

ROLE OF LAPAROSCOPIC LYMPHADENECTOMY IN THE MANAGEMENT OF CERVICAL CANCER

Kung-Liahng Wang*

*Department of Obstetrics and Gynecology, Mackay Memorial Hospital, and
Mackay Medicine, Nursing and Management College, Taipei, Taiwan.*

SUMMARY

Cervical cancer is the most prevalent genital tract neoplasm in Taiwan. Generally speaking, surgical staging is superior to clinical staging since histologic verification of tumor extent correlates better with the biologic behavior of disease. However, a major shortcoming of surgical staging by laparotomy is not only its association with high morbidity and prolonged recovery time, but also the development of postoperative peritoneal adhesions. Adhesion formation limits the mobility of the intestinal loops and exposes them to excess irradiation. The ability to prevent postoperative peritoneal adhesions is the impetus behind the ongoing investigation into the use of laparoscopic surgery. This outstanding feature of laparoscopy is extremely significant in the management of patients with cervical cancer, who are subjected to radiotherapy after lymphadenectomy. Laparoscopic lymphadenectomy, either partial (lymph node sampling) or complete, leads to minimal postoperative peritoneal adhesions and permits accurate assessment of the extent of disease for cervical cancer patients with early or advanced disease. This paper reviews recent reports and updates available information concerning the current practice of laparoscopic pelvic and paraaortic lymphadenectomy in the management of cervical cancer. Various aspects of laparoscopic lymphadenectomy and its clinical role are addressed here, including complications and any controversial issues. [*Taiwanese J Obstet Gynecol* 2005;44(4):301-313]

Key Words: extraperitoneal, gynecologic cancer, laparoscopic lymphadenectomy, laparoscopic surgery, laparoscopy, retroperitoneal

Introduction

Laparoscopic surgery was initially developed in France and the USA. It was originally referred to as laser surgery since lasers were used for parts of the dissection. This type of surgery is associated with significantly more benefits than conventional laparotomy. It leads to little blood loss, short hospital stay, quick recovery, less need for analgesia, rapid return to normal daily activity, and better cosmetic appearance [1,2]. Laparotomy commonly paralyzes bowel function (known as ileus), which is rarely seen after laparoscopic surgery. Early

experience with laparoscopic surgery in gynecology was gained mainly through female sterilization by laparoscopic tubal ligation in the 1970s [3]. Significant improvements in surgical skill and instrumentation over the last decade, including video monitoring technology in the late 1980s that evolved until abdominal content could be projected onto TV screens, have stretched the application of laparoscopy beyond a secondary diagnostic role and transformed it into a primary assisting component of gynecologic surgery. Since many gynecologic malignancies require complicated procedures, projection of a relatively small area in selected regions of the abdomen enables better management of the disease during laparoscopic surgery. It is now possible to perform increasingly complex surgical procedures using video monitor laparoscopy, avoiding major surgery. Today, laparoscopic surgery refers to a minimally invasive procedure in a very focal area of the abdomen without a large incision that results in minimal formation of scar tissue. Unlike imaging methods such as X-ray, computed

*Correspondence to: Dr. Kung-Liahng Wang, Department of Obstetrics and Gynecology, Mackay Memorial Hospital, 92, Section 2, Chung-Shan North Road, Taipei 10449, Taiwan.

E-mail: kl421229@ms6.hinet.net

Received: August 16, 2005

Revised: August 19, 2005

Accepted: August 19, 2005

tomography (CT), magnetic resonance imaging (MRI), and ultrasound, laparoscopic surgery allows direct observation of the abdomen and pelvis. It has become a popular and widespread technique accepted by gynecologists as an appropriate alternative to conventional surgery in the management of patients with gynecologic disease [4].

