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COMMENTARY

Robotic Surgery in Female-To-Male Transition: A Possible Way for Further Improvement

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Minimally invasive surgery (MIS) represents the recommended approach to perform hysterectomy in case of benign gynecological pathologies [1]. The available evidence clearly shows the superiority of the MIS routes in term of less intraoperative blood loss, less postoperative pain, shorter hospital stay, quicker return to normal activities, and higher long term quality of life as compared to open surgery [2]. On that basis, laparoscopic (LPS) hysterectomy represents the first choice in case vaginal route is not feasible [1].

Although LPS hysterectomy was introduced early in the twentieth century, a significant improvement of its application was observed after the approval in 2005 of the robotic technology for this procedure. The introduction of robotic surgery increased the proportion of patients that underwent hysterectomy with MIS approach, providing a higher number of patients who benefit its advantages [3]. This new technology was developed to overwhelm specific limits of the classic LPS surgery and to improve surgical performance, especially in case of advanced ovarian cancer [4]. The robotic surgery allows an increased visualization with 3D technology and magnification, the increased articulation and mobilization of instruments, and the elimination of the fulcrum effect and tremor. These elements were related to a decreased error rate, decreased time for surgical steps, and decreased surgeon physical and mental strain as compared to LPS surgery [5].

Nevertheless, the evidence supporting its advantages as compared to the classic LPS surgery was conflicting [4]. Robotic hysterectomy was related to comparable results and similar advantages of LPS hysterectomy regarding clinical outcomes and intraoperative/postoperative complications [6] and, at the same time, it was associated with higher costs [3] and longer procedure length [2]. The evaluations of costs are variable and based on included elements in the analysis. In general, high-volume centers are considered able to achieve the minimum number of procedures to cover the expense, and similar costs of classic LPS surgery were observed in centers where the technology was already available [7]. Regarding the higher procedure length and the overall similar surgical outcomes when compared with the classic LPS hysterectomy, the key element seems the surgeon experience. In centers with high-volume robotic surgery, robotic hysterectomy as compared to LPS and open surgery reported a lower complication rate, and a lower length of hospital stay, as well as lower risk of reoperation and readmission, with a similar procedure length as compared to LPS [8]. On that basis, further evidence provided by longer experience may be able to show the advantages of robotic surgery as compared to the initial limited number of high-quality studies and the relatively early experience [5].

The differences between robotic hysterectomy as compared to classic LPS surgery needs to be better defined, and one of most important steps is to

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identify which patients may benefit more from the advantages provided by the robotic surgery. In this regard, the recently published study titled “Robotic hysterectomy as a step of gender affirmative surgery in Female-to-Male patients” reports new evidence about a specific category of patients in which robotic surgery could provide specific advantages [9]. The Authors investigated with a retrospective study the feasibility and safety of robotic surgery to perform hysterectomy and bilateral adnexectomy in patients who underwent affirmative gender procedures in the transition from female to male. Their results show the feasibility, safety and effectiveness of robotic hysterectomy and highlight how these patients may benefit from this technology [8].

Despite the increased rate of affirmative gender surgical procedures in the last decades, the available evidence about the best surgical approach is still limited [8]. The final step of the gender affirmative process consists in a wide range of demolitive and reconstructive gender-assignment surgical procedures that may involve hysterectomy with bilateral adnexectomy. These patients are not affected by gynecological disease and the MIS appears mandatory in this population [1]. In this regard, the LPS surgery may represent the first choice to perform hysterectomy in patients undergoing affirmative gender surgery as compared to the vaginal route. In most patients the nulliparity, the scarce frequent penetrative sexual intercourse, the absent uterine prolapse, the required bilateral adnexectomy, and the vaginal atrophy related to the low levels of estradiol due to the testosterone therapy are considered factors determining the vaginal approach more challenging [10].

In case LPS hysterectomy is chosen, the robotic surgery could provide specific advantages in these patients. If confirmed, the lower complication rate and a lower length of hospital stay with lower risk of reoperation and readmission may represent key factors in these patients undergoing multiple surgical procedure and a long transition process [8]. Additionally, robotic surgery may provide significant advantages related to the possible concomitant surgical procedures. The reduced tissue trauma by the extreme-precision movements may allow to perform concomitant colpectomy with reduced risk of complication that are in general challenging both by vaginal and classic LPS route. Additionally, it may allow to perform immediate reconstructive surgeries, such as metoidioplasty or short-term phalloplasty [10].

In general, a growing body of evidence about the gender affirmative surgery in the female-to-male transition shows how the MIS represents the first choice in these patients, as well as in case of benign gynecological pathologies [1] Nevertheless, with the

aim to improve the surgical outcomes and reduce the length and complication rate of the transition process, robotic surgery represents a field of further investigation. The preliminary demonstrated feasibility, safety and effectiveness of robotic hysterectomy combined with the promising data about the concomitant robotic colpectomy [9] suggest the use of robotic surgery in the female-to-male transition surgery and solicit to perform further controlled studies with larger sample size and longer follow-up, although the overall low rate of cases may impede to achieve this result.

DECLARATION OF INTEREST

The authors have no proprietary, financial, professional or other personal interest of any nature in any product, service or company. The authors alone are responsible for the content and writing of the paper.

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