



# 2020 annual report of surgery in the Department of Gynecology, West China Second University Hospital of Sichuan University

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**Abstract:** This is an annual report issued by the Department of Gynecology of West China Second University Hospital of Sichuan University (WCSUH-SCU) to document the achievements of the gynecologic surgery teams at WCSUH-SCU in 2020. Patients who received gynecologic surgeries between January 1, 2017 and December 31, 2020 in the Department of Gynecology were retrospectively collected. Detailed data on surgical volume and procedures for different gynecologic diseases (cervical cancer, endometrial cancer, ovarian cancer, endometriosis, pelvic dysfunction and genital tract malformation) were analyzed separately. In the year 2020, 71 doctors (19 senior doctors, 17 associate senior doctors, 28 attending doctors, and 7 residents) performed 12,990 surgical procedures for 1,036 cervical cancer patients, 547 endometrial cancer patients, 544 ovarian cancer patients, 3,337 endometriosis patients, pelvic dysfunction patients 231 and genital malformation patients 42. The total surgical volume decreased by 944 (7.51%) over 2019. Accomplishments of research and education of the department's surgical teams were also declared. The department also made significant progress in scientific research, education, and other areas in 2020. All staff in the department will continue to deliver quality health care, achieve innovative research and education, and improve the department's academic impact.

**Keywords:** Gynecologic procedures; surgical volume; scientific research; education

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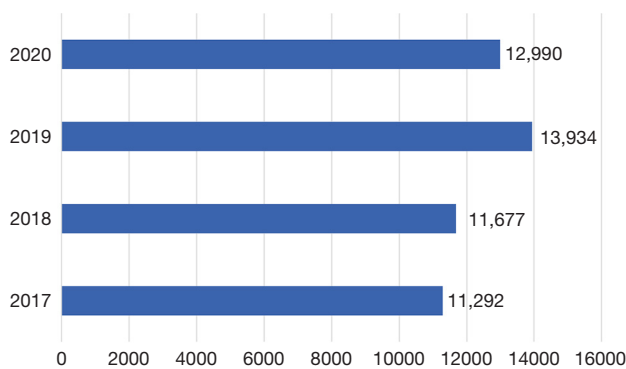
## Introduction

According to World Cancer Report 2020, cervical, endometrial and ovarian cancers are among the top 10 cancers in women worldwide. Gynecological diseases have a profound impact on women's health. Stick to the motto of "Fraternity, Professionalism, Innovation, and Dedication", West China Second University Hospital of Sichuan University (WCSUH-SCU) originated from Yan Chai Women's Hospital, was founded in 1896. Now WCSUH-SCU operates two campuses locally, Huaxi and Jinjiang, both with Obstetrics & Gynecology, and Pediatrics as its two major disciplines. The Department of Gynecology adheres to core value of "Everything is patient-centered"

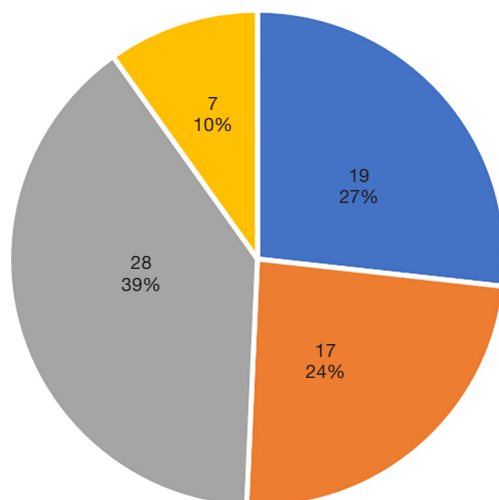
to escort the rehabilitation of patients, and currently run 286 beds across the Huaxi and Jinjiang campuses, with staff members and supplies being efficiently allocated.

In 2020, a total of 14,070 patients were admitted, and 12,990 surgical operations were performed, which contains 1,954 malignant surgeries (15.0%). Due to COVID-19 epidemic, the number of surgical patients decreased by 7.5% over 2019 (*Figure 1*). The department now has 71 doctors including 19 senior doctors, 17 associate senior doctors, 28 attending doctors, and 7 residents (*Figure 2*).

