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Editorial

The powerful hemostatic devices are one of the milestones for successful laparoscopic surgery

Uterine fibroids are the most common benign uterine tumors, and the choice of treatment depends on the patient's age, the reason for treatment, the issue of fertility preservation, and the patient's preference.[1] Uterine fibroids, undoubtedly, are one of the most frequently used indications for surgery, especially laparotomy,[2] and uterine fibroids also contributed to the most frequent cause of hysterectomy.[3] However, organ-preservation concept has been widely accepted in the modern medicine[4]; therefore, there are many strategies developed for minimizing the invasiveness of surgery (robotic, laparoscopic surgery, hysteroscopic surgery, etc.)[5,6] and minimizing the needs for operation (medicine treatment, uterine artery embolization, etc.).[7,8] It is very important to further improve the quality of life and outcome of uterine fibroid treatment, and of most importance, preservation of the future fertility ability is always considered. Among these treatments for uterine fibroids, myomectomy, a very popular and well-done procedure for the maintenance of future fertility, is still a complicated surgery when a minimally invasive approach is used. Therefore, any technique or instrument to minimize the surgery-related trauma, decrease surgery-related blood loss and improve the performance during operation is welcome.[9,10] We are glad to learn that Dr. Huang's study published in this issue of the *Journal of the Chinese Medical Association* attempted to clarify the role of different hemostatic devices in the laparoscopic myomectomy.[11]

The authors enrolled 817 women in the Chang Gung Memorial Hospital at Linkou between January 1997 and September 2015, to study the perioperative and postoperative outcomes during laparoscopic myomectomy.[11] These women were treated with the different coagulation systems, including conventional electrosurgery, LigaSure (Valleylab, Boulder, CO) and Harmonic Scalpel (Ethicon Endosurgery, Cincinnati, OH).[11] The authors found that the operator used the latter two devices (LigaSure and Harmonic Scalpel) to perform laparoscopic myomectomy for these women with uterine fibroids, resulting in not only removing the larger number of uterine fibroids but also obtaining heavier weight of uterine fibroids, compared with the use of conventional electrosurgery device,[11] although both instruments needed much more operative time and contributed to much more blood loss.[11] This study was interesting and worthy of discussion.

First, it is unfair to claim that the use of LigaSure and Harmonic Scalpel instruments resulted in the increased operative time and increased blood loss, because more tumors were removed in both groups and it was possible that more complicated operation was done in the both groups. Therefore, the explanation of results should be careful. Laparoscopic myomectomy is a relatively complicated surgery, which might be varied greatly from ease to difficulty. For example, the subserous-type uterine fibroids might be easily removed. In fact, the location of the tumor, the size of the tumor and the characteristics of the tumor, and many others are all critical determents for the difficulty of laparoscopic myomectomy. What is the better way to show the authors' data? Our opinion is that we can use the following calculation (blood loss [ml]/weight of the removed fibroids [gm]) to show the data. We find that per gm of fibroid removed result in the blood loss ranging from 0.83 ml to 1.21 ml and per gm of fibroid removed needed the operative time ranging from 0.48 min to 0.65 min. These presented data might be more reasonable, since the blood loss was positively correlated with operative time, suggesting that the more operative time needs, the more blood loss occurs in Dr. Huang's study.[11] All suggested that either tumor behavior (location and size) or technique and/or instruments might be the most important factor for the success of operation. That is to say that the gold standard to minimize surgery-related complication is “a delicate operation”.[12] The delicate operation needs the assistance of more effective and powerful surgical instruments and gentle techniques.[12] However, only the LigaSure instrument fulfilled with the above-mentioned criteria, since the LigaSure instrument resulted in the least amount of blood loss and shortest operative time (0.83 mL/gm vs. others 1.00 mL/gm and 1.21 mL/gm; and 0.48 min/gm vs. 0.57 min/gm and 0.65 min/gm).

