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Morcellation of apparent benign uterine myoma: assessing risk to benefit ratio

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Specimen extraction is one of the most challenging steps during minimally invasive procedures. Theoretically, any surgical specimens have to be considered potentially malignant and therefore they have to be removed without contamination of the operative field [1]. However, solid and large masses (e.g., uterine myomas) cannot be removed easily, from the small abdominal incisions used for minimally invasive operations. Power morcellators, thanks to the fragmentation of these masses, allow their extraction from small laparoscopic incisions. Notwithstanding, the tissue morcellation may spread potential malignant surgical debris into the abdominal cavity, thus upstaging organ-confined malignancies to intra-abdominal disease. Although the incidence of undiagnosed uterine malignancies is low, accumulating evidence supports that morcellation impacts on cancer patients' prognosis [2].

Of consequence, the US Food and Drug Administration (FDA) warned surgeons against the use of power morcellation during minimally invasive operations [2]. Therefore, the suspension of morcellator sales from Johnson & Johnson (New Brunswick, NJ, USA), and the increasing concerns on their use from several Scientific Societies limited the widespread utilization of minimally invasive procedures for myomectomy and uterine removal [3,4]. In fact, recent evidence suggested a step backward from minimally invasive to open surgery. A survey conducted from the "American Association of Gynecologic Laparoscopists Minimally Invasive Gynecology Surgery Fellowship" program underlined that, after FDA advice, about 80% of surgeons altered their clinical practice shifting from minimally invasive to open surgery or modifying type of procedure otherwise scheduled [5].

Similarly, a time-series analysis of all gynecologic surgical cases included in the Florida Hospital System investigated changes in surgical practice 8 months before and 8 months after the FDA warning on power morcellation. The authors of this study reported that there was about 9% decrease in minimally invasive procedures performed for non-oncologic conditions after the FDA announcement [6]. This finding is corroborated by data published by Harris et al. [7], investigating complication rate changes before and after the FDA communication. Using data of the Michigan Surgical Quality Collaborative, the authors observed that after the FDA communication, the rate of major complications (not including blood transfusion) and hospital readmissions increased from 2.2% to 2.8% and from 3.4% to 4.2%, respectively, thus increasing surgery-related costs [7].

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On the light of the current evidence, three points regarding morcellation and morcellation-related issues deserve to be addressed. First, growing concerns are focusing on patients affected by uterine leiomyosarcoma. In those patients, sarcoma morcellation leads to an increase risk of developing intra-abdominal recurrence and to an increase risk of death [2]. However, unfortunately, patients affected by uterine leiomyosarcoma are characterized by poor prognosis, being recurrence rate after surgery quite high, reaching 50% to 70%, across different series [2]. Owing to the aggressive behavior of this malignancy, weight factors worsening survival outcomes are not frankly evident. By this point of view, the effects of intra-abdominal morcellation may be much more detrimental in patients affected by less aggressive diseases [8]. In fact, intra-abdominal morcellation may significantly impact on an otherwise curative surgery in patients affected by diseases at low-risk of dissemination (e.g., low-grade endometrial stromal sarcoma and smooth muscle tumor of uncertain potential). Second, as aforementioned, after the FDA announcement a growing number of women are exposed at a higher risk of surgery-related morbidity [9]. Therefore, it seems logical to identify tools useful to discriminate benign and malignant uterine masses. Although technological attempts are done in order to improve the preoperative workup process of these patients, to date no reliable radiological tool is available [10]. Third, we have to point out that the negative effects of morcellation should not be translated on minimally invasive surgery. In fact, we are observing that increasing open abdominal procedure rate will increase surgical morbidity and costs [10]. Therefore, further efforts are needed to reduce the risk of surgical debris' dispersion, without giving up from minimally invasive approach. Albeit, the execution of mini-laparotomic incision may be a valuable choice, the use of contained morcellation into insufflated isolation bags or transvaginal specimen retrieval via endoscopic bags represent two promising techniques for a safe specimen extraction following minimally invasive procedures [10]. However, large studies confirming the safety of intra-bag morcellation are still lacking.

Albeit on the wave of the first data supporting the banning of morcellation, due to its deleterious effects, the recent data on the possible detrimental effects of morcellation alternatives are a source of new concerns. The increasing rate of open abdominal operations will be harmful for women, probably much more than morcellation itself. In fact, open surgery should not be the response to avoid morcellation.

In conclusion, although the possible detrimental effect of intra-abdominal morcellation following minimally invasive surgery, we have to take into account possible detrimental effects of open surgery. Attempts are needed to reduce the risk of surgical debris dispersions, without increasing the rate of unnecessary open abdominal procedure. In fact, albeit the incidence of unsuspected uterine malignancies is quite low, morcellation of occult malignancies may lead to severe effects on patients' prognosis, even in cases of low-risk uterine disease. In case of rapidly growing uterine masses and in case of suspected uterine sarcoma, intra-abdominal morcellation, but not minimally invasive surgery, has to be abandoned. Prospective studies evaluating the safety of in-bag morcellation are warranted. Patients have to be counseled not only on the risk of leiomyosarcoma spread during minimally invasive operation, but also regarding the high risk of developing morbidity after open surgical procedures. Surgeons and patients need to have more information regarding risk to benefit ratio on the use of power morcellators; thus, allowing a free decision-making process.

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