For many centuries, surgery was the only treatment for cancer. The famous 18th century surgeon, John Hunter, suggested that surgery might cure cancer if the tumour did not invade the surrounding tissues. The next century saw rapid progress and is often referred to as “the century of the surgeons”.

Carcinoma of the uterine cervix provides one of the few examples in medical history. Radical hysterectomy was abandoned by most gynecologists after the invention of radiotherapy in the early part of the century. However, during the last decades it has been demonstrated that it has an equal role along with irradiation in the treatment of cervical cancer. Whereas earlier generations of gynecologists concerned themselves with the relative merits of the radical abdominal versus radical vaginal operations.

Radical hysterectomy (RH), was systematically described and performed by Wertheim about more than one hundred years ago and was then modified and re-popularized by Meigs in 1950s. In most cases, this operation yields 5-year survival rates of 75%-90%. The surgical principles of this operation have undergone only minor modifications throughout the years and remain the basis for the surgical approach utilized by gynecologic oncologists today.

First radical vaginal hysterectomy (RVH) was performed by Karl Pawlik. Friedrich Schauta was the first to perform a systematic radical vaginal hysterectomy (RVH) in order to treat the cervical carcinoma. Stoeckel modified Schauta’s RVH and Peham/Amreich extended the radicality of Schauta’s RVH technique.

In this chapter, historical development of the surgery of cervical carcinoma and contributors of this surgical operations are summarized along with pictures and illustrations.

**Wilhelm Alexander Freund**

Wilhelm Alexander Freund (August 26, 1833 - December 24, 1917) was a German gynecologist. In 1855 he earned his medical degree at the University of Breslau, and afterwards practiced medicine in Breslau. In 1879 he moved to Strasbour, where he was a professor of gynecology and obstetrics. He died in Berlin.

In January 1878, Freund performed the first abdominal extirpation of a cancerous uterus.

**Karl Pawlik**

Pawlik of Prag performed first radical vaginal hysterectomy in 1880 and published his first 3 cases 1889.

Friedrich Schauta was the first to perform a systematic radical vaginal hysterectomy (RVH) in order to treat the cervical carcinoma. Stoeckel modified Schauta’s RVH and Peham/Amreich extended the radicality of Schauta’s RVH technique.

**Ernst Wertheim**

Ernst Wertheim (February 21, 1864 - February 15, 1920) was an Austrian gynecologist who was born in Graz. In 1888 he received his doctorate from the University of Graz. In 1889
he worked under Otto Kahler (1849-1893) at the Second University Clinic in Vienna, and in 1892 became habilitated for gynecology and obstetrics. In 1897 he became chief surgeon in the gynecological department at Bettina Pavilions der Elisabeth-Klinik, and in 1910 he became director of the First Women’s University Clinic in Vienna.

Ernst Wertheim worked in Prague as an assistant to Friedrich Schauta as well. In 1898, Wertheim performed the first radical abdominal hysterectomy for cervical cancer. This operation involved removal of the uterus, parametrium, tissues surrounding the upper vagina, and pelvic lymph nodes. Afterwards, “Wertheim’s operation” became a fairly common, although risky procedure for cervical cancer.

In the decade from 1900 to 1910, he published a score of papers and discussions dealing with various aspects of the problem, his writings on the subject culminating in a monograph, published in 1911, entitled Die erweiterte abdominale Operation bei Carcinoma colli based on 500 cases (Figures). In 1911, Wertheim reported on 500 cases with a 50% operability rate, 18.6% mortality rate, and a 42.4% 5-year cure rate for operated cases.

Wertheim died on February 15, 1920, at age 56 due to influenza pandemic.

Friedrich Schauta

Friedrich Schauta called as “a teacher in the shadow of his student” by Prof. Schaller

He did his medical studies at Vienna, Innsbruck, and Würzburg. He received his medical degree in 1874 in Vienna and started as an apprentice in surgery at the operational institute of Hofrat von Dumreicher. Later, he turned more to gynecology, and from 1876 to 1881 he worked at the obstetrical and gynecologic clinic at The University of Vienna. In 1887 Schauta accepted a call to succeed August Breisky (1832–1889) in Prague.

Ernst Wertheim (1864–1920) worked in Prague as an assistant to Schauta. When Schauta was invited to Vienna in 1891 to be head of The First Universitäts-Frauenklinik, Wertheim went along with him and continued to serve as Schauta’s assistant until 1897.
Schauta performed his first RVH in 1901 and reported on 564 cases in 1908 with a 48.7% operability rate, a 10.8% mortality rate, and a 39.7% 5-year cure rate of operated cases. Operative mortality was 9.8% and most of the patients died due to the peritonitis and sepsis. Intraoperative bladder and bowel injury rate was 10.6%. Furthermore, mean operability rate ranged 33.3% and 68.6% between 1901 and 1910. He died in 1919 and now, his grave and Wertheim’s grave lie down side by side.

Although he was a mentor of Ernst Wertheim and the pioneer of radical vaginal surgery, his surgical technique was almost forgotten and his student (Wertheim) became more famous than him. Combination of laparoscopic and vaginal surgical techniques reintroduced Schauta’s RVH in gynecologic oncology. Nowadays, some centers perform RVH together with laparoscopic lymph node dissection.

Hidekazu Okabayashi

Hidekazu Okabayashi in Japan modified the Wertheim operation and extended the radicality of the operation in 1921. Okabayashi’s surgical technique was characterized by the extensive resection of the parametrium and the separation of the posterior leaf of the vesicouterine ligament. This essential step enabled the bladder to be separated from the ureter, completely away from the lateral side of the cervix and vagina. His surgical technique was widely performed in Japan; however, it did not become a popular approach in the west. He is also accepted as a pioneer of the nerve sparing hysterectomy.

