

Update

IN GYNECOLOGIC ONCOLOGY



Survivorship and Quality-of-Life Issues: Lymphedema

ISSUE 48, SUMMER 2007

Lower-Extremity Lymphedema in Patients with Gynecologic Cancer

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Lymphedema is a chronic, progressive condition in which there is an accumulation of protein-rich fluid in the superficial tissues of the body. Lymphedema can be characterized as either primary or secondary in nature [1] and can be categorized into 3 stages. In stage I disease, edema is mild; fluid accumulates throughout the day but resolves overnight. In stage II disease, lymphedema is persistent but varies in its severity. Stage III disease is characterized by constant moderate-to-severe edema of the involved limb(s).

Surgical removal of pelvic lymph nodes and radiation therapy are risk factors for the development of lower-extremity lymphedema. The specific incidence of lower-extremity lymphedema following treatment for gynecologic cancer and risk factors for the development of lymphedema are not well documented in the literature. This is in contrast to the extensive literature focused on upper-extremity lymphedema after treatment for breast cancer, in which lymphedema rates of approximately 20% occur with axillary node dissection, 77% occurring within 3 years of surgery [2].

A comprehensive study of 487 women with a history of gynecologic cancer found an incidence of symptomatic lower-extremity lymphedema to be as high as 36%, with the highest rates occurring in women treated for vulvar cancer [3]. Another, smaller study (n=61) noted the incidence of lower-extremity lymphedema to be 33% in women who had undergone inguinal-femoral lymphadenectomy with/without subsequent radiation therapy for squamous cell carcinoma of the vulva [4]. Recent findings from a retrospective study showed that women with cervical cancer treated with a radical hysterectomy had an 8-fold increased risk of developing lower-extremity lymphedema [5]. The incidence of lower-extremity lymphedema in patients who had undergone lymphadenectomy for endometrial cancer has been reported in the 5–10% range, although prospective data are sparse. The extent of nodal sampling has also been documented as a factor in the development of symptomatic lower-extremity lymphedema. Surgical staging procedures for endometrial cancer involving the removal of 10 or more regional nodes have been found to increase the risk for developing lower-extremity lymphedema [6].

Despite the findings of a few studies investigating this area of research, there are still many unanswered questions. We do not know how the presence of lymph node metastasis, the number of lymph nodes removed, or the level of physical activity during and after treatment affect the development of chronic lymphedema. These risk factors have not been studied in a prospective manner. Comprehending the magnitude of the problem and its associated risks will

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Lower-Extremity Lymphedema: The Nursing Perspective

KATHLEEN APPOLLO, RN, BSN, OCN

Lower-extremity lymphedema can be a debilitating side effect of lymphadenectomy or radiation therapy for gynecologic malignancies. Although patients should be informed about the possible postoperative development of lower-extremity lymphedema, there are many instances in which patients felt they did not receive adequate information before they developed lower-extremity lymphedema [1]. In some cases, information given

to patients preoperatively may not be processed completely due to overriding concerns about the diagnosis and impending surgery.

A review of the literature reveals a scarcity of research about lower-extremity lymphedema. Prevention strategies are based on physiology and data from axillary node dissection patients, mainly breast cancer patients.

Lower-extremity lymphedema may develop when activities or situations increase the volume

of or disrupt the flow of fluid in the extremity [2]. Education in the basic physiology of the lymph system may help a patient understand the process for potential lower-extremity lymphedema development. General areas of prevention include avoidance of limb constriction, skin trauma and infection; increased mobility; maintenance of ideal weight; and care of extremity during air travel. Specific prevention strategies are listed in Table 1.

Lower-extremity lymphedema can occur months or years after surgery; therefore, review of prevention strategies, assessment, and surveillance at each outpatient visit is essential. Early symptoms of lower-extremity lymphedema include leg heaviness or discomfort with no swelling or only slight swelling [3]. Persistent or increasing symptoms warrant a referral to a lymphedema specialist. Since swelling may also herald a recurrence of cancer or a deep venous thrombosis, these should be ruled out prior to referral.