Despite its many advantages over standard laparotomy, the role of laparoscopic surgery has been controversial for managing patients with gynecologic malignancies. Although laparoscopy offers better visualization during surgery, the lack of tactile feedback and loss of depth perception have frustrated many gynecological oncologists who are familiar with conventional laparotomy [2]. Many have not developed laparoscopic skills because of the lack of opportunity, the lack of standardization of the laparoscopic techniques, and increased frustration in the learning process. Different laparoscopic procedures are also associated with different degrees of learning, from a relatively simple laparoscopically assisted radical vaginal hysterectomy (LARVH) to the more difficult Schauta operation. Some gynecologic oncologists have been somewhat hesitant because the effectiveness of laparoscopic procedures compared with standard abdominal procedures has not been established by prospective randomized trials [5]. Others are concerned with the risk of port-site metastases, which have been reported in patients with early malignancies [6]. From the first documentation of laparoscopic lymphadenectomy by Dargent in 1987 [7] to the comparison of LARVH with abdominal radical hysterectomy (ARH) by Steed et al in 2004 [8], long-term follow-up and comparative studies have highlighted the use of modern laparoscopy in the field of gynecologic oncology. It is clear that, after more than 10 years of experience with laparoscopic procedures, laparoscopic surgery is appropriate for several gynecologic malignancies. This paper reviews recent reports and updates information on current practice in laparoscopic pelvic and paraaortic lymphadenectomy for the management of cervical cancer.

Laparoscopic Pelvic and Paraaortic Lymphadenectomy

Cervical cancer is the second most common gynecologic malignancy in the world, but the most prevalent genital tract neoplasm in Taiwan [9]. Although many factors have been studied and correlated with patient outcome in various staging systems and classifications, the International Federation of Gynecology and Obstetrics

(FIGO) staging system is the most common classification system used by major medical centers across the world for the clinical diagnosis of patients with cervical cancer. Generally speaking, surgical staging is superior to clinical staging since histologic verification of tumor extent correlates better with the biologic behavior of the disease [10]. Lymphatic dissemination of tumor cells is one of the main metastatic routes of cervical cancer. Lymphatic metastases follow a relatively predictable ascending pattern [11], appearing first in the pelvic lymph nodes and spreading to the aortic lymph nodes. The presence of lymph node metastases (pelvic or paraaortic) is the most significant prognostic factor that determines recurrence and survival in patients with early cervical cancer [12]. Nodal metastases in gynecologic malignancies have an unfavorable impact on survival in patients with early and advanced cervical cancer. Aortic node sampling is particularly critical in the assessment of advanced cervical cancer compared with early disease. Surgical-pathologic staging is the only reliable method for evaluation of pelvic and aortic lymph nodes and can be performed as a pretreatment assessment, as part of surgical procedures, or as reassessment of inadequately staged patients. However, a major shortcoming of surgical staging by laparotomy is its association not only with high morbidity and prolonged recovery, but also with development of postoperative peritoneal adhesions. Peritoneal adhesions are responsible for the high incidence of post-irradiation enteric morbidity during radiotherapy, and are a critical concern for patients with advanced disease. Laparoscopic staging is an alternative in the surgical-pathologic staging of patients with cervical cancer. The major attribute of laparoscopic surgery is its association with fewer postoperative peritoneal adhesions, which is particularly critical for pretreatment assessment of patients with advanced disease to define the extent of disease spread. Laparoscopic lymphadenectomy, either partial (lymph node sampling) or complete lymphadenectomy, leads to minimal postoperative peritoneal adhesions and permits accurate assessment of the extent of disease in cervical patients with early or advanced disease. Laparoscopic pelvic and paraaortic lymphadenectomy have emerged as a new surgical technique that can potentially replace conventional surgical staging by laparotomy.

History

The laparoscopic management of cervical cancer has been evolving over the last 18 years. The progression of laparoscopic technique is documented in works published by many clinicians, addressing various aspects of laparoscopic lymphadenectomy and its clinical roles. The published experience with laparoscopic lymph-

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