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EDITORIAL

Morcellation of presumed benign uterine tumors: abandon the technique or patient triage?

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Morcellation of uterine leiomyomas became a hot issue when Amy Reed, MD, an anesthesiologist at Beth Israel Hospital in Boston, underwent this procedure in October 2013. However, an unsuspected uterine leiomyosarcoma was morcellated and could have worsened her prognosis by spreading the cancer around her abdomen. Since that moment, Dr. Reed's husband, cardiothoracic surgeon Hooman Noorchashm, MD, PhD, has led a campaign calling for a ban on morcellation. Uterine leiomyomas are present in approximately 40 % in women of 40–50 years of age. These benign tumors should be discerned from malignant counter parts including leiomyosarcoma (LMS), smooth muscle tumours of unknown malignant potential (STUMP), endometrial stromal sarcoma (ESS), undifferentiated sarcoma (rare, high grade), adenosarcoma (rare, low grade) and very rare tumors including angiosarcoma, hemangio pericytoma, pleomorphic, liposarcoma, desmoplastic, Gastro Intestinal Stromal Tumor… Incidence rates obtained from NORDCAN and NOCCA databases during the study-period 1978–2007, were about 0.3 per 100,000 for ESS and about 0.4 per 100,000 for LMS in Denmark, Finland, Iceland, and Norway [1]. In Norway, 419 uterine sarcomas were registered from 1970–2000 [2].

The preoperative diagnosis is frequently unsure [3]. This is not unexpected since even at microscopic level, smooth muscle cell tumor pathology can be challenging. Expert opinion is frequently necessary in order to discriminate among resembling tumours. For example, only abrupt transition of living cells to necrotic cells without layer of granulation or fibrous tissue is a hallmark of leiomyosarcoma. As a result, there are no pathognomonic features predicting LMS or ESS on preoperative ultrasonography or magnetic resonance imaging studies.

Morcellation is used to prevent laparotomy and its associated disadvantages. Morcellation allows large leiomyomas to be removed after an endoscopic procedure. Morcellators are available already from 1973 onwards. They are used to reduce surgical specimens and allow their extraction, therefore preventing the need for laparotomy and its associated disadvantages. Yet the technique itself has also disadvantages, including surgical risks, spread of benign disease and spread of malignant disease. Surgical risks refer to damage to surrounding tissue, including bowel, blood vessels, bladder, kidney and ureter. Spread of benign disease mainly refers to diffuse peritoneal leiomyomatosis and parasitic myomas. The focus of the current debate is on the risk of spreading malignant disease. A follow-up study in patients with ESS in whom the tumor was morcellated showed a shorter disease free interval as compared to patients in whom this was not the case (total $n=50$) [4]. Survival was not different but this may be due to a relative short follow-up and the indolent nature of ESS. However, patients are more likely to undergo repeat surgery, radiation, chemotherapy and lifelong hormonal treatment reducing their quality of life. A recent summary of cases of uterine power morcellation with follow-up exploratory laparotomy [5], revealed unexpected diagnoses in 1.2 % of 1091 patients who had their uterus morcellated following hysterectomy. 0.09 % were unexpected LMS cases. Disseminated disease occurred in 64.3 % of all (in house and consultation) tumors, including 0/1 ESS, 1/1 cellular leiomyoma, 0/1 atypical leiomyoma, 4/4 STUMPs and 4/7 LMSs. Only disseminated leiomyosarcoma, however, was associated with mortality. For more indolent malignancies, length of follow-up (averaging less than 3 years)

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may not be sufficient to identify increased morbidity or mortality for dissemination of such lesions. Similar studies refer to the same risk of uterine LMS spread [6, 7].

Oncologists have a problem when they are consulted for a treatment strategy after inadvertent morcellation of a uterine cancer. Anecdotal data only are available. A staging laparoscopy has merely a prognostic importance. Adjuvant treatment for ESS (and maybe similar for adenosarcoma and STUMP) probably includes castration in premenopausal women and progestins in all ages. For LMS, there is no benefit of adjuvant chemo and/or radiotherapy and nothing can be done to improve the prognosis.

Based on these data, the FDA recommended in April 2014 that laparoscopic power morcellators should no longer be used for hysterectomy or myomectomy in most women with uterine leiomyomas. The FDA concluded that the risk of morcellating an unsuspected uterine sarcoma is 1 in 352 and the risk of morcellating an unsuspected uterine leiomyosarcoma is 1 in 498 [8].

Apart from such risk reduction to zero, a patient triage system may significantly (exact figures are not available) reduce the risk for malignant spread. In our hospital, we agreed on some empiric recommendations for patient triage. We discourage morcellation in case of oval, solitary lesions, central necrosis, fast growth (over a 3 months time frame), irregular lining, high blood flow, atypical growth (postmenopausal, post embolisation, during GnRH analogue treatment/ulipristal) and in case of an ovarian fibroma. Morcellation is considered a safe procedure in case of a round lesion, severall small lesions, regular lining, low blood flow and the presence of calcifications.

Morcellation in a laparoscopic bag is often proposed as an alternative. However, this technique cannot be used for myomectomy, since myomectomy itself is associated with spilling. Though intuitively protective, there are no prospective or other reliable data to support this practice [9].

To summarize, it is obvious that morcellation of uterine leiomyomas poses risk of spreading cancerous tissue in women with unsuspected cancer. Some women will die as a consequence of this. Risk reduction strategies include abandonment of morcellation (zero reduction), patient triage (probable risk reduction) or morcellation in a laparoscopic bag (unproven safety). Patient should be informed on the risks of morcellation, preoperative findings and alternatives.

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