Treatment for lower-extremity lymphedema may include the use of compression stockings. It is important that these are individually fitted to prevent constriction and to provide the correct gradient pressure. Physical therapy treatment consists of manual lymphatic drainage with specialized massage, compression wrapping, exercises, and skin care. Since lymphedema care may be lifelong, patients are taught these interventions to continue self care.

Lower-extremity lymphedema may have a profound effect on a patient, resulting in a compromised quality of life. Pain, decreased mobility, inability to fit into usual clothing, inability to carry out usual employment, and embarrassment over body image may lead to social isolation. Ongoing nursing assessment, management, and patient support are recommended. ■

Table 1. Strategies for Prevention of Lower-Extremity Lymphedema

Avoid Constriction <ul style="list-style-type: none">• Wear properly fitted shoes, socks, knee highs, and pantyhose• Be sure that toe rings or ankle bracelets are loose• Avoid crossing legs• Ambulate at intervals• Elevate legs if swelling occurs
Avoid Infection/Inflammation <ul style="list-style-type: none">• Keep skin clean and dry• Use an emollient cream to keep skin soft• Wear shoes to protect feet, even at the beach• Use insect repellent• Use sunscreen• Cut toenails straight across and use care with cuticles• Use an electric shaver
Avoid Sudden Increases to Lymphatic Circulation <ul style="list-style-type: none">• Gradually increase exercise• Deep breathing exercises will help the flow of lymph• Take rest periods to avoid fatigue• Avoid temperature extremes, such as saunas and hot tubs• Maintain ideal weight
Use Caution during Air Travel <ul style="list-style-type: none">• Consider use of personally fitted compression stockings• If lymphedema is present, use personally fitted compression stockings• Hydrate during flight• Ambulate during flight• Request a seat assignment with adequate leg room
When to Call Care Provider <ul style="list-style-type: none">• Swelling• Fever• Erythema• Warmth
After Lymphedema Occurs <ul style="list-style-type: none">• Refer to lymphedema specialist• Assess need for pain medication• Monitor for interference with activities of daily living• Refer to support group, psychiatry, or social work
<small>Adapted from National Lymphedema Network (NLN). Position Statement of the National Lymphedema Network. Lymphedema risk reduction practices. Approved 7/1/05.</small>

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Symptomatic Lower-Extremity Lymphedema Following Treatment of Uterine Corpus Malignancies

NADEEM R. ABU-RUSTUM, MD

Surgical staging is the standard of care for operable uterine corpus cancer. Adjuvant radiation therapy and/or chemotherapy may be needed in the postoperative setting. The general postoperative complications of hysterectomy for uterine corpus cancer are known; however, there is very limited information on the incidence of symptomatic leg lymphedema following therapy for uterine corpus cancer. In recent years, complete surgical staging for operable endometrial cancer with pelvic and paraaortic lymph node sampling or dissection has become more commonly used in the gynecologic oncology community, and the possible therapeutic benefit of selective lymphadenectomy in patients with apparent early-stage endometrial cancer has been documented [1]. The effects of regional lymph node removal on the incidence of leg edema in women treated for endometrial cancer is unknown. Moreover, the baseline prevalence of leg edema from other etiologies in this patient population is also not well described. Over the last several years, some aspects in the management of endometrial and uterine corpus malignancy at our institution have changed. Since 2001 it has been our group preference to perform bilateral pelvic lymphadenectomy with limited paraaortic lymph node sampling on all patients with endometrial cancer when technically and medically possible. This is a change from previous years when lymph node sampling or dissection was frequently based on an intraoperative frozen-section evaluation. Figure 1 depicts the median number of regional lymph nodes removed (the number increases after 2001) in endometrial cancer patients per year at MSKCC, and the number of patients who developed symptomatic leg lymphedema.

