Quantifying the risk of blood transfusion with myomectomy

As the most common benign tumor in reproductive-age women, uterine fibroids are estimated to affect up to 80% of women (1). Although the majority are asymptomatic, a large proportion of those who do experience fibroid-related symptoms report a significant negative impact on quality of life. In one national survey, 28% of respondents with self-reported symptomatic fibroids had missed work because of their symptoms, and 25% reported having symptoms so severe that treatment was required (2).

Though medical therapies can mitigate certain symptoms, particularly pain and bleeding, they are largely ineffective at resolving bulk symptoms and infertility related to uterine fibroids. When these medications are used, it is usually as temporizing agents to optimize conditions before surgery, or to mitigate symptoms such as bleeding and dysmenorrhea until the patient goes through menopause. Thus, surgery remains the mainstay of treatment for symptomatic uterine fibroids.

As the only definitive treatment available, hysterectomy is the most common procedure used to address symptomatic fibroids. Although it offers symptom relief, hysterectomy is not an optimal choice for women who desire future child bearing. In recent years, various uterus-sparing techniques, such as uterine artery embolization, radiofrequency volumetric thermal ablation, and magnetic resonance imaging–guided focused ultrasound surgery, have been proposed to improve patients' quality of life. Data regarding pregnancy outcomes following these procedures are quite limited.

Myomectomy, on the other hand, has long been considered the treatment of choice for women who desire fertility preservation while pursuing surgical management of symptomatic fibroids. This is a procedure that can be performed by means of a variety of surgical approaches, and it has been shown that each is associated with improvements in quality of life (3). Although each of these approaches is generally well tolerated, myomectomy procedures pose a unique set of challenges and risks.

Intraoperative blood loss resulting in the need for blood transfusion is one of the most widely recognized risks associated with myomectomy. This risk is further exacerbated by the fact that some patients with symptomatic fibroids have bleeding as a primary symptom, increasing the risk of preoperative anemia and perioperative transfusion. After publication of the U.S. Food and Drug Administration's (FDA's) safety communication for power morcellation in 2014, rates of laparoscopic myomectomy procedures decreased (4) as concerns about inadvertently disseminating an occult malignancy grew. Consequently, the percentage of myomectomies performed by an open or abdominal approach, which is associated with a higher rate of postoperative blood transfusion, increased (4). Given this recent shift in practice pattern, it would be reasonable to reevaluate the risks associated with this procedure.

The study in this issue of *Fertility and Sterility* by Kim et al. (5) sought to elucidate the risk of blood transfusion after myomectomy for symptomatic uterine fibroids with the use of a database with information from more than 600 centers from the years 2010–2016. Including 3,407 myomectomy procedures, the authors define these risks for hysteroscopic, laparoscopic, and open/abdominal procedures. Overall, the risk for blood transfusion after all myomectomies in this study was found to be 10%, with laparoscopic myomectomy conferring the lowest risk and open/abdominal myomectomy conferring the highest risk. In addition, the authors evaluated the rate of 30-day morbidity after myomectomy as a secondary outcome. Even after adjusting for confounding factors, there was a significant increase in risk for major postoperative complications for patients who received a blood transfusion.

This study is not without its limitations, which are acknowledged by the authors (5). First, the study is retrospective in nature, opening the possibility for bias to be introduced. Because the data analyzed in this study is derived from a large database rather than from patient charts, validation could not be performed. In addition, the database did not provide a way for the authors to differentiate between robotic procedures and those performed via conventional laparoscopy. Finally, because Current Procedural Terminology codes alone were used to identify patients with symptomatic fibroids, there is the possibility that many patients may have been inappropriately excluded from this study.

The study's large sample size and multicenter nature are major strengths, making its findings much less likely to simply be a reflection of a certain surgeon's or center's practices (5). The study is further strengthened by the fact that the authors were able to focus solely on procedures performed for symptomatic fibroids, and the 10% overall risk of blood transfusion following myomectomy observed in this study is in line with what has been previously described (4). Because blood transfusion was associated with an increase in major postoperative complications, regardless of fibroid burden or surgical approach, the authors' recommendation to focus on addressing preoperative risk factors associated with transfusion, such as preoperative anemia, is well founded.

In February 2020, the FDA further amended its 2014 warning, supporting use of "laparoscopic power morcellation for myomectomy or hysterectomy only with a tissue containment system legally marketed in the U.S. for use during laparoscopic power morcellation, and performing these procedures only in appropriately selected patients." Moving forward, it will be interesting to see if new practice patterns in myomectomy develop, and if so, how they affect patient care and outcomes.

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REFERENCES

1. Fortin C, Flyckt R, Falcone T. Alternatives to hysterectomy: the burden of fibroids and the quality of life. Best Pract Res Clin Obstet Gynaecol 2018;46:31–42.
2. Borah BJ, Nicholson WK, Bradley L, Stewart EA. The impact of uterine leiomyomas: a national survey of affected women. Am J Obstet Gynecol 2013;209:319.e1–20.
3. Flyckt R, Soto E, Nutter B, Falcone T. Comparison of long-term fertility and bleeding outcomes after robotic-assisted, laparoscopic, and abdominal myomectomy. Obstet Gynecol Int 2016;2016:1–8.
4. Stentz NC, Cooney LG, Sammel M, Shah DK. Changes in myomectomy practice after the U.S. Food and Drug Administration safety communication on power morcellation. Obstet Gynecol 2017;129:1007–13.
5. Kim T, Purdy MP, Kendall-Rauchfuss L, Haberman EB, Bews KA, Glasgow AE, Khan Z. Myomectomy associated blood transfusion risk and morbidity following surgery. Fertil Steril 2020;114:175–84.