucleation of the whole prostate gland through the operator's finger becomes a key point in this surgery. It has been used to treat enlarged prostate and urine retention. Operative techniques become a challenge for surgeons. Conflicts between remarkable surgeons for pioneering in surgical techniques arise. At that time, these operations were performed to treat urinary retention of the enlarged prostate, and the cancer had not yet been studied. The first described histological case of prostate cancer dates back to the middle of the nineteenth century. The problem is developing vigorously in the early twentieth century with the development and practice. New challenges are found in prostate surgeons—cancer removal. The urologists had hardly achieved successful surgical technique for adenoma and had to experience the new challenge of radical prostatectomy.

In the first half of the twentieth century, the main goal of prostate surgery remains the low mortality and successfully completed surgery, but achieving these goals does not stop the progression of prostatectomy. In addition to open techniques, through perineal, suprapubic, retropubic, inguinal, transcoccigeal, ischiorectal access, transurethral surgery is also widely used in practice. It also provides a combined operation—suprapubic access with transurethral one for good haemostasis.

The development of early diagnosis of prostate cancer sets new goals for urologists—achieving quality of surgery and quality of life for the patient. The investigation of pelvic anatomy leads to the discovery of a new prostatectomy—a nerve-sparing radical prostatectomy. This discovery becomes the basis of all modern surgical techniques for the treatment of prostate cancer. The refinement and standardisation of open surgery for prostate adenoma and prostate carcinoma seem to satisfy the aspirations of modern twentieth century surgery. At the end of this period, the challenge of laparoscopic technique began in various areas of surgery. This technique sets new targets for surgeons—surgery without harm to the patient—a basic law in surgery.

The love of urology and medical dedication to the patient justify this considerable progress of prostatectomy. Today, the technology revolution, along with classical experience, rewarded the surgeon with the introduction of the robotic operation. It protects the surgeon's health and awaits his full dedication to the patient. Nevertheless, the challenges of prostatectomy do not stop. New and new methods based on laparoscopy and transurethral surgery continue to be performed.

2. Brief introduction to the chapters

2.1. Section prostate diagnosis

The first chapter of this section presents the novel smart method for prostate diagnosis based on the spectroscopy. The method is expected to diagnose the effect of prostate cancer treatment and to provide accurate and personalised patient monitoring. This will improve the healing tactics of each patient.

The second chapter presents and discusses the different invasive and noninvasive biomarkers for prostate cancer early diagnosis and good therapy selection. The genetic diagnosis for prostate cancer is the near future of this field.

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The last chapter presents a new diagnostic method for positron emission scanning the prostate cancer, local or metastatic disease, using scandium. This pharmaceutic has a longer half-life than the gallium and has advantages in this diagnostic method.

2.2. Section prostatectomy operative techniques

This section introduces new methods for simple and radical prostatectomy. The authors describe the methods and present their results. It is interesting to see the different key points of some classical urological operative techniques and their new applications.

2.3. Section prostatectomy recovery and quality of life

The goal of modern radical prostatectomy is not only to be a healing method for prostate cancer but also to achieve good functional outcomes for the quality of life of the patient. This section presents a very extensive and in-depth scientific work on the topic of patient recovery after radical prostatectomy.

3. Conclusion

This book is a modest document of contemporary efforts and challenges in the diagnosis and treatment of a significant area of modern medicine—the prostate. There is hardly any other part of urology that has caused such an endless and meaningful century-old progression comparable to that of the prostate gland surgery.

We hope the reader will find answers to his questions and a spark of new challenges to prostatectomy!

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