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COMMENTARY

Pelvic Sentinel Lymph Node Detection: An Increasing Role in Surgical Approaches for Early-Stage Gynecological Malignant Diseases

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Cervical cancer represents a significant cause of morbidity and mortality worldwide [1]. The increasing accessibility of prophylactic vaccines to prevent human papilloma virus (HPV) infection, which is etiologically involved in the pathogenesis of this neoplasia, will likely decrease the incidence and burden of this cancer [2]. Currently, managing cervical cancer at early stages in young patients while preserving fertility remains a challenge to gynecologic oncologists. In recent years, the need to provide curative but less radical treatment to women affected by this gynecological malignancy who desire future conception has led to an increase in the number of trials focused on evaluation of the potential benefits and risks related to fertility-sparing approaches [3].

In the study recently published in the Journal of Investigative Surgery, Chernyshova *et al.* [4] enrolled sixty-eight patients of reproductive age with FIGO (The International Federation of Gynecology and Obstetrics) stage IA1-IIA cancer who wish to conceive. The women underwent radical trachelectomy; during the surgical approach, the pelvic sentinel lymph nodes were evaluated and a cervicoisthmic cerclage was performed by using a superelastic knitted TiNi mesh (KTNM) implant. The real novelty of this study is related to the presentation of a complex combined approach based on the use of a support mesh with the goal of preserving primary uterine biomechanical/retention function after trachelectomy. Notably, the long-term post-surgical results demonstrated no cervical stenoses or mesh failures.

The management of fertility-sparing surgery in cervical cancer should be based on optimal selection of patients, including accurate preoperative examinations and consideration of the specific oncologic and obstetric outcomes related to the type of surgical approach as well as alternative surgical/medical options. The objective of fertility-sparing surgery in patients affected by cervical cancer is to guarantee adequate reproductive function while maintaining a low long-term disease recurrence rate [5]. Conventional perioperative assessment of regional lymph nodes during radical treatment of cervical cancer includes removal of the nodes from the external and internal iliac as well as the presacral and obturator areas [6]. Nevertheless, it has been revealed that patients with small-volume, low-risk, early-stage cervical cancer have a very low probability of parametrial extension (with less than 1% concluded from a 1000-patient retrospective review analysis), which seems to support the feasibility of less radical approaches like trachelectomy or even conization [3]. For this reason, many oncological specialized centers recently began replacing assessment of lymph node stations by repeated frozen sections with detection and histological evaluation of the sentinel lymph node in patients with early-stage cervical cancer. Currently, sentinel lymph node sampling is judged as a reliable option for the management of endometrial and cervical cancers at early stages (as suggested by NCCN guidelines [7,8]). This is particularly relevant considering that we are in the era of minimally invasive surgical approaches, such as those based on robotic platforms [9]. The combination of innovative surgical methods and novel, less invasive surgical routes characterized by more precision, flexibility and control is paving the way for the development and publication of original descriptive surgical techniques, as previously demonstrated by our research group [10]. According to current NCCN guidelines, sentinel lymph node sampling in fertility-sparing treatment for cervical cancer should be performed in patients with FIGO stage IA1 with lymph vascular invasion/stage IA2 disease during conization or radical trachelectomy as an alternative to pelvic lymph node dissection, or in patients with FIGO stage IB1/select IB2 disease during radical trachelectomy, again as an alternative to pelvic lymph node dissection [8]. In the study by Chernyshova *et al.* [4], the operating surgeons performed intraoperative detection of sentinel lymph nodes by measuring the radioactivity level in the retroperitoneal lymph node with gamma probes in both transabdominal and laparoscopic approaches. Other methods for sentinel node sampling are available, e.g., cervical injection of indocyanine-green, which can be detected by apposite instruments integrated with laparoscopic and robotic

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platforms [10]. In the near future, it may be expected that innovative fertility-sparing approaches to treating patients with early-stage cervical cancer who require a surgical evaluation of lymph nodal status will systematically include sentinel node evaluation.

In the study by Chernyshova *et al.* [4], women were prospectively followed for a mean of sixty-nine months. The 5-year overall and recurrence-free survival rates were 100% and 97%, respectively, and only two women (2.9%) had disease recurrence, which occurred after 3 and 36 months of follow-up, respectively. Notably, after the surgical approach, 19 (28%) spontaneous pregnancies occurred, with miscarriage and early abortion occurring in 2 (10.5%) and 11 cases (57.9%), respectively, and six cases (31.6%) resulting in full-term delivery.

Although the data included in this study was interesting, new long-term prospective studies evaluating oncologic and obstetric outcomes of patients undergoing complex fertility-sparing techniques are necessary. In the near future, novel larger randomized studies will draw adequate conclusions on the optimal management and best techniques tailored for specific groups of patients affected by gynecological cancer who wish to conceive.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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