Total laparoscopic Hysterectomy in Management of Endometrial Carcinoma

Thesis submitted for partial fulfillment of
MD Degree in surgical oncology

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2010

الإستئصال الكلى للرحم عن طريق منظار البطن الجراحى فى علاج حالات أورام بدن الرحم

رسالة توطئة للحصول على درجة الدكتوراه فى جراحة الأورام

مقدمة من

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2010

Abstract

Laparoscopic hysterectomy is an alternative to abdominal hysterectomy. There are many advantages of laparoscopic hysterectomy for the patient including the length of hospital stay and rapid convalescence.

Objective: To evaluate feasibility of the technique of Total Laparoscopic Hysterectomy (TLH) and pelvic lymphadenectomy in women with endometrial carcinoma. **Patients & methods**: our study group included randomly 20 patients of endometrial cancer scheduled for laparoscopic surgery. **Results**: The mean operative time was (296.8 minutes); the mean blood loss was (517.5 cc). The mean number of removed lymph nodes was (21.2) and the mean hospital stay was (4.5 days). There was adequate number of resected lymph glands, significant decrease of hospital stay and minimal perioperative complications. **Conclusion**: Laparoscopic hysterectomy gives correct staging of endometrial disease, like Total Abdominal Hysterectomy, but with fewer complications, better quality of life and a slightly longer operative time.

Key words: endometrial cancer – laparoscopic surgery – abdominal surgery – postoperative complications.

Acknowledgement

First thanks to GOD.

I would like to express my sincere thanks and deepest gratitude to **Prof. Dr. Waheed Yousry Garrer**, Professor and Head of Surgical Oncology Department, head of Laparoscopy group, National Cancer institute, Cairo University for his great help, valuable guidance, support and continuous encouragement through the whole research. This work is actually a part of his series about laparoscopic Hysterectomy.

I am also grateful to **Prof. Dr. Mohamed Hany El-Najar** Professor of Surgical Oncology National Cancer Institute Cairo University for his continuous interest, encouragement, great care; supervision and kind advice.

I am also grateful to Prof. **Dr. Tarek Essam El-Din Ahmed** Assistant Professor of Surgical Oncology National Cancer Institute Cairo University who has provided his strong support, encouragement and kind advice.

I would like to express my sincere appreciation to my family for their help, patience and great care.

Finally, I would like to express my appreciation to everyone who helped me to finish this work; to all my professors, my senior staff and my collegues.

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Introduction

Endometrial cancer is the most common malignancy of the female genital tract and the fourth most common malignancy in women following breast, lung and bowel cancers. Ninety percent of endometrial cancers are adenocarcinomas. It is mainly a disease of postmenopausal women and its main risk factor is prolonged exposure of unopposed estrogen (e.g. anovulatory cycles, obesity, early menarche and late menopause) (Richard R et al, 2002). Its main presentation is abnormal uterine bleeding or postmenopausal bleeding. Endometrial cancer metastasizes by direct myometrial invasion and extension to adjacent structures. Trans-tubal passage of exfoliated cells, lymphatic embolization and hematogenous dissemination can also occur (Michael W et al, 1999).

Total abdominal hysterectomy and bilateral salpingo-oophorectomy is the main line of treatment. In addition, many patients require adjuvant radiation therapy to help prevent vaginal vault recurrence and to sterilize occult disease in lymph nodes (Roberts JA et al, 1998).

Pelvic lymphadenectomy with or without para-aortic lymphadenectomy plays an important role in the surgical staging of endometrial cancer, and thus provides more accurate prognostic information. The therapeutic role of lymphadenectomy and its ability to modify adjuvant therapy are less well understood (Neville F. Hacker, 2000). If there is a therapeutic benefit, it must be related to the resection of bulky, positive nodes, which are unlikely to be sterilized with external-beam radiation

therapy. All reports would suggest that if lymph nodes are negative, it may be reasonable to omit external-beam therapy and rely on brachytherapy to prevent vault recurrence, thereby saving both treatment time and money (Mohan DS et al, 1998).

