ELSEVIER

JMIG The Journal of Minimally Invasive Gynecology

Original Article

Risk of Morcellation of Uterine Leiomyosacomas in Laparoscopic Supracervical Hysterectomy and Laparoscopic Myomectomy, a Retrospective Trial Including 4791 Women

Marit Lieng, MD, PhD*, Espen Berner, MD, and Bjorn Busund, MD

From the Department of Gynecology, Oslo University Hospital, Oslo, Norway (Drs. Lieng, Berner, and Busund), and Institute of Clinical Medicine, University of Oslo, Oslo, Norway (Dr. Lieng).

ABSTRACT **Study Objective:** To evaluate the incidence of uterine leiomyosarcomas (LMSs). To identify the risk of morcellating LMS in a gynecological department that offers laparoscopic supracervical hysterectomy (LSH) and laparoscopic myomectomy as primary surgical treatments.
Design: A retrospective trial.
Design Classification: Canadian Task Force Classification III.
Setting: Norwegian university teaching hospital.
Patients: Women diagnosed with uterine LMS and the total population of women who were referred for surgical treatment of uterine fibroids from January 1, 2000 to December 31, 2013.
Interventions: Surgical treatment of fibroids, including LSH, abdominal supracervical hysterectomy, total laparoscopic hysterectomy, total abdominal hysterectomy, laparoscopic myomectomy, and hysteroscopic resection of fibroids.
Measurements and Main Results: A total of 4791 women were included in this trial; 1957 laparoscopic procedures were performed, and a morcellator was used in 1846 of the procedures. Twenty-six women were diagnosed with uterine LMS specimens after surgery. The mean ± SD age of women with LMS was 61.2 ± 12.3 years, and the mean ± SD of the tumor size at time of diagnosis was 90.9 ± 45.4 mm. Of these 26 women, 6 were diagnosed with uterine LMS by endometrial biopsy before surgical treatment, and 14 women were treated by open hysterectomy and bilateral salpingo-oophorectomy due to a clinical preoperative suspicion of a malignant condition. Consequently, 6 women with uterine LMS were treated according to the protocol for anticipated benign fibroids. Five of these women underwent laparotomy due to tumor size. LSH was performed in 1 woman, and a morcellator was used for tissue extraction. The incidence of uterine LMS in the population of women referred for anticipated benign fibroids was 0.0054 (1 in 183 women). The rate of unintended morcellation of a LMS at our department between January 1, 2000 and December 31, 2013 was 0.0002 (1 in 4791 women).
Conclusion: The incidence of uterine LMS was comparable with the incidence reported in the literature. The risk of unintended morcellation of uterine LMS after a preoperative selection of women with fibroids appears to be very low. Journal of Minimally Invasive Gynecology (2015) ■, ■–■ © 2014 AAGL. All rights reserved.

Keywords: Laparoscopic myomectomy; Laparoscopic supracervical hysterectomy; Leiomyosarcoma; Power morcellation; Uterine leiomyosarcoma; Uterine tissue extraction

DISCUSS You can discuss this article with its authors and with other AAGL members at **http://www.AAGL.org/jmig-22-2-JMIG-D-14-00408**

Use your Smartphone to scan this QR code and connect to the discussion forum for this article now*

* Download a free QR Code scanner by searching for "QR scanner" in your smartphone's app store or app marketplace.

Recently, there has been an increasing focus on the use of the electromechanical morcellators for tissue extraction during laparoscopic supracervical hysterectomy (LSH) and laparoscopic myomectomy [1–10]. This has become a controversial object of discussion, both in United States and Europe [11–14]. Mainly, there is concern regarding the risk of unintended morcellation of leiomyosarcomas

Corresponding author: Marit Lieng, MD, PhD, Department of Gynecology, Oslo University Hospital, P. O. Box 4950 Nydalen, N-0424 Oslo, Norway. E-mail: marit.lieng@online.no

Submitted August 12, 2014. Accepted for publication October 29, 2014. Available at www.sciencedirect.com and www.jmig.org

1553-4650/$ - see front matter © 2014 AAGL. All rights reserved.
http://dx.doi.org/10.1016/j.jmig.2014.10.022

(LMSs) [10,12,15]. This may lead to spread of the cancerous tissue in the abdominal and pelvic cavity, and consequently, to worsening of the patient's prognosis [16]. Therefore, in April 2014, the U.S. Food and Drug Administration (FDA) issued a communication discouraging the use of laparoscopic power morcellation of fibroids [12]. If a morcellator should be used during hysterectomy or myomectomy, the FDA has instructed all health care providers in the United States to inform patients that fibroids may contain unexpected cancerous tissue, and that the morcellator may spread the cancer and significantly worsen their prognosis. In addition, the FDA has recommended a thorough discussion of benefits and risk of all treatments with patients.