Second, it is well known that hemorrhage is a strong indicator for myomectomy-related complication.[12] Hemorrhage not only results in difficulty for surgery and a subsequently immediate life-threatened situation, but also contributes to many perioperative and postoperative sequelae, such as risk of blood transfusion, infection and possible adhesion, ileus, as well as delayed recovery.[12] The current study conducted by Huang and colleagues[11] clearly demonstrated that the use of LigaSure and Harmonic scalpel devices could reduce the length of hospital

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stay. However, it is not easily explained that the blood loss was significantly increased and the operative time was significantly longer in both procedures compared to those women treated with conventional electrosurgery. Is there any possibility that the use of either LigaSure or Harmonic scalpel was much more confident for the physician to ask for the patients to go home? Is it possible that the risk of postoperative hemorrhage might be lower in the use of LigaSure and Harmonic scalpel compared with conventional electrosurgery? The other publication from the same group might provide an answer. Harmonic scalpel might not be considered a good choice to decrease intraoperative blood loss. The same group found that blood loss during laparoscopic myomectomy was more in the Harmonic scalpel group tan that in the conventional electrosurgery (300 ml vs. 215 ml, $p = 0.063$), contributing to the higher needs of blood transfusion in the Harmonic scalpel group (16.1% vs. 4.3%, $p = 0.571$), although both did not reach a statistical significance.[13] However, it is relatively interesting to find that complication was higher in the conventional electrosurgery group than that in the Harmonic scalpel group (4.3% vs. 0%, $p = 0.023$). The authors did not explain the reason. In fact, both LigaSure and Harmonic scalpel need a higher cost compared with conventional electrosurgery. Therefore, in terms of cost-effectiveness, we believed that the better choice might be a LigaSure. By contrast, Harmonic scalpel device might not be a good choice.

In conclusion, the value of Huang's article should be emphasized, since a powerful technology can overcome the limitation of surgery and provide a much more safer surgery. We are looking forward to leaning much more similar studies to address this part.

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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References

1. Cheng MH, Chao HT, Wang PH. Medical treatment for uterine myomas. *Taiwan J Obstet Gynecol* 2008;**47**:18−23.
2. Su WH, Lee WL, Cheng MH, Yen MS, Chao KC, Wang PH. Typical and typical clinical presentation of uterine myomas. *J Chin Med Assoc* 2012;**75**:487−93.
3. Wang PH, Liu WM, Fuh JL, Chao HT, Yuan CC, Chao KC. Comparison of ultramini-laparotomy for myomectomy through midline vertical incision or modified Pfannenstiel incision − a prospective short-term follow-up. *Fertil Steril* 2009;**91**:1945−50.
4. Horng HC, Wen KC, Su WH, Chen CS, Wang PH. Review of myomectomy. *Taiwan J Obstet Gynecol* 2012;**51**:7−11.
5. Cheng HY, Chen YJ, Wang PH, Tsai HW, Chang YH, Twu NF, et al. Robotic-assisted laparoscopic complex myomectomy: a single medical center's experience. *Taiwan J Obstet Gynecol* 2015;**54**:39−42.
6. Kokanali MK, Cavkaytar S, Guzel Aİ, Topçu HO, Eroğlu E, Aksakal O, et al. Impact of preprocedural anxiety levels on pain perception in patients undergoing office hysteroscopy. *J Chin Med Assoc* 2014;**77**:477−81.
7. Cheng MH, Wang PH. Uterine myoma: a condition amendable to medical therapy? *Expert Opin Emerg Drugs* 2008;**13**:119−33.
8. Horng HC, Hu WM, Tseng HS, Chang WH, Chao KC, Yang MJ. Uterine arterial embolization in the management of severe post-partum hemorrhage: a successful rescue method to avoid peripartum hysterectomy. *J Chin Med Assoc* 2011;**74**:255−8.
9. Lee WL, Liu WM, Fuh JL, Tsai YC, Shih CC, Wang PH. Use of uterine vessel occlusion in the management of uterine myomas: two different approaches. *Fertil Steril* 2010;**94**:1875−81.
10. Wang PH, Liu WM, Fuh JL, Chao HT, Yuan CC, Chao KC. Symptomatic myoma treated with laparoscopic uterine vessel occlusion and subsequent immediate myomectomy: which is the optimal surgical approach? *Fertil Steril* 2009;**92**:762−9.
11. Huang HY, Liu YC, Li YC, Kuo HH, Wang CJ. Comparison of three different hemostatic devices in laparoscopic myomectomy. *J Chin Med Assoc* 2018;**81**:178−82.
12. Wen KC, Horng HC, Wang PH. Hemorrhage: a strong indicator for myomectomy-related complication. *J Chin Med Assoc* 2016;**79**:413−4.
13. Kuo HH, Li Y, Wang CJ, Juang HT, Lee CY. A case-controlled study comparing harmonic versus electrosurgery in laparoscopic myomectomy. *Taiwan J Obstet Gynecol* 2017;**56**:73−6.

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