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Mikio Mikami *Editor*

Surgery for Gynecologic Cancer

 Springer

Comprehensive Gynecology and Obstetrics

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Preface

The field of gynecologic surgery has evolved in the last 2 decades—for example, the introduction of laparoscopic and robotic surgery and sentinel node biopsy. In Japan, that state of the art in gynecologic surgery was introduced slowly, carefully, and gradually because our history of gynecologic oncology has been based on gynecologic pathology, not surgery. However we also have the notable history of developing radical hysterectomy for cervical cancer. Minimally invasive surgery also started in the field of reproductive medicine, not gynecologic oncology, in 1970 in Japan. It has been prudent, therefore, for gynecologic oncologists in Japan to introduce minimally invasive surgery (MIS) in their field. Some gynecologic oncologists made a great effort to popularize MIS, so the Japanese national health insurance system eventually started to cover the surgery for endometrial cancer at an early stage and, in 2018, radical hysterectomy for early-stage cervical cancer as well. At the time of the annual meeting of the Society of Gynecologic Oncology in 2018 (SGO2018) in New Orleans, women undergoing radical hysterectomy for early cervical cancer had a significantly higher risk of disease recurrence and worse long-term survival with MIS, including robotic-assisted procedures, two separate studies showed. The prospective study showed that the number of disease recurrences after laparoscopic or robotic-assisted procedures was almost four times higher than the number of recurrences after open surgery, although the absolute numbers were small: 27 recurrences versus 7 in more than 600 patients. The difference translated into a hazard ratio for disease-free survival (DFS) of 3.74 (at 4.5 years) for MIS versus open surgery. A retrospective analysis, based on two national databases, also revealed a statistically significant trend toward declining survival as adoption of MIS increased. All audiences at SGO2018 including me were surprised to hear the result of both presentations, because they had believed that the outcome of MIS for early cervical cancer must be non-inferior to that of open surgery. What is one to think about these results? I recommend that gynecologic surgeons in Japan would have to make the evidence of the non-inferiority of MIS by creating a registry of MIS surgeries and show the benefits of unique Japanese ideas and procedures of MIS to outweigh those of open surgery. I believe Japanese surgeons perform meticulous, awe-inspiring surgeries, which bring great benefits to patients. I hope this book will be a lighthouse in the development of gynecologic surgery and will show clearly our belief that MIS is not inferior to open surgery.

This book presents the current principles and procedures of gynecologic surgeries. The authors have made great efforts to complete their own chapters of specific surgical methods, and I would like to express my sincere thanks to all of them for the successful contribution of their work. I am also grateful to Ms. Machi Sugimoto and Ms. Yoko Arai at Springer Japan for their kind co-operation with me in the publication of this book.

Kanagawa, Japan

Mikio Mikami

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Subspecialty Training of Gynecologic Surgery in Japan

1

Takuma Fujii

Abstract

Gynecologic oncologists are the surgeon and have wide range of knowledge regarding the methods of treating gynecologic cancers. It is critical to foster gynecologic oncologists in the society. The Japan society of gynecologic oncology has the fostering program for gynecologic oncologist as a specialist. As a surgeon, a requirement for specialist qualification is a minimum of 3 years of experience at designated training facilities. The trainees have experienced more than 150 patients with gynecologic cancer including surgery, radiotherapy, and chemotherapy. Gynecologic oncologists should also have knowledge regarding the diagnostic radiology, pathology, palliative care, clinical trials, and so on. In surgery, invasive cancer surgery should be performed in a minimum of 100 patients. It is stipulated that radical hysterectomy should be performed in a minimum of 15 patients. In contrast, the most critical issue that remains to be solved is a training for a laparoscopic surgery for malignancies. The popularity of the laparoscopic surgery in the training hospital in Japan was by far behind compared with the one in the USA. Additionally, there are fewer young physicians aspiring to become gynecologists. In general, the number of the gynecologic cancers will be increasing in an aging society. We are then afraid of the shortage of gynecologic oncologists in the future. In the university hospital, the instructor should find and foster medical students with aptitude in gynecologic oncology.

Keywords

Gynecologic cancer · Gynecologic oncologist · Education · Specialist

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1.1 The Position of Gynecologic Oncologists in the Environment Surrounding Medical Care in Japan

The characteristics of the Japanese medical health insurance system include the following: (1) the guarantee of public health insurance for all citizens, (2) free choice of the institution for medical care, (3) investment of public spending to maintain health insurance for all, and (4) provision of advanced medical services at a low medical fee. This system has helped maintain the highest medical standards and prolong the average life expectancy (Fig. 1.1). For cancer treatment, there are 250 general hospitals with more than 500 hospital beds, and approximately 100 university hospitals provide medical education and play a central role in the treatment of cancer patients [1]. Having institutions available where specialist medical care can be received nearby ensures the quality of medical care in Japan. Since many opinions indicated that the current concept of “specialist” was difficult to understand for the people of Japan, a new specialist system has been established in 2015 for doctors starting initial training [2]. For this specialist system reform, “the Japanese Board of Medical Specialties” was established. This specialty board certifies the specialist system for each basic medical field. If physicians undergo initial training for 2 years and subsequent basic specialty field