The gynecologic surgery teams in the department have extensive experience in performing radical resection surgery for primary and recurrent malignant tumors, fertility-preserving surgery in patients with malignant tumors,



**Figure 1** Annual surgical volume in WCSUH-SCU from 2017 to 2020. WCSUH-SCU, West China Second University Hospital of Sichuan University.



**Figure 2** Staff structure in the Department of Gynecology.

laparoscopic surgery, and treatment for endometriosis, as well as various interventional therapies for complex reproductive tract malformations, reproductive tract fistulas, and pelvic floor diseases. And this year we made quite progress in single-port laparoscopy surgery. Our team's expertise in these surgeries have garnered an excellent reputation across a full range of subspecialties. As minimally invasive surgery is a safe and effective treatment that can provide satisfactory cosmetic outcomes and rapid recovery for the patient, it has been widely and expertly applied in the department. Moreover, since the enhanced recovery after surgery (ERAS) protocol was adopted and implemented last year aiming to accelerate postoperative physical and mental recovery, including safe and effective perioperative

transitional care programs and clinical pathways and so on, it has improved patients' quality of life and saved medical resources notably.

## Methods

### Materials

Data from patients who received gynecologic surgeries between January 1, 2017 and December 31, 2020 in the Department of Gynecology were retrospectively collected. Detailed data on surgical volume from procedures for different gynecologic diseases (cervical cancer, endometrial cancer, ovarian cancer, pelvic dysfunction and genital tract malformation) were analyzed separately.

### Statistical analysis

Categorical variables are expressed as percentage frequency. The data from 2020 were compared with the data from 2017 to 2019. Statistical analysis was carried out by SPSS software (version 22.0, USA) and Excel (version 2020, Microsoft, USA).

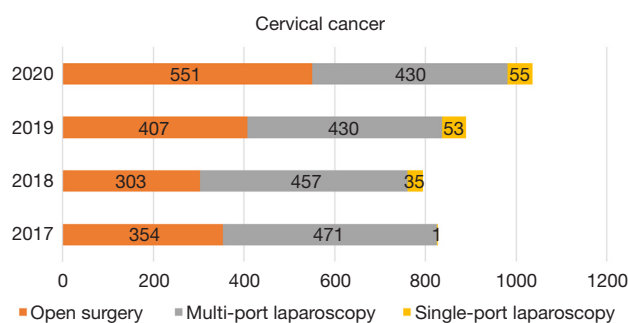
## Results

### Cervical cancer

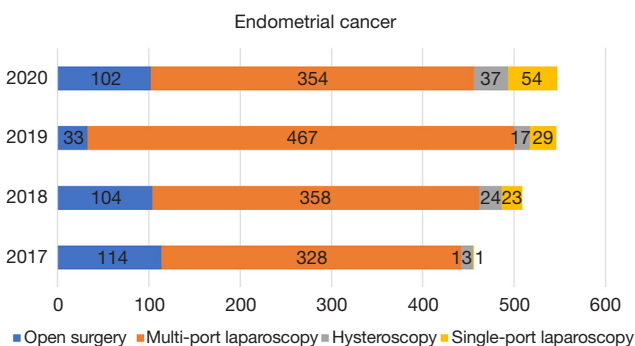
In 2020, 1,036 patients with cervical cancer underwent surgery, representing an increase of 16.4% from 2019. Surgical approaches included open surgery (n=551, 53.2%), multi-port laparoscopic surgery (n=430, 41.5%), and single-port laparoscopic surgery (n=55, 5.3%) (Figure 3). Laparoscopic surgeries without uterine manipulation were performed in 46 cases and included 30 cases of multi-port laparoscopy and 16 cases of single-port laparoscopy.

Among all patients who received surgery for cervical cancer, 12 patients underwent extensive cervical resection, including fertility-preserving surgery for 5 young patients (open surgery) and surgery for cervical stump cancer in 7 other patients (laparoscopic and open surgery in three and four cases, respectively).

