

Role of omentectomy and appendectomy in surgical staging of endometrioid endometrial cancer

B. Ozdal, B.S. Unlu, H.R. Yalcin, O.L. Tapisiz, H. Energin, M. Besli, T. Gungor

Dr. Zekai Tahir Burak Women's Health Education and Research Hospital, Department of Gynecologic Oncology, Ankara (Turkey)

Summary

Purpose: The purpose of this study was to determine whether it was necessary to add omentectomy and appendectomy to the surgical staging of endometrioid endometrial cancer. **Materials and Methods:** Records were reviewed from June 2005 to June 2009 for endometrioid endometrial cancer patients who underwent total abdominal hysterectomy, bilateral salpingo-oophorectomy, pelvic and para-aortic lymphadenectomy, infracolic omentectomy and appendectomy. **Results:** In total, 186 patients were included in the analysis. Disease was limited to uterus in 93% of patients and 87% of patients had Stage I disease. There was only one omental metastasis and no appendix metastasis in all stages. **Conclusion:** Routine omentectomy and appendectomy are unnecessary in surgical staging of endometrioid endometrial cancer unless there is suspicion of gross metastases during intraoperative examination.

Key words:

Introduction

Every year endometrial cancer affects more than 140,000 women over 40 years of age worldwide and approximately 42,000 women die from this cancer [1]. The main treatment for endometrial cancer is surgery [1]. It has been demonstrated that extrauterine involvement is a poor prognostic factor in endometrial cancer [2-5]. In 1988, the International Federation of Gynecology and Obstetrics (FIGO) recommended a surgical staging process which requires a total abdominal hysterectomy, bilateral salpingo-oophorectomy (TAH+BSO), including pelvic and para-aortic lymphadenectomy (FIGO Stages 2009). Omentectomy and appendectomy are not routinely performed at the time of surgery and are not recommended by FIGO at present [6].

There are several reports regarding the significance of omentectomy and appendectomy for the treatment of endometrial cancer in addition to TAH+BSO and pelvic-para-aortic lymphadenectomy [7-10]. This is supported by the presence of metastases to the omentum, peritoneal surfaces, and the appendix in patients with endometrial cancer grossly limited to the uterus [11]. Some authors have suggested that omentectomy and appendectomy should be performed during surgical staging [7-10, 12]. However, some investigators proposed that omentectomy and appendectomy should not be performed in the staging process [13, 14] and FIGO staging does not include omentectomy and appendectomy in the procedure. The importance of omentectomy and appendectomy in addition to TAH+BSO is not well-defined. Therefore, the objective of this study was to determine if omentectomy and appendectomy were necessary in surgical staging of endometrioid endometrial cancer.

Materials and Methods

In total, 299 women who had undergone surgery for endometrial cancer at the Dr. Zekai Tahir Burak Women's Health Training and Research Hospital between June 2005 and June 2009 were identified. Of these, 110 patients with non-endometrioid tumor types and with endometrioid endometrial cancer in which omentectomy and appendectomy were not performed, were found ineligible. The remaining 189 (63.2%) patients participated in the present study. All patients had TAH+BSO, pelvic and para-aortic lymphadenectomy (up to renal vessels bilaterally), infracolic omentectomy, appendectomy. Age, grade, myometrial invasion, cervical and adnexial involvement, positive peritoneal cytology, lymph node, omentum, and appendix involvement were recorded. Surgical staging was carried out by 2009 FIGO staging. Standard methods are used for examining the pathologic specimens, including omentum and appendix for microscopic disease detection during pathologic examination. The study was approved by the Institutional ethical committee.

Results

One hundred eighty-nine patients with endometrioid endometrial cancer were included in the study. The mean age of the patients was 50 ± 9 years. Of all patients, 93% had a disease limited to the uterus, 7.4% had extrauterine disease (Table 1), and 87% of the patients had Stage I disease (Table 2). Grade, myometrial invasion, and positive peritoneal cytology data are shown in (Table 3). Only one patient had omental involvement whereas no patients had metastasis to the appendix. The patient with omental metastases had grade 2 tumor and Stage 4B disease (metastases at three pelvic lymph nodes, < 50% myometrial invasion).

Discussion

The peritoneal spread of disease is an important prognostic factor in endometrial cancer. Although performing an omentectomy and appendectomy are suggested in the

surgical staging of uterine serous and clear cell cancers, their role is not clear in the staging of endometrioid cancers [13]. Of 186 patients studied, the authors only found one omental metastasis and no appendix metastasis in all stages.