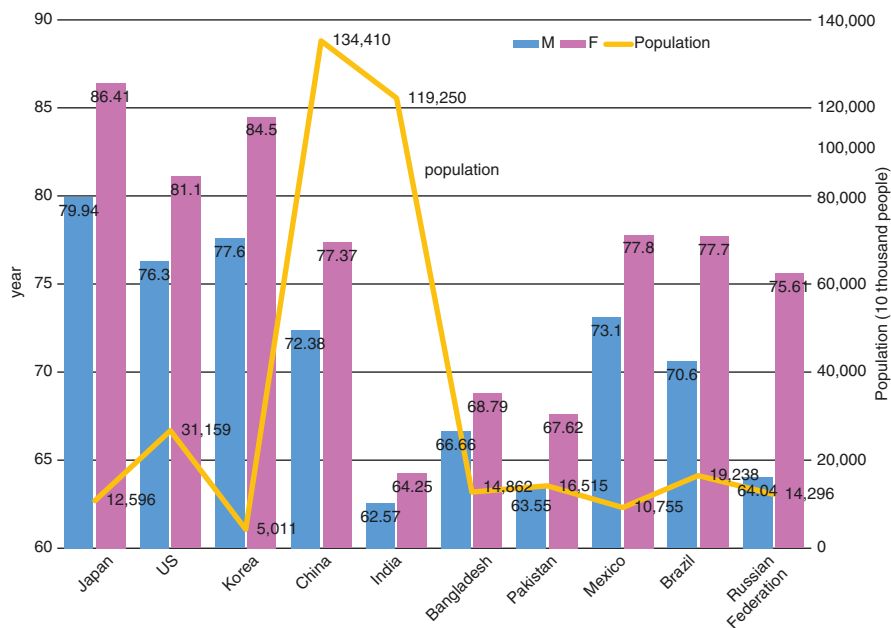


Fig. 1.1 Life expectancies at birth in selected countries [19]. X-axis, selected countries; left Y-axis, bar indicated average age of the lifetime in each country; and right Y-axis, estimated population in each country in 2011 but Japan in 2012. M male, F female

training for 3 years, new (specialty board) specialists will be certified starting in 2021. After that, there is a framework for acquiring subspecialties within each field, and gynecologic oncologists shall be designated as specialists who will receive a subspecialty rating. Although the Japan Society of Gynecologic Oncology (JSGO) specialist system was started in 2005, a time of profound reform for its educational program has been brought about by the new specialist system established by the Japanese Board of Medical Specialties. One of the characteristics of the board is to prevent the collapse of rural community-based health care. In Japan, a declining birthrate and an increasing aging population cause a remarkable fall in rural populations. The population is concentrated in metropolitan areas, whereas the rural population continues to decline, and this pace of rural depopulation is not expected to slow anytime in the near future. If the rural population decreases, the number of patients will also decrease. Specialists in rural areas will not be able to accumulate enough experience with the fewer number of patients. Although the educational system of the gynecologic oncologists in Japan had started following the American gynecologic oncologist model, this model may no longer suit future specialists under the Japanese Medical Specialty Board.

Additionally, there are fewer young physicians aspiring to become gynecologists. Furthermore, an increasing proportion of young physicians are women; as a result, there are concerns that there will be less active gynecologic oncologists. The qualification for gynecologic oncologists can be acquired after obtaining the qualification for obstetrics and gynecology. If the total number of obstetricians and gynecologists declines, then the number of gynecologic oncologists will spontaneously decline. The member of the Japanese Society of Obstetrics and Gynecology can obtain the certificate of the gynecological oncologists as well as specialists in perinatal care and reproductive medicine. Accordingly, young physicians who are qualified in obstetrics and gynecology subsequently choose one of these three fields. If the benchmark for being a gynecologic oncologist is too high, there was a risk of losing candidates who will choose this specialization.

In the Japanese public health-care insurance system, patients are provided advanced medical services at a low cost; however, as the government budget deficit is growing, there is a demand to reduce medical expenses. However, expensive methods in medical care, such as molecular targeting drugs and robot-assisted surgery, are gaining popularity. Therefore, if associated national health insurance points are considerably reduced and these new and expensive methods in medical care are introduced within insured health-care services, it will be detrimental to hospital management. To provide citizens with medical services considered truly effective for a reasonable fee, supporting evidence must be provided. One aim of JSGO is to foster a group of specialists to provide surgery-based multimodal cancer treatment, while they accumulate evidence through clinical trials of therapeutic outcomes to contribute to the development of future medical treatment [2].

