

Nerve-Sparing Approach Reduces Sexual Dysfunction in Patients Undergoing Laparoscopic Radical Hysterectomy

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DOI: 10.1111/jsm.12702

ABSTRACT

Introduction. Although growing evidence suggests the beneficial effects of a nerve-sparing (NS) approach to surgery in cervical cancer patients, only limited data on NS laparoscopic radical hysterectomy (LRH) are available, and no studies have investigated the effects of NS-LRH on sexual function.

Aim. This study aims to determine whether the implementation of NS-LRH impacts on sexual function in cervical cancer patients.

Methods. Sexually active cervical cancer patients undergoing type C (class III) LRH between 2004 and 2013 were enrolled in this prospective study.

Main Outcome Measures. Preoperative and postoperative sexual function were assessed using a validated questionnaire, the Female Sexual Function Index (FSFI). The FSFI evaluates desire, arousal, lubrication, orgasm, satisfaction, and pain.

Results. Forty patients undergoing radical hysterectomy (20 conventional LRH vs. 20 NS-LRH) represented the study group. Baseline characteristics were similar between groups ($P > 0.05$). No differences in preoperative FSFI scores were recorded ($P > 0.05$). We observed that both LRH and NS-LRH worsened postoperative FSFI scores ($P < 0.001$). However, patients undergoing NS-LRH had higher postoperative FSFI scores than patients undergoing LRH (21.3 ± 9.4 vs. 14.2 ± 12.5 ; $P = 0.04$). Considering postoperative domain scores, we observed that desire, arousal, orgasm, and pain scores were similar between groups ($P > 0.05$), while patients undergoing NS-LRH experienced higher lubrication (3.4 ± 2.3 vs. 1.7 ± 2.2 ; $P = 0.02$) and satisfaction (4.6 ± 3.9 vs. 2.8 ± 2.2 ; $P = 0.004$) scores in comparison with patients undergoing conventional LRH. No between-group differences in survival outcomes were found.

Conclusions. Both conventional LRH and NS-LRH impact negatively on patients' sexual function. However, the NS approach impairs sexual function less, minimizing the effects of radical surgery. **Bogani G, Serati M, Nappi R, Cromi A, di Naro E, and Ghezzi F. Nerve-sparing approach reduces sexual dysfunction in patients undergoing laparoscopic radical hysterectomy. J Sex Med 2014;11:3012–3020.**

Key Words. Radical Hysterectomy; Nerve Sparing; Sexual Function; Laparoscopy; Female Sexual Function Index

Introduction

In the last few decades, cervical cancer (CC) death rates in developed countries have decreased dramatically due to the widespread implementation of screening programs [1]. However, CC still remains a major health issue,

being the second deadliest cancer for women between 20 and 39 years old in the United States [1].

Surgery represents the mainstay of CC treatment. In fact, in the early stages of the disease, surgical removal of the tumor is curative in itself, avoiding radiotherapy and its concomitant risk of

morbidity due to irradiation of normal tissues surrounding the uterine cervix [2]. However, radical surgery may lead to potentially severe complications [3,4]. Although in recent decades, the introduction of minimally invasive surgical techniques has dramatically reduced surgery-related morbidity, route of surgical approach does not influence the occurrence of pelvic (i.e., vesical, vaginal, and rectal) dysfunctions [4–7]. Although pelvic dysfunctions are not life-threatening complications, they impact negatively on patients' postoperative quality of life (QoL). A nerve-sparing (NS) approach has been developed to overcome these issues, preserving the innervations of the pelvic organs [8–10]. There is accumulating evidence that NS minimizes the occurrence of pelvic dysfunctions. However, few data on sexual issues after radical pelvic surgery are available [11–13]. Interestingly, Ditto et al. suggested that the open abdominal NS technique improves sexual function [7], but, to date, no data on the outcomes of NS radical hysterectomy performed via laparoscopy exist.

In a previous study, we reported worsening of sexual outcomes in patients undergoing conventional laparoscopic radical hysterectomy (LRH) [14]. After the implementation of the NS approach in our department, we aimed to compare these two approaches. Hence, in the present investigation we aimed to compare preoperative and postoperative sexual function, assessed using a validated questionnaire (Female Sexual Function Index, FSFI), for patients undergoing conventional LRH (type C2) and NS-LRH (type C1) [15,16].

Materials and Methods

We analyzed the data of consecutive women undergoing primary surgical treatment for CC between 2004 and 2013 at the Gynecologic Oncology Unit of the University of Insubria—Ospedale di Circolo, Fondazione Macchi (Varese, Italy). Data were collected prospectively in an institutional review board-approved database. All women included in the study gave written informed consent for data collection for research purposes. For the purposes of this study, we enrolled all consecutive sexually active women affected by early-stage CC undergoing type C1 or C2 LRH. Inclusion criteria were age ≥ 18 years old, execution of type C/class III conventional (type C2) or NS (type C1) LRH (with or without salpingo-oophorectomy), follow-up >6 months, and absence of disease recurrence at the time of

answering the FSFI questionnaire. Execution of postoperative adjuvant therapy was not considered an exclusion criterion.

Radical hysterectomy procedures were classified according to the classification adopted by Querleu and Morrow [17]. Our technique for LRH has been described in detail elsewhere [9,18]. Basically, type C1 LRH differs from type C2 LRH in that in the former, surgeons avoid dissection of the tissue below the ureters in order to preserve innervation of the bladder. Moreover, the nerve branches running from the inferior hypogastric plexus to the bladder were preserved during bladder mobilization. In addition, the inner parts of the uterosacral ligaments were separated from the fibers running through their lateral parts, which were spared. Surgical treatment included type C1 or C2 LRH plus systematic pelvic lymphadenectomy; para-aortic lymphadenectomy was limited to patients with bulky pelvic and/or para-aortic nodes or with suspicious lesions in the para-aortic area detected at preoperative radiological examination. In 2004 we started to perform LRH, and in August 2010, the NS approach was introduced at our department. LRH was offered to all patients presenting with CC, unless specific contraindications existed. No patient was refused laparoscopic surgery for anticipated difficulty of resection. For the purposes of the study, we compared outcomes of consecutive patients undergoing C1 LRH with data of consecutive patients undergoing C2 LRH before the implementation of the NS approach. Over the study period, there were no significant differences in the facilities available for patient care or in the referral patterns of our service. Other aspects of patient management aside from the NS approach remained consistent over time. All surgical procedures were performed by the senior author (FG), helped by two assistants selected from a team of skilled laparoscopists. Although C1 and C2 procedures were executed during different time periods, all surgical procedures were executed only after the surgical team had acquired extensive background in laparoscopic surgery [9,18].

Patients were thoroughly counseled about the different possible treatments (radiotherapy with or without chemotherapy vs. surgery). Age, body mass index (BMI), and comorbidity level (assessed using the Charlson Comorbidity Index [19]) were extracted and the data stored in dedicated databases. The taxonomy proposed by the World Health Organization was used to designate histologic subtypes [20]. The architectural grade and

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