In 1961, Kobayashi at Tokyo University modified the Okabayashi’s radical hysterectomy technique and identified the principles for the prevention of the bladder dysfunctions. Kobayashi preserved the pelvic splanchnic nerves by the separation of the vascular part and the neural part of the cardinal ligament during resection of the parametrial tissues.

The Tokyo method modification of Okabayashi’s RH technique, which was described by Sakamoto who was a student of Kobayashi, could be accepted as a minor modification of Kobayashi’s method. Sakamoto noted that after pelvic lymphadenectomy, cardinal ligaments could be seen in two main parts: vascular and neural. Another crucial component of the Tokyo method is the cutting of the vascular part of the cardinal ligament, while preserving the autonomic nerves within the neural part of the cardinal ligament. However, in this technique the sympathetic branches of the pelvic nerves (hypogastric nerves) cannot be preserved, and postoperative residual urine one month after surgery is seen in 63% of patients in the nerve-sparing group compared to 90% of the non-nerve-sparing group.

Subsequently, Yabuki et al. proposed a new terminology and another modification of nerve-sparing RH. In this method, the terminology of parametrial dissection was changed and they suggested two connective tissue systems for the classification of the ligaments of the uterus, the suspensory system and the supporting system, instead of the classical ligament system. They also preserved the vesical nerve branch after careful dissection of the deep layer of the vesicouterine ligament.

All these nerve sparing techniques are based on Okabayashi RH in Japan. Recently, Shingo Fujii published the technical details of the Okabayashi RH, together with two excellent video presentations, which demonstrate the principles of Japanese nerve-sparing RH, and one historical video, which belongs to Okabayashi himself. Furthermore, Fujii et al. described in detail how to identify the vesicouterine ligament (VUL) during RH, which is essential for the preservation of the bladder’s autonomic nerves. Moreover, Fujii et al. were the first to show how to preserve pelvic autonomic nerves by dividing the uterine branch from the inferior hypogastric plexus.
Isdor Alfred Amreich
Amreich in the 1920s improved Schauta’s technique for treatment of cervical and endometrial carcinomas.

Walter Stockel
German gynaecologist and obstetrician, born in 1871 and died in February 12, 1961.

He spent his preclinical study in Leipzig, München and Jena, and then moved on to the Albertus-Universität in Königsberg, where he was graduated in 1895. He was habilitated for obstetrics and gynaecology at Erlangen in 1903, and in 1904 at Berlin and extraordinarily became professor in 1905.

In 1926, he was appointed to be the most important German chair of gynaecology, at the Berlin Charité. Under his leadership extensive rebuilding were undertaken, creating a modern women’s clinic.

Stockel extensively modified the Schauta’s RVH technique and identified some essential steps of the RVH.

J. Vincent Meigs
Meigs received an AB degree from Princeton in 1915 and his MD from Harvard Medical School in 1919. He received postgraduate training in gynecology at Massachusetts General Hospital.

In 1930, the problem of radiation-resistance and recurrence of cancer in previously irradiated patients led Joe Vincent Meigs, to reconsider and re-evaluate the role of surgery in the treatment of cervical carcinoma. Meigs initiated a full-scale research program. He visited some surgeons in Europe and was impressed with the logic of Ernst Wertheim’s operative procedure.

Meigs combined bilateral pelvic lymph node dissection with the standard Wertheim Operation and in 1944 published a paper, which re-established the surgical approach for the treatment of cervical carcinoma. Meigs modified Wertheim hysterectomy by adding more extensive pelvic lymphadenectomy as recommended by Joseph Taussig.

Meigs encountered no operative mortality in his series of 47 patients and discovered positive lymph nodes in 17 percent or eight of his patients. His initial series was continued to include 100 patients and still the mortality rate was zero with five-year survival rates of 81.1% for Stage I and 61.8% for Stage II cancers. (Picture form CA Cancer J Clin 1975;25;31-32).

Alexander Brunschwig (1901-1969)
Alexander Brunschwig was born in 1901 in Texas and received his M.D. in 1927. He developed and performed pelvic exenteration for pelvic malignancies confined the pelvis.

In 1948 he began a series of operations that came to be known as the “Brunschwig Pelvic Exenteration”. Brunschwig hypothesized that ultra-radical dissection of organs in the pelvic area might eradicate the disease. Pelvic exenteration

Brunschwig Pelvic Exenteration
is termed as a major breakthrough in gynecologic oncology in the last century.

Brunschwig died on August 7, 1969 at the age of 67.

**Daniel Dargent (1937 – 2005)**

Dargent was the pioneer of the conservative surgical management of the cervical carcinoma.

The classical surgical management of early-stage cervical carcinoma requires the extirpation of the uterus and cervix, along with radical resection of the parametrial tissues and upper vagina, together with complete bilateral pelvic lymphadenectomy (if pelvic lymph nodes positive some authors advocate periaortic lymphadenectomy as well).

Although radical surgery and/or radiotherapy have been the cornerstone for treatment of cervical carcinoma, both of these modalities irreversibly destroy the reproductive capacity of women.

The first successful systematic conservative surgical approach for invasive cervical carcinoma was published by Dargent in 1994. This operation was referred as radical vaginal trachelectomy and included a laparoscopic pelvic lymphadenectomy, which was followed by the removal of the cervix together with surrounding parametria in order to protect the corpus of the uterus and the ovaries (Picture Form Gynecologic Oncology, Volume 99, Issue 1, October 2005, Pages 1-2).

**Note:** We are grateful to the pioneers and all the contributors to the “Radical Hysterectomy”. We have to emphasize that we have just included the names that we were able to find informations from the web and publications. We are sorry for the others that we forgot to include and for the ones for whom we could not find enough informations.

**References**

2. Historical presentation of Prof. A.Schaller.