In November, 2018, Ramirez *et al.* published the results of the Laparoscopic Approach to Cervical Cancer (LACC) trial in *New England Journal of Medicine* (1). The trial data revealed that the risks of recurrence and overall death at 3 years in early-stage cervical cancer patients treated with minimally invasive surgery were 3.74- and 6.00-fold higher, respectively, than in those who underwent open surgery.



**Figure 3** Surgical procedures for cervical cancer in 2017 to 2020.



**Figure 4** Surgical procedures for endometrial cancer in 2017 to 2020.

The surprising findings had a significant impact on the healthcare community and similar results have been found in many other multicenter studies. A statement has been made that the radical hysterectomy is the gold standard for early-stage cervical cancer by the U.S. National Comprehensive Cancer Network (NCCN) Guidelines, the International Federation of Gynecology and Obstetrics (FIGO), Society of Gynecologic Oncology (SGO), European Society of Gynecological Oncology (ESGO), American Gynecological & Obstetrical Society (ASCO), and the British Gynecological Cancer Society (BGCS).

On the other hand, although the results of the LACC Trial and the epidemiologic study are powerful, scientific scrutiny demands consideration of potential study-design or study-conduct issues that may affect outcomes unexpectedly. Select patient subgroups may still benefit from a less invasive approach. Based on these findings, the patients were strictly selected and fully informed of the benefits and risks of open surgery versus minimally invasive surgery before surgery.

The proportion of cervical cancer suffering patients treated with open surgery was markedly increased from

2019 compared to the previous year at WCSUH-SCU. In 2017–2018, a total 1,621 patients (2019–2020: 1,926 patients) underwent cervical cancer surgery, among whom 657 [40.5%; 2019–2020: 958 (49.7%)] received open surgery and 964 [59.5%; 2019–2020: 968 (50.3%)] received minimally invasive surgery.

For further study, the department has actively participated in clinical researches focused on the surgery approach for early-stage cervical cancer. Li *et al.* (5) have published their study which retrospectively analyzed the clinicopathological data of 1,065 patients with early-stage cervical cancer treated between 2013 and 2016 at WCSUH-SCU. They found that the tumor size was a key consideration for the treatment of early-stage cervical cancer. When the tumor size was  $\leq 2$  cm, minimally invasive surgery had similar outcomes to open surgery. Much more studies are currently under way in WCSUH-SCU.

#### Endometrial cancer

In 2020, 547 patients received surgery for endometrial cancer, similar with that in 2019 (n=546). Surgical techniques included open surgery (n=102, 18.6%), multi-port laparoscopic surgery (n=354, 64.7%), hysteroscopic surgery (n=37, 6.8%), and single-port laparoscopic surgery (n=54, 9.9%) (Figure 4). Although there was no markedly increase in the total number of surgical procedures performed in 2020, the proportion of cases treated with single-port laparoscopic surgery rose from 2019 (5.3% in 2019 vs. 9.9% in 2020).

Among them, 11 young patients underwent fertility preserving hysteroscopic lesion resection (hysteroscopy in 9 cases and hysteroscopy & single-port laparoscopy in 2 cases).

#### Ovarian cancer

In 2020, a total of 544 patients underwent surgery for ovarian cancer, representing an increase of 28.3% from 2019. Surgical techniques included open surgery (n=356, 65.4%), multiport laparoscopic surgery (n=166, 30.5%), and single-port laparoscopic surgery (n=22, 4.0%) (Figure 5). The number of single-port laparoscopic surgeries increased by 46.7% from 2019 to 2020 (15 vs. 22 cases).

#### Endometriosis

In 2020, a total of 3,337 patients with endometriosis

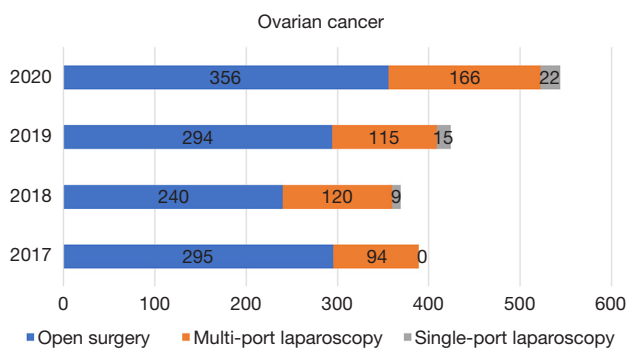


Figure 5 Surgical procedures for ovarian cancer in 2017 to 2020.