In a prospective study of 84 patients, Chen *et al.* found omental metastases in seven (8.3%) of 84 patients with Stage I endometrial cancer [12]. A majority of the metastases (five) consisted of microscopic disease. They concluded that silent metastases to the omentum frequently are clinically neglected in patients with Stage I endometrial carcinoma during primary surgery and that a routine omental biopsy should be part of the procedure. They also recommended a complete omentectomy for patients with high-risk variables [12]. In another study; Nieto *et al.* demonstrated that there is a six percent omental metastasis risk in early clinical Stage endometrial cancer [8]. Omentectomy influenced the management of around 15% of their high-risk patients with no obvious detriment to the low-risk women who had also undergone an omental biopsy [8]. Recently, Dilek *et al.* showed microscopic omental involvement in three cases (6%) and metastasis to the appendix in two cases (3.9%) in a study of 51 women with clinical Stage I endometrial cancer [9]. The authors proposed that the major advantage of extended surgical staging procedure was to be able to instantly initiate definitive adjuvant therapy in systemic relapse in cases that were diagnosed as Stage I disease. They also concluded that omentectomy gives additional information regarding extrauterine spread of the tumor without increasing operative morbidity, regardless of tumor grade. It was also suggested that omentectomy could be performed as a component of surgical staging in the presence of deep myometrial invasion even if the omentum grossly appeared normal [9]. Saygili *et al.* diagnosed six (6%) omental metastases out of 97 patients which were microscopic in four of them. They also found a statistically significant correlation between omental metastasis and tumor grade. In their series there was only one (two percent) metastasis to the appendix out of 55 appendectomy specimens. Furthermore, the authors concluded that in patients with deep invasion (> 50%) of myometrium or in grade 3 endometrial cancer, omentectomy may be included in the surgical staging procedure due to the likelihood of omental involvement in clinical Stage I disease during surgery. However omentectomy and appendectomy and biopsies from peritoneal sites should be performed in the presence of grossly suspicious disease [7].

In a recent study conducted by Metindir *et al.* published a rate of 6.2% metastasis to the omentum at the time of presentation with apparent early clinical Stage endometrial cancer. Seven patients (10.8%) had positive peritoneal cytology and there was a significant correlation of omental metastasis with peritoneal cytology. They have stated that despite the presence of normal appearing omentum, omentectomy should be performed as a component of surgical staging in the presence of positive peritoneal cytology. Authors also recommended omen-

Table 1. — Pathological features of the cases.

Metastasis	(n = 189)	(%)
Limited to uterine corpus (not involving the uterine serosa)	164	(86.77)
Cervix (11/17 involving cervical stroma only)	17	(9.00)
Adnexae	3	(1.59)
Parametrium	1	(0.53)
Lymph node	9	(4.76)
Omentum	1	(0.53)
Appendix	0	(0)

Table 2. — Surgical Stages in 189 patients of endometrioid endometrial cancer.

Stage	(n = 189)	(%)
1A	114	60.32
1B	51	26.98
2	11	5.82
3A	3	1.59
3B	1	0.53
3C1	5	2.65
3C2	3	1.59
4A	0	0
4B	1	0.53

Table 3. — Grade, myometrial invasion, and positive peritoneal cytology.

Stage	n	%
<i>Grade</i>		
1	109	57.67
2	67	35.45
3	13	6.88
<i>Myometrial invasion</i>		
None	24	12.70
< 50%	102	53.97
> 50%	63	33.33
Positive peritoneal cytology	3	1.59

tectomy in all patients, as a part of routine laparotomy, if peritoneal cytology could not be diagnosed during operation [10].

All of the authors cited above established omental metastases in approximately six percent and proposed that omentectomy may be helpful in certain conditions.

On the other hand, a prospective study performed by Fujiwara *et al.* demonstrated omental metastasis in four patients (3.0%) out of 134 in which significant correlation with peritoneal cytology and adnexal metastases was observed. Incidence of omental metastases was lower than that of lymph node metastases and positive peritoneal cytology in clinical Stage I endometrioid adenocarcinoma. The authors concluded that performing an omentectomy in all patients as a part of routine laparotomy cannot be recommended at present. However close inspection and palpation during surgery may be necessary since omental metastasis is a poor prognostic factor when adhesion or thickening is noted and the omentum should be excised and histologically examined [14].

Gehrig *et al.* investigated the significance of omentectomy in the cases of endometrial serous adenocarcinoma

and reported that most cases of omental metastases could be detected by inspection because the sensitivity was 0.89 and the specificity was 1.00 for the intraoperative diagnosis via surgical inspection [15].

