HISTORY OF GYNECOLOGIC ONCOLOGY SUBSPECIALTY

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Gynecologic oncology, as a subspecialty within the discipline of obstetrics and gynecology, was defined 30 years ago. In 1969 the American Board of Obstetrics and Gynecology recommended the development of three specialties, which included gynecologic oncology, fetal maternal medicine, and reproductive endocrinology. Three separate divisions were therefore created; each division had a specific goal to develop a postresidency training program leading to certification. In 1972 the American Board of Obstetrics and Gynecology defined the qualification and eligibility necessary for certification of special competence in gynecologic oncology, maternal fetal medicine and reproductive endocrinology. Authorization to certify for special qualification in this field was approved by the American Board of Medical Specialties in March 1973.

In addition to the efforts made to expand the discipline of obstetrics and gynecology, there have been major developments in establishing societies that improve training and research activities. The Society of Gynecologic Oncologists was established in late 1960 and had its first scientific meeting in January 1970. The main goals of this society were advancement of research in the area of female genital neoplasm and establishment of a formal training program, leading to certification in the specialty. In 1970 the Gynecologic Oncology Group was founded, with a specific role to coordinate the research effort of various institutions in the United States. From 1970s until today, the Society of Gynecologic Oncologists and the Gynecologic Oncology Group have made major contributions in the United States in terms of establishing standard therapies, development and improvement of training programs, and coordination of research activity within the subspecialty. Similarly, following the example of the United States, many other countries have now established national gynecologic oncology societies. In particular, the International Society of Gynecologic Cancer has made...
many major contributions in the development of collaborative research projects and educational activities during the past few years at an international level.

Today the management of gynecologic malignant neoplasm requires a multidisciplinary approach, which includes surgery, chemotherapy, and radiotherapy. The Gynecologic Oncology fellowship is a 3-year program that involves 1 year of research and 2 clinical years. During the subspecialty training program, the physician should learn to understand and perform radical pelvic surgery, including intestinal and urology procedures, pertinent to gynecologic oncology. The gynecology oncologist is trained to:

- Manage vaginal, intestinal, and urologic problems because they may be encountered during elective surgical procedures because of the nature of the procedure or the growth of the tumor into adjacent organ systems
- Deliver chemotherapy and monitor patients receiving chemotherapy treatment to assess the frequency of treatment and the need for surgical intervention
- Understand the principles of radiation therapy and work directly with the radiation oncologist who administers the treatment

For all of these reasons, it is very important that the gynecology oncologist is directly involved in the management of patients before, during, and after surgery.

This issue of the Surgical Clinics of North America describes the most common surgical procedures performed by the gynecology oncologist, including the management of intraoperative and postoperative complications related to the care of patients with gynecologic cancer. During the past 30 years, there have been several changes to the management of gynecologic cancers, which have led to improved outcomes. The main contributing factors are described here for each organ.

**ENDOMETRIUM**

Endometrial cancer arising from the uterine corpus is the most common pelvic malignancy. Historically, endometrial cancer was treated by preoperative radiation therapy followed by total extrafascial hysterectomy. Treatment has changed as a consequence of better knowledge of natural history and biological behavior of this disease. The substitution of clinical staging with surgical staging has allowed for a more accurate evaluation of the extent of disease and analysis of prognostic factors. Sampling of pelvic and periaortic lymph nodes is generally considered appropriate for complete staging of disease more advanced than stage IA, grade I in patients who are candidates for surgery. With surgical staging, the role of adjuvant therapy, including radiation therapy and chemotherapy, has been better defined. Postoperative radiation therapy is recommended for poorly differentiated tumors that extend into the myometrium or any tumor that extends more than halfway through the myometrium. The presence of nodal involvement is also an indication for radiation. In addition to radiation, chemotherapy hormones, in particular progestins, have been found to be very active in the treatment of endometrial cancer. Approximately one third of patients with endometrial cancer respond to this treatment.

**CERVIX**

Cervical cancer is the leading cause of death from cancer in developing countries. Major changes in the history of cervical cancer include the decreased
prevalence of cervical cancer and the increased number of cases of cervical dysplasia observed during the past century. These events are the result of proper screening tests, early detection, and treatment of preinvasive lesions. The Papanicolaou smear is one of the most effective screening tests for cervical cancer, and its use has certainly had a major role in these changes. Human papillomavirus is found in more than 90% of cervical cancers, and the National Institutes of Health has recently confirmed it as a cause of cervical cancer.

The management of cervical cancer also has gone through changes during the past century. More conservative treatment is now possible for early lesions: the Society of Gynecologic Oncologists defines microscopic carcinoma as a lesion less than 3 mm in diameter, without lymph nodular space involvement. These lesions can be treated safely with simple hysterectomy. Radical hysterectomy or radiotherapy safely treats the larger lesions up to stage IIA. Later studies also have shown that neoadjuvant chemotherapy allows for the reduction of larger lesions, which can then be treated surgically or with radiation. The exact role of neoadjuvant chemotherapy for the management of surgical cancer is still under investigation. Recently, concomitant chemotherapy with radiation has been proved to be superior to radiation alone in the management of cervical cancer. Finally, cervical cancer is the only gynecologic tumor staged clinically according to the International Federation of Gynecology and Obstetrics criteria. It is anticipated that, in the near future, cervical cancer will be staged surgically.

