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Effect of simple and radical hysterectomy on quality of life – analysis of all aspects of pelvic floor dysfunction

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ABSTRACT

Objective: The impact of simple and radical hysterectomy on all aspects of pelvic floor dysfunctions was evaluated in current study.
Study design: This retrospective cohort study included 142 patients; 58 women (40.8%) who have undergone simple, 41 (28.8%) radical hysterectomy, and 43 (30.2%) women without any surgical intervention to serve as the control group. The validated versions of the Urogenital Distress Inventory (UDI-6), Incontinence Impact Questionnaire (IIQ-7), Pelvic Floor and Incontinence Sexual Impact Questionnaire (PISQ-12), Wexner Incontinence Scale score and pelvic organ prolapse quantification (POP-Q) system were used in detailed evaluation of pelvic floor dysfunction. One-way ANOVA and Pearson's chi square tests were performed in statistical analysis.
Results: It was found that there were significant differences in irritative and obstructive scores of UDI-6 between Type III hysterectomy group and Type I hysterectomy group. In addition, patients of Type I hysterectomy had significant higher irritative and obstructive scores than the control group. Type III hysterectomy had the most significant deteriorating effect on sexual life, based on scores of PISQ-12 compared to both Type I hysterectomy group and control group.
Conclusion: Hysterectomy results in detrimental effects on the quality of life (QoL) regarding all aspects of pelvic floor functions especially in women of radical hysterectomy. Urinary dysfunctional symptoms like urgency, obstruction and especially sexual problems are more bothersome and difficult to overcome. The impact of hysterectomy on QoL should be investigated as a whole and may be more profound than previously thought.

Introduction

Hysterectomy is the most common gynecological surgical procedure performed for both benign and malign gynecologic conditions. The surgical approach for hysterectomy is mainly abdominal (65%), followed by vaginal, conventional laparoscopic and robotic routes 20%, 13% and 0.9%, respectively. Nearly 90% of hysterectomies are done for benign symptomatic disorders; whereas radical hysterectomy is performed to treat gynecologic cancer, consisting of 1.2% of all hysterectomies [1]. The most common form of radical hysterectomy is Type III radical hysterectomy, which involves more extensive removal of the upper vagina and the removal of uterosacral ligaments and parametrial tissue [2]. The associations of abdominal hysterectomy with disruption of local nerve supply and distortion of anatomic relations leading to pelvic floor disorders have been postulated [3]. Pelvic floor dysfunction describes a range of problems associated with one or more of the three systems in the pelvic floor, i.e., the urinary system, anorectal system, and genital system [4].

Although the significant numbers of women are bothered concomitantly from all pelvic floor symptoms after hysterectomy, data on the evaluation of the whole function and dysfunction of the pelvic floor is scarce. The impact of any bothersome pelvic floor symptom may affect other elements of pelvic floor, leading to a more complicated state of quality of life for women. This must be completely understood and acknowledged for the appropriate management of these symptoms. In addition, despite the early transient changes in pelvic floor dysfunctions after simple and radical hysterectomy, the long-term prevalence of symptoms and

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the extent of morbidity associated with the procedure have not been well established. Therefore, the aim of this retrospective study was to analyze the impacts of abdominal total simple and radical hysterectomies on all aspects of pelvic floor dysfunctions, using quality of life (QoL) questionnaires in the postoperative follow-up period.

Materials and methods

In this retrospective cohort study, cases were identified from a review of hospital databases. Inclusion criteria consisted of; first, women with stage Ib–IIa cervical cancer who underwent Type III radical hysterectomy for invasive cervical cancer; second, women who underwent abdominal simple (Type I) hysterectomy for benign indications. Both groups were selected randomly during the same time period. Women applied to our outpatient clinic for their routine gynecologic examination, and without any gynecological surgical intervention were used as control. Exclusion criteria required a previous medical and/or surgical treatment for prolapse and/or urinary and/or anal incontinence, adjuvant treatment after the surgery in cancer patients. Women, who did not answer the questionnaires adequately, were also left out of the study. The study protocol was approved by the Local Research and Ethics Committee of our hospital. Type I hysterectomies were performed by completely removing the cervical fascia, resecting cardinal ligaments medial to ureters and uterosacral ligaments at level of cervix and leaving the vaginal vault in situ. After the removal of the uterus, the cardinal and uterosacral ligament stumps were sutured to the vaginal vault. In Type III hysterectomies, vaginal cuff was removed up to upper one-third to one-half and cardinal ligaments were resected at pelvic side wall and uterosacral ligaments were resected at post-pelvic insertion. No attempts were made to suspend the remaining vaginal vault. Selected women were invited to the clinic and asked to answer the previously validated (QoL) instruments to evaluate the symptoms of urinary incontinence, anal incontinence and sexual dysfunction. Medical professionals, who were blinded to the clinical characteristics and history of patients, administered the questionnaires to patients. Symptoms of urinary incontinence (UI) were evaluated by the validated form of the Urogenital Distress Inventory (UDI-6) and Incontinence Impact Questionnaire (IIQ-7) [5]. IIQ and UDI were both developed and combined to assess the impact of urinary incontinence on QoL [6]. Short versions of the IIQ and UDI composed of 7 and 6 questions with high degree of correlation with the longer forms were developed [7]. The short forms, IIQ-7 and UDI-6, were developed in combination to measure the life impact of incontinence in women. The UDI-6 can also be divided into three subscales: the first, second and the third subscales evaluate irritative symptoms (urgency, frequency and pain) (questions 1 and 2), stress symptoms (questions 3 and 4) and obstructive/discomfort or voiding deficiency (questions 5 and 6), respectively. Higher scores on both questionnaires indicated worsening of symptoms. The presence and degree of anal incontinence was evaluated with the validated form of the Wexner incontinence scale. Wexner incontinence scale is a simple and effective disease-specific questionnaire for AI, described by Jorge and Wexner [8]. Patients, who scored 0 on the scale, were grouped as patients with no anal incontinence and those who scored $\geq$1 as patients were labeled with anal incontinence. Higher scores indicated worsening of symptoms.