Surgical staging with operative laparoscopy followed by assisted laparoscopic vaginal hysterectomy (ALVH) has been proposed as an alternative to laparotomy (Gemignani M et al, 1998). Its advantages are less blood loss, shorter hospital stay, less ileus, less pain, less pulmonary embolus, more rapid return to normal activity and high patient acceptance. Its disadvantages are more complications early in operator experience, longer operative time, reliance on technical support, slightly increased costs until expertise achieved and lack of training programs. However long-term results concerning recurrence rates after laparoscopy have not been reported (Kenneth D Hatch, 2000).

Manolitsas TP and Mc Cartney AJ reported 403 patients with endometrial carcinoma managed between January, 1993 and June, 1999. (161) patients underwent laparoscopic management, (230) patients underwent laparotomy and (12) patients underwent vaginal hysterectomy. The results were as follow: mean operative times were 138 minutes for laparoscopy and 127 minutes for the open management. Complications differed, with significantly more occurring in the open group (47%) than in the laparoscopic group (17%). Mean postoperative hospital stay was significantly shorter for the laparoscopic group (4.3 days) than for the open group (8.5 days). The conclusion is that total laparoscopic hysterectomy

combined with laparoscopic surgical staging has many advantages over the open approach.

Also Langebrekke A et al, reported (51) women with endometrial cancer stage I managed between February 2000 and February 2001. (27) Patients were operated with a laparoscopic approach and (24) patients with laparotomy. The results were as follows: conversion to laparotomy was done in one patient due damage to the bladder. Mean operative time was (143 minutes) for laparoscopy and (86 minutes) for laparotomy, mean hospital stay (4.3 days) and (6.6 days) respectively. The number of lymph nodes removed was (155) for laparoscopic group and (111) for laparotomy group. In the laparotomy group, one patient developed wound dehiscence and one a vesicovaginal fistula. The interpretation was that the laparoscopic approach is feasible and may obtain an important place in the treatment of early endometrial cancer.

Aim of work

Perioperative evaluation of laparoscopic technique in management of patients with stage I and II endometrial cancer, and assessment of: mean operative time, number of removed lymph nodes; mean postoperative hospital stay, intraoperative and postoperative complications (blood loss, injury to adjacent structures, pulmonary embolus, wound dehiscence….etc).

Material and methods

Twenty patients with stage I and II endometrial cancer will be subjected to laparoscopic hysterectomy with pelvic lymphadenectomy (with or without para-aortic lymphadenectomy), for perioperative evaluation of laparoscopic technique in the management of endometrial cancer.

Inclusion criteria:

- Endometrial cancer proved by curettage and biopsy
- Stage I & II.

Exclusion criteria:

- Morbidly obese patients
- Previous pelvic surgery
- Stage III & IV
- General contraindications to laparoscopic surgery as: obstructive pulmonary disease and cardiopulmonary disease.

Patients will be investigated as follow:

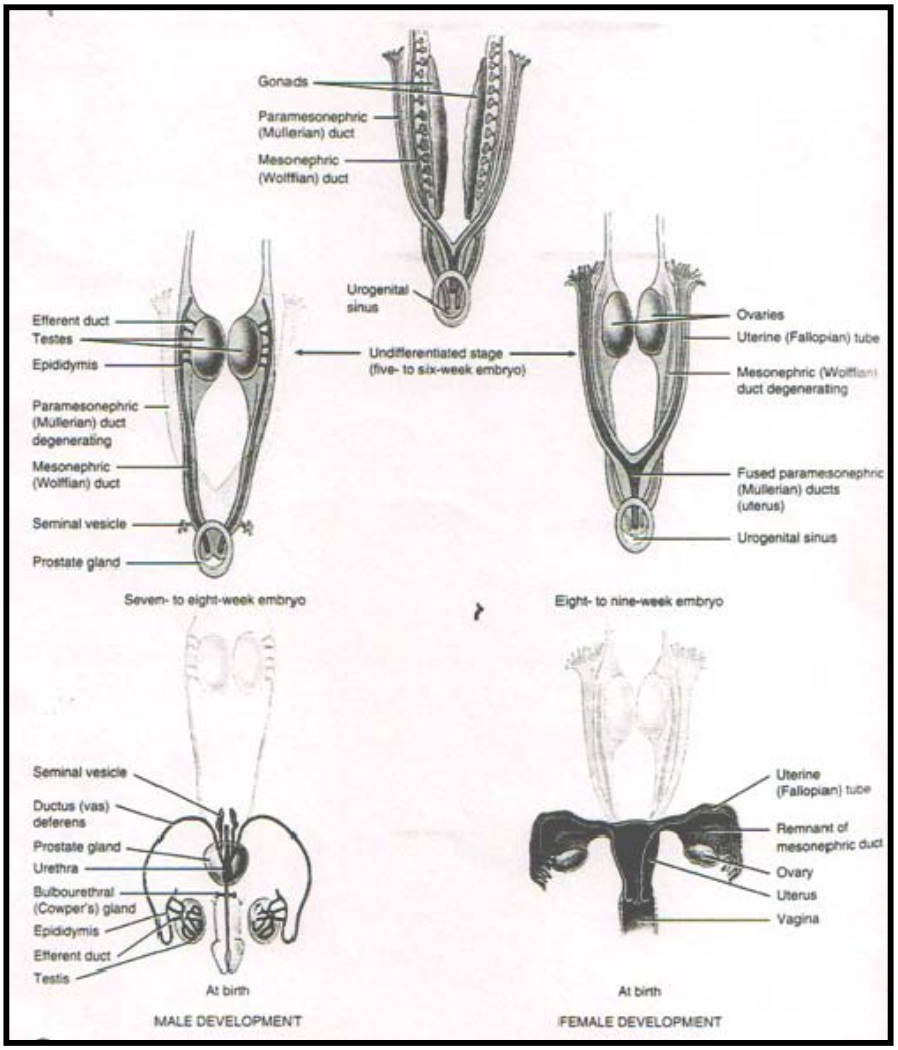
Complete blood picture, liver function tests, kidney function tests, chest x-ray, pelviabdominal ultrasound, CT pelvis and transvaginal ultrasound.

Anatomy & Physiology

Developmental anatomy of the reproductive system: the genital ridges develop from the intermediate mesoderm, by the sixth week of gestation they appear as bulges that protrude into the ventral body cavity. Primordial germ cells from the yolk sac endoderm migrate to the genital ridge to develop as gonads. The gonads develop near the mesonephric (Wolfian) ducts and a second pair of ducts; the paramesonephric (Müller's) ducts; develop lateral to the mesonephric ducts. Both sets of ducts empty into the urogenital sinus.

An early embryo contains primitive gonads that have the potential to differentiate either testes or ovaries. The male pattern of differentiation depends on the presence of master gene on the Y chromosome called SRY (sex-determining region of the Y chromosome) and the release of testosterone. Differentiation of gonadal tissue into ovaries in embryos with two X chromosomes depends on the absence of SRY and the absence of testosterone. In male embryo, a hormone called MIS (Müllerian-inhibiting substance) causes the death of cells within the paramesonephric ducts. In the female embryo, the gonads develop into ovaries; the distal ends of Müller's ducts fuse to form the uterus and the upper part of vagina, the unfused proximal portions become the uterine (Fallopian) tubes. The genesis of the vagina may be said to be dual; the upper part is of mesodermal origin; the lower part (urogenital sinus) is of endodermal origin. Uterine epithelium is formed from the urogenital sinus while the uterine walls are formed by the splanchnic mesenchyme. The mesonephric ducts in the female degenerate