In the present study, the authors found one omental metastasis and no appendix metastases in 189 patients who had appendectomy and omentectomy. The omental metastases were in the form of multiple macroscopic metastases and the former did not affect the Stage of the disease since there was also pelvic lymph node metastasis in the patient. Therefore, the omental and appendix metastases rates were only 0.53% and 0%, respectively, which were much lower than the other recent mentioned studies. Although all Stages were included in the study, the authors expected a higher percentage of metastasis.

To the authors' knowledge, this is one of the major series which investigates the role of omentectomy and appendectomy in endometrioid endometrial cancer [7-10, 12]. Additionally, the current study is improved by the investigation of all Stages of disease, which was not done before. However, the current study was mainly limited by its retrospective design.

In conclusion, omentectomy and appendectomy are unnecessary unless there is suspicion of gross metastases during intraoperative examination. Since there are conflicting results from various centers, multicenter, prospective, and randomized large numbers of studies are needed to clarify the exact role of omentectomy and appendectomy.

References

- [1] Amant F., Moerman P., Neven P., Timmerman D., Van Limbergen E., Vergote I.: "Endometrium cancer". *Lancet*, 2005, 366, 491.
- [2] Chen S.S.: "Extrauterine spread in endometrial carcinoma clinically confined to the uterus". *Gynecol. Oncol.*, 1985, 21, 23.
- [3] Creasman W.T., Morrow C.P., Bundy B.N., Homesley H.D., Graham J.E., Heller P.B.: "Surgical pathologic spread patterns of endometrial cancer. A Gynecologic Oncology Group Study". *Cancer*, 1987, 60, 2035.
- [4] Morrow C.P., Bundy B.N., Kurman R.J., Creasman W.T., Heller P., Homesley H.D., Graham J.E.: "Relationship between surgical-pathological risk factors and outcome in clinical Stage I and II carcinoma of the endometrium: a Gynecologic Oncology Group study". *Gynecol. Oncol.*, 1991, 40, 55.
- [5] Larson D.M., Connor G.P., Broste S.K., Krawisz B.R., Johnson K.K.: "Prognostic significance of gross myometrial invasion with endometrial cancer". *Obstet. Gynecol.*, 1996, 88, 394.
- [6] Announcement. FIGO stages 1988 revision. *Gynecol. Oncol.*, 1989, 35, 125.
- [7] Saygili U., Kavaz S., Altunyurt S., Uslu T., Koyuncuoglu M., Erten O.: "Omentectomy, peritoneal biopsy, and appendectomy in patients with clinical Stage I endometrial carcinoma". *Int. J. Gynecol. Cancer*, 2001, 11, 471.
- [8] Nieto J.J., Gornall R., Toms E., Clarkson S., Hogston P., Woolas R.P.: "Influence of omental biopsy on adjuvant treatment field in clinical Stage I endometrial carcinoma". *Br. J. Obstet. Gynaecol.*, 2002, 109, 576.
- [9] Dilek S., Dilek U., Dede M., Deveci M.S., Yenen M.C.: "The role of omentectomy and appendectomy during the surgical staging of clinical Stage I endometrial cancer". *Int. J. Gynecol. Cancer*, 2006, 16, 795.
- [10] Metindir J., Dilek G.B.: "The role of omentectomy during the surgical staging in patients with clinical Stage I endometrioid adenocarcinoma". *J. Cancer Res. Clin. Oncol.*, 2008, 134, 1067.
- [11] Marino B.D., Burke T.W., Tomos C., Chuang L., Mitchell M.F., Tortolero-Luna G. *et al.*: "Staging laparotomy for endometrial carcinoma: assessment of peritoneal spread". *Gynecol. Oncol.*, 1995, 56, 34.
- [12] Chen S.S., Spiegel G.: "Stage I endometrial carcinoma. Role of omental biopsy and omentectomy". *J. Reprod. Med.*, 1991, 36, 627.
- [13] Chan J.K., Loizzi V., Youssef M., Osann K., Rutgers J., Vasilev S.A., Berman M.L.: "Significance of comprehensive surgical staging in noninvasive papillary serous carcinoma of the endometrium". *Gynecol. Oncol.*, 2003, 90, 181.
- [14] Fujiwara H., Saga Y., Takahashi K., Ohwada M., Enomoto A., Konno R. *et al.*: "Omental metastases in clinical Stage I endometrioid adenocarcinoma". *Int. J. Gynecol. Cancer*, 2008, 18, 165.
- [15] Gehrig P.A., Van Le L., Fowler W.C. Jr.: "The role of omentectomy during the surgical staging of uterine serous carcinoma". *Int. J. Gynecol. Cancer*, 2003, 13, 212.

Address reprint requests to:

B.S. UNLU, M.D.

Department of Gynecologic Oncology
Ankara (Turkey)

e-mail: drserdarunlu@yahoo.com