We conducted a retrospective chart review of all patients with uterine corpus cancer managed over a 12-year period (1/93–12/04) at MSKCC. All patients had a hysterectomy as part of their therapy. We identified patients with leg lymphedema—as described by the physician or reported by the patient—through medical records. We excluded cases of leg edema that developed secondary to medical conditions such as cardiovascular and renal disease, venous thrombosis, and end-stage recurrent malignancy.

In all, 1289 patients with uterine corpus malignancy were evaluated. We excluded other chronic lower-extremity edema that

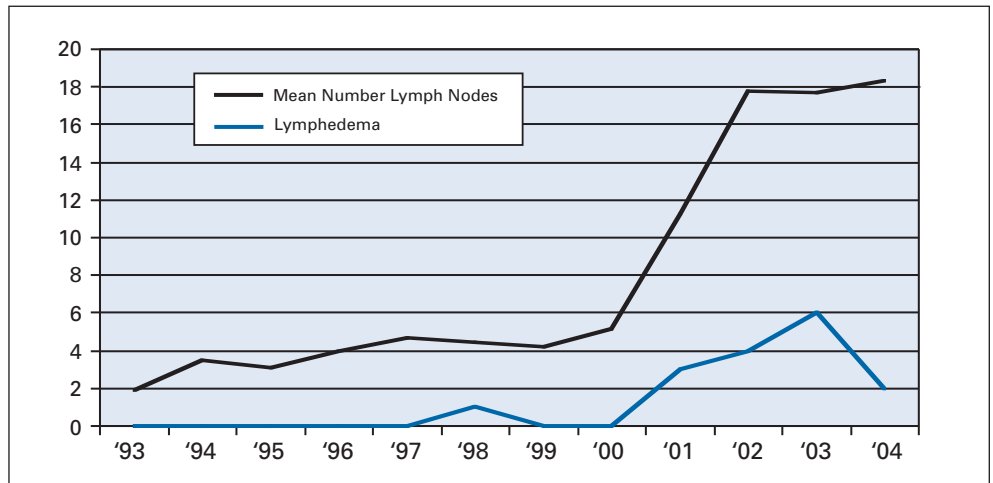


Figure 1: Mean number of regional lymph nodes removed and number of patients with symptomatic leg lymphedema, by year of surgery.

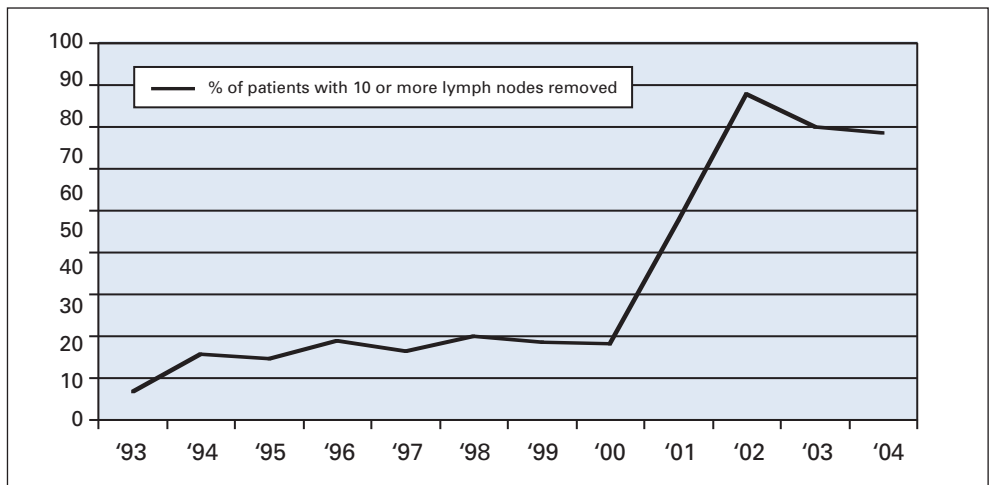


Figure 2: Percentage of patients per year who had 10 or more regional lymph nodes removed.