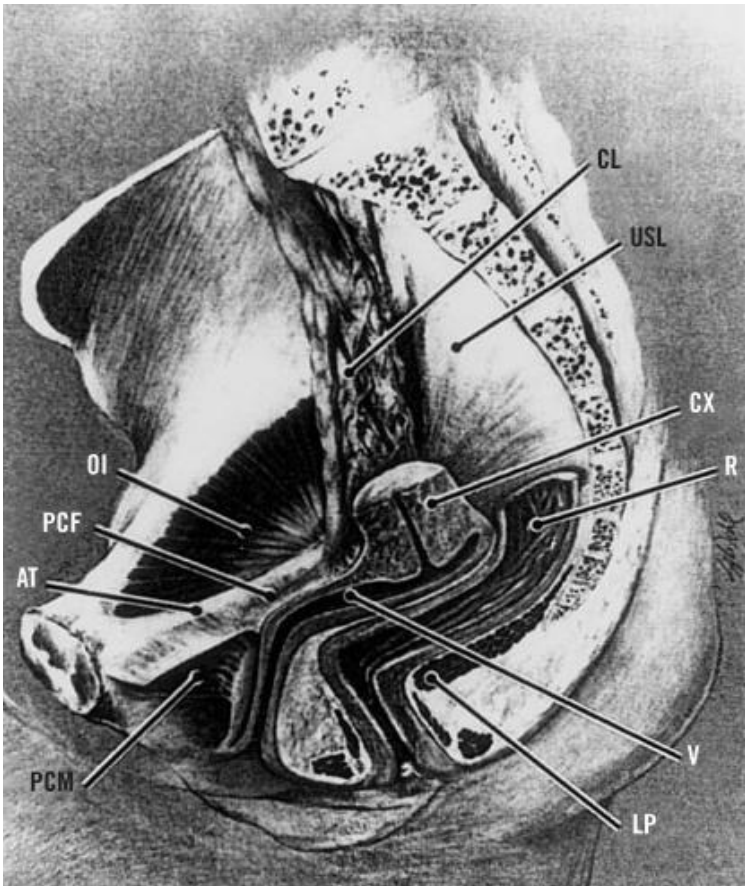
while in male it forms the seminiferous tubules, the epididymis, the vas deferens, the ejaculatory duct and the seminal vesicle (Gerard J Tortora, 1999) [picture 1].



Pic.1: Developmental anatomy of the reproductive system

All the organs of the female reproductive system are concerned with storage and evacuation, functions that can be sustained only if normal anatomic relationships are maintained. In the normal, standing nulliparous female patient, the following anatomic relationships are found; the lower one-third of the vagina is almost vertical in orientation, while the upper two-

thirds of the vagina is almost horizontal. The cervix is found approximately at the level of the ischial spines, but suspended anterior to a line drawn between the spines. The urethra is almost vertical in orientation, whereas the bladder lies on top of the almost horizontal anterior wall of the vagina and the anal canal is almost vertical in orientation, whereas the rectum lies on top of the almost horizontal levator plate (John E. Skandalakis et al, 2004) [picture 2].



(DeLancey JOL. Vaginographic examination of the pelvic floor. Int Urogynecol J 1994; 5:19-24; with permission).

Picture 2: Support structures: lateral view. Bladder, urethra, and uterine corpus have been removed from this diagrammatic sagittal section to reveal attachments of the vagina. A line with a dot at each end indicates the distance spanned by the indicated structure; a line ending in a single dot points to the structure. CL, Cardinal ligament; AT, Arcus tendineus fasciae pelvis; PCF, Pubocervical fasciae; LPI, Levator plate inclination; UGH^{L}, Urogenital hiatus length; USL, Uterosacral ligament; CX, Cervix; R, Rectum; OI, Obturator internus muscle; V, Vagina; LP, Levator plate; PCM, Pubococcygeus muscle.