In the past 40 years, pelvic exenteration has been introduced as the surgical management of advanced and recurrent cervical cancer. At present, pelvic exenteration is indicated in central recurrent cervical cancer, usually after radiation treatment. Recent use of low colorectal anastomosis and continent urinary diversion has significantly improved the outcomes of patients undergoing pelvic exenteration. The postoperative mortality rate from pelvic exenteration has significantly decreased during the past 30 years. The use of antibiotics before, during, and after surgery and care from specialists trained in the field of radical pelvic surgery, intensive care physicians and advanced nursing skills have had a major contribution to these results.

OVARY

Ovarian cancer has always been the “silent killer of women.” Unfortunately, cost-effective screening tests have not been developed to date, although detection of this disease is still under investigation. During the past 30 years, however, advances have been made in the management of ovarian cancer. The practice of simple biopsy and closure of the abdomen followed by abdominal radiotherapy or single-acting agent chemotherapy has been replaced by cytoreductive surgery and multiagent chemotherapy. Tumor-reductive surgery and multiagent chemotherapy using platinum derivatives combined with other agents, such as cytoxan and taxol, have been the two major events resulting in improved length of survival. The 5-year survival rate among women with ovarian cancer has improved from 27% in 1960 to more than 40% in 1990. At present, the survival rate is greater than 80% for stage I, 55% for stage II, 25% for stage III, and 10% for stage IV cancers. The advances in survival may be partly attributable to the development of the specialty of gynecologic oncology. It has been established that ovarian cancer patients treated by gynecology oncologists have more optimal cytoreduction and improved survival than do those treated by nongynecologic oncology surgeons.

Impressive results have been obtained in ovarian cancers other than epithe-
tial types of tumors. Particularly, germ cell tumors have been found to be very sensitive to specific chemotherapy regimens. The treatment of completely resected stage I, II, and III germ cell tumors with bleomycin, etoposide, and platinum provides long-term survival in more than 95% of the patients. Finally, noninvasive surgery followed by chemotherapy in selected young patients with early disease now allows for long-term survival and preservation of fertility.

During the past few years, much attention has focused on hereditary ovarian cancer and BRCA1, BRCA2 mutations. Although genetically transmitted ovarian cancer is in the minority (3–5%), if it is suspected, it should be investigated. Moreover, in the near future, there will be clear recommendations made for patients and their families. It is expected that, in the future, there will be a better understanding of the genetic implications in the development of ovarian cancer and that effective gene therapy will be developed.

**VULVA**

Vulvar cancer represents a minority of gynecologic tumors, but most gynecologists encounter women with this disease during their lifetimes. It is clear now that human papillomavirus is the most commonly encountered infection in association with vulvar cancer. Although most patients affected by this disease are more than 50 years of age, younger women who have human papillomavirus infection should be followed up closely, with suspicious lesions evaluated for the possibility of malignancy.

The surgical treatment of vulvar cancer has changed during the past 20 years. Small lesions are presently treated with wide radical local excision versus the total vulvectomy performed in the past. Moreover, groin lymphadenectomy is now performed only in patients with deep invasive lesions. Unilateral inguinal node dissection is performed on patients with lateral lesions and presumed negative lymph nodes. When bilateral lymphadenectomy is performed for the treatment of vulvar cancer, separate incisions are made at the level of the groin and at the level of the vulva. This is in contrast to a single, large, en-bloc resection of vulva and groin. Pelvic lymph node dissection to treat vulvar cancer is now rarely performed because radiotherapy has been shown to be an effective treatment in patients with positive groin lymph nodes. Recently, more attention has been focused on the reconstruction of the vulva after radical vulvectomy in patients with large lesion resection. Cosmetic appearance and sexual function have gained importance in the treatment of vulvar cancer.

**GESTATIONAL TROPHOBLASTIC DISEASE**

In the past, gestational trophoblastic disease (GTD) was a major cause of death among young women. GTD is now considered a curable disease in most cases because of the development and refinement of chemotherapeutic protocols. There are several protocols for low-risk and high-risk GTD. It is recommended that treatment be performed at a center experienced in its management. GTD is uncommon; therefore, concentrating patients in a cancer center accustomed to management of GTD is most prudent.
SUMMARY

During the past quarter-century, progress has occurred in the area of coordinated care of the patient with gynecologic cancer. This progress is the result of the refined surgical techniques and perioperative management of patients requiring intensive care after radical pelvic surgery. Furthermore, the addition of radiation therapy and chemotherapy has made major contributions to the improvement and quality of life for patients with gynecologic cancer. All formal training programs in gynecologic oncology now include appropriate rotations and experience with these newer techniques and treatment modalities. The gynecologic oncologist should be fully equipped to manage primary treatment and most of the complications related to the care of patients with gynecologic neoplasms. Formal training programs in gynecologic oncology have been fundamental in the attainment of this goal and provide the infrastructure for future developments.

It is anticipated that continued worldwide surgical studies in the area of gynecologic oncology will improve the well-being of women who may have cancer.

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