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Rethinking the next step after unexpected results associated with minimally invasive radical hysterectomy for early cervical cancer

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Radical hysterectomy (RH) is deemed as the standard treatment for early cervical cancer. For a long time, laparotomy has been the ideal surgical method for RH. In many retrospective studies, minimally invasive surgery (MIS), i.e., laparoscopic or robotic surgery, showed oncologic outcomes similar to laparotomy and reduced overall postoperative complications, morbidities, and length of hospital stay [1,2]. Based on these studies, several guidelines considered MIS as an acceptable standard procedure for early cervical cancer. However, the Laparoscopic Approach of Carcinoma of the Cervix (LACC) trial, a prospective, randomized, international, multicenter trial, unexpectedly reported significantly worse disease-free survival and overall survival in the MIS RH group than in the open radical hysterectomy (ORH) group [3]. In October 2018, there were in-depth discussions related to the future trial for MIS RH in the Korean Society of Gynecologic Oncology. Here, the direction of future research will be discussed.

Firstly, we should understand the technical handicaps of MIS RH. Some investigators suggested that the use of uterine manipulators and intracorporeal colpotomy in the MIS group has the potential risk of causing tumor recurrence [4]. CO₂ insufflation during intracorporeal colpotomy is thought to cause peritoneal metastases, and the uterine manipulator may have a tumor squeezing effect, resulting in lymphovascular spreading, as well as peritoneal spreading from fragmentation. In gastric and colon cancer, similar oncologic outcomes were obtained in the laparotomic and MIS groups [5,6]. However, unlike RH, these two cancer surgeries do not involve direct handling of the tumor, i.e., no use of a manipulator, and use a stapler to cut and seal the tumor. Consequently, the tumor is less likely to be injured with a device, and the possibility of spread into the abdominal cavity is low. Because of these factors, MIS RH has technical weak spots in comparison to MIS bowel surgeries. Several studies have reported that there is no difference in the number of retrieved lymph nodes (LNs) between ORH and MIS RH [7]. However, in cases of lymph node metastasis (LNM), open surgery allows easier access than MIS to the LNs in the lumbosacral nerve trunks and pre-sacral areas. Moreover, in patients undergoing MIS, fragmentation of metastatic nodes during LN dissection may increase the risk of peritoneal seeding. Therefore, ORH is thought to be a more appropriate therapeutic approach than MIS in cases of LNM.

Author Contributions

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Secondly, we should reevaluate the critical role of tumor size in determining the surgical modality. Tumor size has been recognized as an important prognostic factor in cervical cancer. Melamed et al. published interesting results of a cohort study involving nearly 2,500 women [8]. As in the LACC trial, ORH led to significantly better survival than MIS. Whereas there was no difference in overall survival between the two surgical methods in patients with a tumor size less than 2 cm, there was better survival in the ORH group in patients with tumors 2–4 cm in size. Considering the recent change in International Federation of Gynecology and Obstetrics (FIGO) staging of cervical cancer according to tumor size, the oncological significance of tumor size less than 2 cm is particularly important for designing future studies [9].

Thirdly, we should consider several aspects in planning new trials. The standardization of procedures, such as surgical techniques for colpotomy and uterine manipulators, as well as surgical extent, is important. In addition, it is necessary to target patients with a tumor size less than 2 cm and no LNM on preoperative evaluation, that were considered to be relatively safe in several studies. As these patients are not likely to receive adjuvant radiation therapy after surgery, the efficacy and safety of the two surgeries should be accurately assessed.

Fourthly, we need to be prepared for the changed medical environment. Many clinicians are confused about how to apply the unexpected results associated with MIS RH into clinical practice. Several centers that have been primarily practicing MIS RH with good results in retrospective studies face a dilemma. If MIS RH is performed without sufficient explanation and cervical cancer recurs, patients, families, or lawyers may claim violation of the duty of explanation by the doctor. We are not sure whether the doctor can be adequately protected from the legal judgement that may arise in this situation. Therefore, centers using MIS RH as a preferred method should analyze their data and reassure patients who have previously undergone surgery. The clinician must provide patients with sufficient explanation of the advantages and disadvantages associated with these surgical procedures. In the case of a newly treated patient, it is necessary to write a consent form with proper explanations of the difference in oncological outcomes and surgical morbidities, as well as cost in determining the surgical modality.

Our team prefers ORH and has published data based on this. Despite our preference or experience, the LACC trial should not be the sole reference for undermining the value of MIS. MIS is widely used in many areas including gynecology, and there are many benefits to doctors as well as patients. Although there are limitations in retrospective studies, there has been an abundance of positive data regarding the use of MIS.

Now, the more imminent matter of the new trial is not determining whether MIS RH is not inferior to ORH, but for which patients MIS RH would be preferable. We sincerely wish that the new trial that is being planned in Korea would answer many questions, irrespective of the difficult realities.

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