The impact of hysterectomy types on sexual life was evaluated by the validated form of PISQ-12. The PISQ-12 is a condition-specific, self-administered questionnaire that evaluates sexual function in women with POP and/or UI. The short form provides a single sexual function score. Higher scores indicate better functioning [9]. Degree of the pelvic organ prolapse of patients was evaluated according to pelvic organ prolapse quantification (POP-Q) system [10]. POPQ examination was performed by a single author who was blinded to the clinical characteristics and history of patients. All simple and radical hysterectomies were performed by 5 attending surgeons within the divisions of gynecology and gynecologic oncology, using standardized surgical approaches described elsewhere. For all definitions for pelvic floor symptoms The International Urogynecological Association (IUGA)/International Continence Society (ICS) joint report on the terminology for female pelvic floor dysfunction was used [11]. Statistical analysis was performed using SPSS11.5 software. One-way ANOVA and Pearson's chi-square tests were performed where appropriate; $p = 0.05$ was accepted as the degree of significance. Data were given as mean $\pm$ standard deviation or percentage.

Results

This retrospective study included 142 patients. 58 women (40.8%) who underwent simple hysterectomy, 41 women (28.8%) who underwent radical hysterectomy, and 43 (30.2%) women had no surgical intervention. They served as the control group. There were no statistically significant differences in terms of age, parity, body mass index (BMI), postoperative interval and the ratio of symptomatic and asymptomatic prolapse according to the POP-Q system (Table 1). The scores of IIQ-7, irritative and obstructive subscales of UDI-6 and PISQ-12 were statistically different. The stress subscale and the Wexner incontinence scale were not significant (Table 2). It is noteworthy that 84.6% of patients within the simple hysterectomy group and 53.7% of patients within the radical hysterectomy group answered PISQ-12 questionnaire.

Performing any type of hysterectomy resulted in difference in irritative scores with controls. This was most significant between Type III hysterectomy and control group ($p = 0.001$), and less but also significant between Type III and Type I hysterectomy ($p = 0.035$). Type I hysterectomy also showed significant difference with controls ($p = 0.038$). In addition, obstructive score of Type III hysterectomy group was significantly higher than Type I hysterectomy and control groups ($p1 = 0.019$, $p2 = 0.011$). On the other hand, obstructive scores were higher in the Type I hysterectomy group than in the control group, but there was no statistically significant difference ($p = 0.908$). Although women with Type III hysterectomy scored worse than any other group in stress scores, this difference was not significant enough, compared to each Type I hysterectomy and control groups ($p = 0.890$ and $p = 0.375$, respectively). Similar to the irritative scores, patients, who underwent any type of hysterectomy, showed difference in sexual function scores. Women with Type III hysterectomy scored significantly lower than any other group. This was most significant between Type III hysterectomy and control group ($p = 0.001$), also strongly significant between Type I and controls ($p = 0.002$). There was also a statistical significance of a lesser degree between Type I and Type III groups ($p = 0.037$). The rates of symptomatic women for urinary symptoms were statistical significantly higher in radical hysterectomy group. The rate of women with anal incontinence symptoms showed no statistical difference (Table 3).

Comment

In this study, the rate of pelvic floor symptoms after different type of hysterectomies and their effect on patient's QoL and pelvic floor function were evaluated. According to the present data, it can be argued that performing any type of hysterectomy may result in more pelvic floor symptoms compared to women without any pelvic surgery, given radical hysterectomy is more influential than simple hysterectomy. Urinary symptoms, especially irritative and