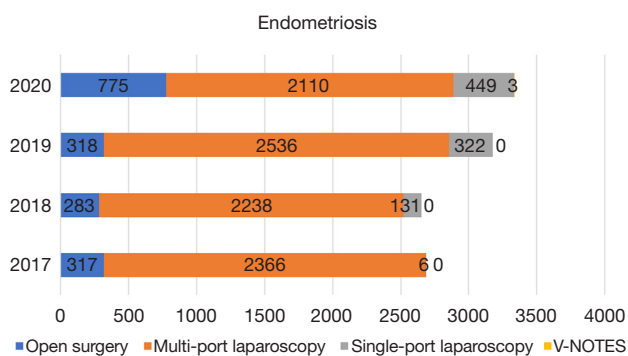


Figure 6 Surgical procedures for endometriosis from 2017 to 2020. V-NOTES, vaginal natural orifice transumbilical endoscopic surgery.

underwent surgery in our department, representing an increase of 5.1% from 2019. Surgical techniques included open surgery (n=775, 23.2%), multiport laparoscopic surgery (n=2,110, 63.2%), single-port laparoscopic surgery (n=449, 13.5%), and vaginal natural orifice transumbilical endoscopic surgery (V-NOTES) (n=3, 0.1%) (Figure 6).

Deep infiltrating endometriosis (DIE) is a special type of endometriosis for the lesion infiltrates  $\geq 5$  mm deep into the peritoneum or invades important organs. Surgical treatment for DIE is especially challenging, due to its deep location and organ invasion. In 2020, a total of 179 patients underwent surgery for DIE in our department, representing a 68.9% increase from 2019 (Figure 7).

**Pelvic dysfunction and genital malformation**

In 2020, a total of 231 patient with pelvic dysfunction and 42 with genital malformation underwent surgery in our department, representing with a slight decrease from 2019

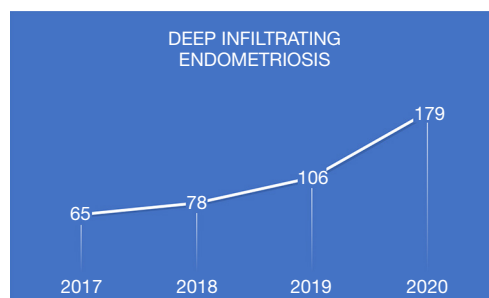


Figure 7 Surgical procedures for DIE from 2017 to 2020. DIE, deep infiltrating endometriosis.

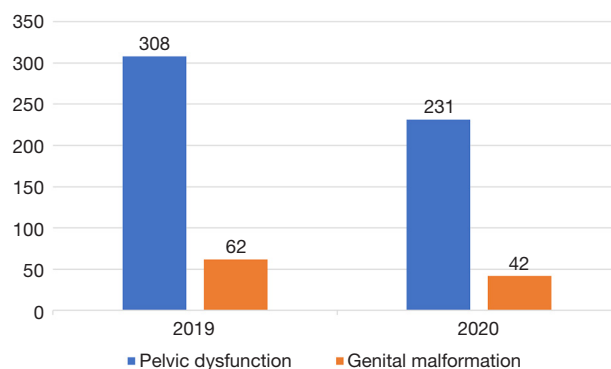


Figure 8 Surgical procedures for pelvic dysfunction and genital malformation from 2019 to 2020.

(Figure 8).

**Scientific research and education**

In 2020, the team of gynecology at WCSUH-SCU published 47 articles in Science Citation Index (SCI)-listed journals, including 13 articles that were published in journals with an impact factor of three or higher (highest impact factor: 7.365); 22 articles were published in MEDLINE® journals or core/statistical source journals; 9 research projects were supported by grants at all levels, with a total of 2.35 million CNY received in funding.