During the last decade, LSH has been the preferred surgical treatment in women with symptomatic fibroids who require hysterectomy at our department. Laparoscopic myomectomy may be performed in women who want to preserve the uterus, if feasible. Preoperative evaluation before LSH includes cervical cytology, endometrial biopsy, gynecological examination, and transvaginal sonography. LSH is not performed in women with previous or current cervical dysplasia, or in women with atypical endometrial hyperplasia or endometrial cancer. Furthermore, open surgery is performed in cases in whom symptoms or preoperative findings are suggestive of possible malignant pelvic tumors. Consequently, LSH is rarely performed in postmenopausal women with symptoms related to uterine fibroids.

The recent FDA safety communication and the subsequent debate encouraged us to review the treatment performed in women with presumed benign fibroids at our department [12]. The objective of this study was to evaluate the occurrence of uterine LMS in our patient population. In addition, we wanted to identify the risk of unintended morcellation of LMS in a gynecological department that offers LSH or laparoscopic myomectomy as primary surgical procedures in women with fibroids who require surgical treatment.

Materials and Methods

This is a retrospective study carried out in a university teaching hospital during May and June 2014. The Scientific Advisory Board and the Advisory Committee on the Protection of Patient Records at Oslo University Hospital approved the study. Approval from the Regional Committee for Medical Research Ethics was not necessary. All specimens with a histopathological diagnosis of uterine LMS at the Department of Pathology at our institution from January 1, 2000 to December 31, 2013 were retrieved, and the medical records of all women with LMS were searched.

The following variables were retrieved from the medical records of the women diagnosed with LMS: patient age; body mass index; symptoms; size of the tumor (LMS); any preoperative investigations and results of such investigations; surgical treatment; and outcome (alive or deceased). To calculate the prevalence of LMS in women with presumed benign fibroids at our department, all procedures performed due to fibroids at our department from January 1, 2000 to December 31, 2013 were registered, as well as the type of surgical procedure and surgical approach used. The demographic data were not available for the total population of women studied. The data were analyzed using SPSS 18.0 (IBM, Armonk, New York).

Results

Of all the women referred to our department between January 1, 2000 and December 31, 2013 for surgical treatment of fibroids, 27 were diagnosed with uterine LMS (Fig. 1). In addition, the histopathological diagnosis of the specimen after surgery in 1 woman was inconclusive (whether the tumor was malignant or benign). This woman was treated and followed up according to the treatment protocol for uterine LMS. This woman was included in this study as a case of LMS. Two of the women with LMS had a relapse of previously diagnosed disease. Consequently, 26 new cases of women with LMS were identified.

The mean ± SD age of women with LMS at time for diagnosis was 61.2 ± 12.3 years, and the mean ± SD body mass index was 26.5 ± 6.5 kg/m^2. The majority of women with LMS were postmenopausal (74.0%), and the dominant symptom in this group of women was postmenopausal bleeding. Most premenopausal women experienced pelvic pressure or pain and/or menorrhagia. Two asymptomatic women were referred because they had a rapid growing fibroid diagnosed by transvaginal ultrasound, according to the referring gynecologist. Three of the women had previously had surgery due to benign fibroids confirmed by histopathological examination of the specimen (1 supracervical abdominal hysterectomy, 1 open myomectomy, and 1 transcervical resection of a submuceous fibroid). The mean ± SD size of the tumor at the time of LMS diagnosis was 90.9 ± 45.4 mm. Figure 2 shows the distribution of new cases of LMS for the study (2000–2013) and the outcome in each case.

LMSs were diagnosed preoperatively by endometrial biopsy in 6 of the 26 women. One of these women was 84 years of age and had an advanced stage of the condition with multiple metastasis to the lungs at the time of diagnosis. After a thorough evaluation, and informed consent was obtained, no surgical treatment was performed and the patient received palliative treatment. The other 5 women were treated and followed up according to the treatment protocol for LMS at the national cancer institution (open hysterectomy and bilateral salpingoo-oophorectomy).

The diagnosis of LMS was not established when the surgical treatment was performed in 20 women. Nevertheless, 14 of these women (70.0%) were treated by surgical procedures according to the protocol for uterine LMS (total abdominal hysterectomy and bilateral salpingo-oophorectomy) due to a clinical suspicion of possible malignant conditions. In most cases, the suspicion of possible malignant conditions was based on large tumors with irregular sonographic apperance in postmenopausal women.