was related to a variety of medical conditions in 74 patients (5.7%). With a median follow-up of 3 years (interquartile range, 1.1–5.4 years), symptomatic post-treatment lower-extremity lymphedema was noted in 16 patients (1.2%). It is very likely that some patients in this study had minimal or mild leg lymphedema that would have been detected only by prospective serial leg circumference or volume measurements, which was not part of this retrospective study. Patients who had lymph nodes removed at initial surgery had a higher rate of developing lymphedema (16/670, 2.4%) than those who did not (0/619, 0%) ($P = 0.0001$). Furthermore, symptomatic lymphedema was limited to patients who had 10 or more regional lymph nodes removed (16/469 [3.4%]). Lymphedema was noted at a median of 5.3 months after surgery (range, 1–32 months). Lymphedema was unilateral in 11

patients (69%) and bilateral in 5 (31%); moreover, it was considered grade 1 in 12 patients (75%) and grade 2 in 4 (25%). Figure 2 shows the percentage of endometrial cancer patients per year who had 10 or more regional lymph nodes removed; again, notice the increase after 2001. Age, weight, stage, type of hysterectomy, and type of postoperative adjuvant therapy were not associated with lymphedema.

To date, this is the largest series evaluating symptomatic lower-extremity lymphedema in women with uterine corpus cancer. Patients who had 10 or more regional lymph nodes removed at initial surgery appear to be at higher risk for developing symptomatic leg lymphedema, although this should not be used as an argument against surgical staging and adjuvant therapy in women with uterine corpus cancer. Patients undergoing surgery

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The Gynecology Disease Management Team welcomes **Mario Leitao, MD**, to the MSKCC staff as an Assistant Attending Surgeon of the Gynecology Service, Department of Surgery. Dr. Leitao completed his fellowship at MSKCC in 2004 and was awarded the prestigious Michael E. Burt Memorial Award for Clinical Excellence. Soon after, Dr. Leitao was appointed Director of Gynecologic Services at the New Jersey Medical School. He now returns to MSKCC with a focus on minimally invasive surgical options, including both laparoscopic and robotic-assisted procedures, for the treatment of ovarian, endometrial, cervical, vulvar, and vaginal cancers.

The Gynecology Disease Management Team would like to congratulate **Douglas A. Levine, MD**, for his recent receipt of two funding awards—the Liz Tilberis Scholars Award from the Ovarian Cancer Research Fund, a competitive renewal award to study the *Genetic Modifiers of BRCA Penetrance for Ovarian Cancer* and a Goldstein Award from the Prevention Control and Population Research Program to study *BRCA1/2 Haplotype Analysis and Genetic Predisposition to Ovarian Carcinoma*.

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aid in the development of interventions to reduce the risk for developing lymphedema. There is a paucity of information regarding lower-extremity lymphedema after gynecologic cancer treatment, consisting primarily of retrospective studies that suffer from under-reporting of lymphedema and a lack of a uniform system for documenting its presence.

To date, there are no large prospective studies that have documented the prevalence of lower-extremity lymphedema following surgical staging and adjuvant therapy for gynecologic malignancy. This is a significant limitation in the field of oncology, preventing us from understanding the risks and prevalence of lymphedema and also the implications of this chronic condition on the emotional well-being and quality of life of cancer survivors. Studies are urgently needed to offer insight into the specific risk factors, including the types of surgeries performed and the use of adjuvant therapy (chemotherapy and/or radiation). Such studies will facilitate early detection and management of lymphedema, in addition to enhancing the quality of life of women faced with a diagnosis and the subsequent treatment for gynecologic cancer. ■

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with lymphadenectomy for uterine corpus malignancy should be informed about the possibility of postoperative symptomatic leg lymphedema. A prospective evaluation of leg lymphedema is needed to accurately determine the incidence, severity, and risk factors for this complication. ■

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IN GYNECOLOGIC ONCOLOGY

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