As one of the top facilities for clinical practice, teaching, and scientific research in the field of gynecology in China, the department is committed to training high-potential expert at WCSUH-SCU. A variety of professional training programs (including weekly reading club by resident, weekly case discussion or lecture by attending/chief physician) are offered to medical students, interns, trainees, and

residents. A total of 156 hours of classroom- and bedside-based training sessions were completed in 2020. There were 82 master's and doctorate candidates in the department going for degree on gynecology. As one of the Gynecological & Obstetrical standardized training bases for residents of China, 88 residents accepted standardized training at WCSUH-SCU in 2020.

In the same year, doctors and nurses in our department are encouraged and supported to seek refresher courses and accept new challenges. In 2020, professor Ying Zheng and her team attended the 49th Global Congress of American Association of Gynecologic Laparoscopists (AAGL) online due to COVID-19 and made poster communication. Furthermore, medical staff in our department participated in more than 50 national academic activities this year.

In 2020, the department also holds high-level national academic conferences to disseminate the latest knowledge in gynecology, including "Gynecological Laparoscopic Surgery Technology Training Project", "West China Gynecology Single-port Minimally Invasive Training Camp", "The International Multidisciplinary Forum on Gynecological Tumor and Female Pelvic Floor Dysfunction" and "The Multidisciplinary Forum on Women's Pelvic Floor Dysfunctional Diseases and the Academic Conference on New Progress in the Treatment of Pelvic Floor Dysfunctional Diseases", with more than ten thousand attendees in total. A number of famous gynecological experts were invited to give lectures and our gynecologic surgery teams also organized a series of live operation demonstrations aiming to sharing professional expertise with peers across China, including surgeries of all kinds of gynecological malignant disease by laparoscopic or transabdominal approach, pelvic floor reconstruction, and so on. The radical hysterectomy without cervical manipulator and hysterectomy without artificial pneumoperitoneum by single-port laparoscopy are advanced in our country. The live broadcast of the surgeries received a total of 43,847 views, widely radiating 31 provinces, covering 1,412 hospitals.

The single-hole laparoscopic team led by Professor Zheng Ying has broken through a number of technical problems. Up to now, the gynecological team has completed over 5,000 single-hole laparoscopic surgeries, including nearly 250 malignant tumors surgeries. Professor Zheng Ying's team reported the first single-hole laparoscopic staging surgery of early ovarian cancer and the first single-hole laparoscopic radical hysterectomy of cervical cancer without cervical manipulator. Besides, "the Gynecological

single-hole laparoscopic Surgery Video Collection", edited by WCSUH-SCU laparoscopic surgery team, was rated as "Sichuan Province 2019–2020 Key audio-visual electronic publishing planning project" and "2020 Provincial Key Publishing Project".

In October 2020, "Gynecological Focused Ultrasound Ablation Department of West China Second Hospital" was opened. This micro-non-invasive treatment technology will not only bring new treatment methods for patients, but also a more profound significance for the discipline construction, academic platform building, professional development of gynecology in WCSUH-SCU.

## Discussion

This is the annual report of the Department of Gynecology of WCSUH-SCU issued to record achievements made by the gynecologic teams in 2020. It was reported that the number of patients treated in our department has exceeded ten thousand for four consecutive years. WCSUH-SCU is one of the highest profile hospitals for women and children in China, and the Department of Gynecology has treated most of the critically ill women in western China. this report was issued not only in an effort to inform colleagues about the new advances in gynecologic surgeries, but to also provide a summary of the latest developments in the department and serve as a reference for other medical institutions.

In 2020, the COVID-19 epidemic swept the country, affecting our medical practices. The data shows that the total number of surgeries in our department decreased 7.5% compared with that in 2019. However, for the sake of women's health, our staff stick to their position and make the very best to provide medical service, especially to the patients with malignancy, like cervical and ovarian cancer. The number of cervical and ovarian cancer operations in 2020 have increased compared with that in 2019. It might be related with the increase in the incidence of cervical cancer and ovarian cancer in China, which reported in the World Cancer Report 2020 (2). On the hand, this increase in cervical and ovarian cancer in our department might be associated with the impact improvement of our hospital, which made our department the first choice of cervical and ovarian cancer patients. Questionnaire investigation is needed for further study.

