



## Editorial

## Hemorrhage: A strong indicator for myomectomy-related complication



Uterine fibroid (leiomyoma or myoma) is the most common benign uterine tumor, accounting for 20–60% of cases in women of reproductive age.<sup>1</sup> Three variant-subcategories include: (1) ordinary leiomyoma—benign, including non-degenerated and degenerated [cystic, hemorrhagic (carneous), fatty (lipoleiomyoma), hyaline, and myxoids]; (2) leiomyoma variants—unclassified (mitotically active, cellular, atypical, and smooth muscle tumors of uncertain malignant potential); and (3) leiomyosarcoma—malignant.<sup>2</sup> The use of a uterine-preservation strategy, including medical or surgical treatment rather than hysterectomy, to treat uterine myoma has become popular, because it not only provides adequate symptom control, but also preserves fertility.<sup>3–5</sup> Advanced surgical instruments, including new and innovative laparoscopic techniques with and without robotics-assisted systems, have allowed a greater number of gynecologic surgeons to use laparoscopic surgery in place of conventional exploratory laparotomy in the management of various kinds of diseases, including some gynecological malignancies.<sup>6–8</sup> Furthermore, these so-called minimally invasive surgeries claim to have many patient-focused benefits, such as a decreasing risk of postoperative adhesion, promoting rapid recovery, and cosmetic advantages.<sup>9</sup> However, the malignant form (leiomyosarcoma) is difficult to differentially diagnose clearly between benign and malignant tumors, resulting in an almost impossible presurgical diagnosis and contributing to the elevated possibility of widespread malignant tumors during and after operation, especially for those surgeries using morcellation. An increasing number of surgeons are hesitant, and some are outright opposed, to this approach in the management of uterine fibroids. Therefore, conventional laparotomy has regained a measure of popularity.<sup>10–12</sup> Moreover, as surgical techniques have continued to advance, it is now possible to shorten the incision wound (ultramini-laparotomy), enabling patients to receive benefits similar to those of traditional laparoscopic surgery.<sup>11,12</sup> Therefore, abdominal myomectomy is still considered the best choice for women with fibroids and who need to maintain their reproductive function.<sup>10,11</sup>

The study by Çinar et al<sup>13</sup> in this issue of the *Journal of the Chinese Medical Association* entitled, “Association of clinical outcomes and complications with obesity in patients who

underwent abdominal myomectomy,” investigated the outcomes of obese women who underwent abdominal myomectomy. The authors separated their patients into two groups: those with a body mass index (BMI) > 30 kg/m<sup>2</sup> ( $n = 90$ ; obese women), and those with a BMI ≤ 30 kg/m<sup>2</sup> ( $n = 183$ ; controls). The authors found that obese women had a significantly higher risk of both early and late complications relative to the controls (15.6% vs. 7.7%,  $p = 0.046$ ; and 26.7% vs. 1.1%,  $p < 0.001$ , respectively), contributing to a longer hospital stay ( $3.3 \pm 1.8$  days vs.  $2.8 \pm 1.0$  days,  $p = 0.001$ ). Furthermore, the logistic regression model used to identify the association between BMI and the occurrence of both early and late complications showed a positive correlation, with an odds ratio (OR) of 1.446 [95% confidence interval (CI) 1.218–1.717]. However, it was interesting to note that non-serosal type contributed to an even higher degree of positive correlation (OR 5.875, 95% CI 1.557–22.160), suggesting that the disease itself may play a critical role in the development of both early and late complications. After further analysis, we found that hemorrhage during operation was the most common early-type complication in both obese and nonobese women undergoing abdominal myomectomy, which occurred in 7% of all women, regardless of BMI. It is well known that tumor size, location, and operative time contribute to increased blood loss (hemorrhage) during operation. Our findings might explain why the authors showed that nonserosal-type uterine fibroids were the most significant predictive factors of increases in both early and late complications. Furthermore, we also noted that obese women had larger uterine fibroids relative to the controls. Additionally, there was concurrence that tumor characteristics could be much more important and an independent factor used to predict complications in women who plan to receive abdominal myomectomy. Unfortunately, the authors failed to note this result, and, by contrast, only emphasized obesity as a risk factor for complications in women who were treated with abdominal myomectomy. Did the obese women have BMI-related complications? Our answer is “yes”. From the authors' data, we found that wound infection might be relatively specific to obese women, because more than one-tenth of obese women were complicated with wound infection

compared with none of the controls (12.2% vs. 0%). Another relatively specific complication in obese women was ileus (13.3% vs. 0.5%); it is unfortunate that the authors did not make this specific finding.

In fact, women who underwent myomectomy could be medically managed by various types of procedures to minimize blood loss during operation.<sup>14,15</sup> Hemorrhage not only results in an immediate life-threatening situation, but also contributes to many subsequent sequelae, including risk of blood transfusion, infection and possible adhesion, ileus, and delayed recovery. However, the authors did not consider hemorrhage as a key factor when discussing the association between complications and obesity. We believed that any reasonable strategy was necessary to minimize blood loss when we performed the surgery, and stanching all bleeders with much more certainty, as well as cleaned the blood debris before wound closure. This would be a key factor in decreasing the development of both early and late complications, including Dr Çinar's study<sup>13</sup> in this issue of *JCMA*. The gold standard to minimize surgery-related complication is “a delicate operation” with the assistance of more effective and powerful surgical instruments and gentle techniques.

### Conflicts of interest

The authors declare that they have no conflicts of interest related to the subject matter or materials discussed in this article.

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