1.2 Gynecological Cancers: Current State, Problems, and Associated Measures

1.2.1 Cervical Cancer

A requirement for specialist qualification is a minimum of 3 years of experience at designated training facilities, during which time candidates must have treated ≥ 150 patients with gynecologic cancer (surgery, radiotherapy, and chemotherapy) [2]. In surgery, invasive cancer surgery should be performed in a minimum of 100 patients, and it is stipulated that radical hysterectomy should be performed in a minimum of 15 patients [2]. In Japan, radical hysterectomy for early invasive cancer has been historically developed using the Okabayashi procedure, with a high popularization rate. This procedure is included in the requirements for becoming a certified gynecologic oncologist. The skills for this procedure are ideally passed from senior physicians to junior physicians. However, this surgery will be performed in less opportunity in the future. The popularization of concurrent radiation therapy has led to increased opportunity for performing radiotherapy as the first-line treatment, rather than surgery, depending on advanced stage of the disease [3–5]. Gynecologists and radiologists should discuss and determine which therapy is optimal in conference one by one. Laparoscopic surgery for early invasive cervical cancer is ready to be performed as advanced medical care. More laparoscopic surgery induces less open surgery cases, which is a problem for junior physicians to be trained in radical hysterectomy. In fact, there are three options such as open, laparoscopic, or robot-assisted surgery in a limited number of patients with cervical cancer. We should discuss how we teach three procedures for young doctors.

1.2.2 Uterine Cancer

The increase in obesity has led to a higher prevalence of uterine cancer than cervical cancer [6]. The figure presents the prevalence of uterine and ovarian cancer in the USA, Japan, and Korea [7] (Table 1.1). The lifetime risk of uterine cancer is 2% in

Table 1.1 Incidence of cancer among Japan, the USA, and Korea (2012)

	Organ	<i>N</i>	ASR	Cumulative risk
Japan	Cervix	9320	10.9	0.96
	Corpus	11,449	10.6	1.12
	Ovary	8921	8.4	0.84
USA	Cervix	12,966	6.6	0.61
	Corpus	49,645	19.5	2.39
	Ovary	20,874	8.0	0.90
Korea	Cervix	3299	9.5	0.95
	Corpus	2016	5.8	0.6
	Ovary	2349	6.8	0.69

N number of the patients with cancer, *ASR* age-standardized rates per 100,000 population
Cumulative risk (%): risk of the disease during 0–74 years of age

the USA, which is remarkably higher than in Japan and Korea. One reason for this is obesity, which is expected to gradually increase in Japan. In obese patients, open surgery carries a higher risk due to its invasiveness; therefore, laparoscopic surgery will be performed more often. At present, laparoscopic surgery for uterine cancer is covered by national health insurance and is no longer avoidable. The procedure is useful for early-stage uterine cancer. In recent years, robot-assisted laparoscopic surgery has drawn attention. To popularize robot-assisted surgery, the effectiveness of the procedure should be also examined.

1.2.3 Ovarian Cancer

The greater issue with ovarian cancer is the mortality rate rather than the prevalence [2]. As things currently stand, without any groundbreaking discoveries enabling the early detection of ovarian cancer, the number of mortalities is expected to rise. Early diagnoses of ovarian cancer are difficult, and it is unlikely that prognosis for the disease will improve in the near future. Currently, the only method associated with prolonged survival is treatment by a gynecologic oncologist. It has been reported that treatment by a gynecologic oncologist appears to extend the patient's life by approximately 6–9 months [8, 9]. In patients who undergo ovarian or tubal resection and are aged 20 years or younger, the risk of incomplete surgery is significantly lower if the operation is performed by a gynecologic oncologist [10]. Since complications also appear to occur significantly more frequently in patients who do not consult a gynecologic oncologist for surgery, some are of the opinion that skills related to surgery consulting should also be included in gynecologic oncologist training [11]. It would seem natural to consider that gynecologic oncologists would treat cases of ovarian cancer. However, no reports on the actual state of such treatment have been released in Japan. In the USA, approximately 40%–70% of patients with suspected ovarian cancer consult with a gynecologic oncologist. Reasons for such percentages are believed to be difficulty accessing such specialists as they tend to be concentrated at certain facilities and other factors such as the health insurance system [9, 12]. Furthermore, although it has also been reported that ovarian cancer should ideally be treated by gynecologic oncologists, it appears likely that nonspecialized physicians are conducting such treatment in actual clinical settings [13]. In the USA, the incidence of ovarian cancer is predicted to increase with the aging of society, with an increase of 19% forecast in the number of cases from 2010 to 2050 [6]. However, localization of gynecologic oncologists is a problem, and it is feared that the burden on physicians may increase in some areas [14]. Ovarian cancer may metastasize to the peritoneal cavity, and prognosis is reported to improve with combined resection of other organs within the peritoneal cavity, such as intestinal resection. Therefore, because there are considerable variations in surgical procedures depending on the extent of spread of the lesion or lesions, labor and surgery time also vary considerably. However, National Health Insurance points remain the same despite these differences. Given the lack of obstetrician/gynecologists, operating room nurses, and anesthesiologists in