In 2020, the number of cervical cancer surgeries in our department has increased. On the other hand, the portion of laparoscopy surgery has decrease. It was due to the

surprising findings published in *New England Journal of Medicine* in 2018, which report that laparoscopic surgery has poor prognosis than open surgery for early-stage cervical cancer patients. However, there are some questions rose about the LACC Trial, e.g., the use of cervical manipulator and carbon dioxide gas, intracorporeal unenclosed colpotomy, surgical technique, degree of procedural radicality and peritoneal immunity (3). For these reasons, we performed manipulator-free laparoscopic radical hysterectomy and enclosed colpotomy with early cervical cancer between 2019 and 2020 (4). These procedures had been proved to be feasible and did not increase the difficulty of surgical techniques when performed by the experienced surgeons. In other studies of our department (5-7), Li *et al.* retrospectively compared open and laparoscopic radical hysterectomy in patients with early-stage cervical cancer. The results showed that the tumor size was a key consideration. For patients with tumor size <2 cm, laparoscopic and abdominal radical hysterectomy had similar disease-free survival and overall survival. And laparoscopic surgery had superiorities on adverse events. Select patient subgroups may still benefit from the less invasive approach. In response to these findings, surgery teams in our department counsel the patients regarding these collective study results, and assess each woman's individual risks and benefits with respect to minimally invasive as compared with open radical hysterectomy. For further study, our department participated in a number of clinical trials to explore non-pneumoperitoneum, no-lift uterus and other operations.

In addition to surgery, the management of HPV infection is still a challenge, especially the management of persistence of HPV infection. It is reported that approximately 10–20% of HPV infection patients were discovered to have a long-term persistence of HPV infection and result in cervical squamous intraepithelial lesion. HPV 16 infection, high viral load, specific genetic variations, over 50 years of age, menopause, abnormal vaginal microecology, unhealthy lifestyle, improper surgical treatment of cervical excision, glandular involvement, CIN3 and positive endocervical margin are risk factors for persistence of HPV infection in patients with HSIL following cervical excision (8). For these patients, close follow-up at least 2 years postoperatively will improve the clinical outcome significantly (9).

In 2020, the proportion of single-port laparoscopic surgery for endometrial cancer in our department increased compared with that in 2019, which is related to the progress of single-port laparoscopic technology in our department.

According to NCCN guidelines (10), minimally invasive surgery is the preferred surgical procedure for endometrial cancer due to the lower rate of surgical site infection, transfusion, venous thromboembolism, decreased hospital stay, and lower cost of care, without compromise in oncologic outcome. While single-port laparoscopic approach can further reduce postoperative pain and surgical scar. Similarly, the number of cases of single-port laparoscopic ovarian surgery increased in our department compared with that in 2019. Minimal invasive surgery is the trend of gynecological surgery. We made a lot of efforts to improve our practice in this part. In 2020, Professor Zheng Ying's team accomplished the first single-hole laparoscopic staging surgery of early ovarian cancer and the first single-hole laparoscopic radical hysterectomy of cervical cancer without cervical manipulator (11,12).

As a medical center for difficult and critical patients in southwestern China, WCSUH-SCU was committed to the exploration and research of gynecological diseases. Efforts has also been made on connecting basic research teams with clinical work teams to support the sharing of knowledge. And guided by the needs of the patients, the department aim to educate the next generation of healthcare professionals and ensure that the current health care workforce has the knowledge necessary to advance patient care.

## Conclusions

This annual report summarizes the achievements of the Department of Gynecology, WCSUH-SCU in the year of 2020. The department will aim to deliver high-quality healthcare, improve the department's academic reach, and push the progress of gynecology continually.

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## Footnote

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*Conflicts of Interest:* Both authors have completed the ICMJE uniform disclosure form (available at <https://gpm.amegroups.com/article/view/10.21037/gpm-23-24/>)

coif). P.W. serves as an unpaid editorial board member of *Gynecology and Pelvic Medicine* from June 2022 to May 2024. The other author has no conflicts of interest to declare.

**Ethical Statement:** The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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