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Original Article

Investigation of chronic pelvic pain in patients undergoing hysterectomy for benign and malignant causes

Belma Gözde Özdemir, Hatice Şule Mazloomyar, Ahmet Bilgi, Mustafa Gazi Uçar, Çetin Çelik
Selçuk University Faculty of Medicine, Department of Obstetric and Gynecology, Konya, Turkey.

Abstract

Objective: Chronic pelvic pain is a condition that typically persists for a minimum of three to six months and is not associated with pregnancy. However, it is not an organic pathology or laboratory abnormality. This study aimed to evaluate the development of chronic pelvic pain in individuals who underwent hysterectomy for benign and malignant indications, and to examine the correlation between pain scores and the development of depression.

Methods: A survey method was used in this study, which was conducted on 163 hysterectomized patients at the Department of Gynecology and Obstetrics of Selçuk University Faculty of Medicine. Patients were categorized according to benign and malignant causes. The Visual Analog Scale was used for pelvic pain, and the Short Beck depression inventory was used for pain-related depression.

Results: A total of 163 patients were examined in terms of indication, of whom 52 (31.9%) were operated on for benign reasons and 111 (68.1%) for malignant reasons. No significant difference was observed in pain levels at the third and ninth months, irrespective of the indication. ($p<0.05$). However, there was a significant difference in pain levels in the third month depending on the age of the patients ($p<0.05$). In total, the pain levels of patients aged 45 and under in the third month are lower than those of patients over 45 years of age. Pain scores in the benign and malignant groups were higher in the ninth month, but it was determined that there was no significant difference in pain scores between these two groups. Beck depression levels were evaluated at the 3rd and 9th months in relation to pain across different ages, with and without comorbidities, and for pain associated with various indications. No significant differences were observed among these groups ($p>0.05$).

Conclusion: Each patient should receive personalized care, including a thorough evaluation of their complete pain constellation and a careful assessment of potential diagnoses. Evaluations should also consider the individual's surgical, psychological, and medical conditions.

Keywords: Hysterectomy, chronic pelvic pain, surgery.

Address for correspondence: Belma Gözde Özdemir, Selçuk University Faculty of Medicine, 42130, Konya, Turkey. **Phone**: +90 530 936 94 59
E-mail: gzdgrgn35@gmail.com **ORCID**: 0000-0002-7025-4087
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INTRODUCTION

Mind and body make up a network that has deep relationships with each other in physiological and pathological phenomena. Chronic pelvic pain can also be evaluated within the scope of Functional Somatic Syndrome. The criteria include the presence of symptomatic pain without any laboratory or clinical findings, along with a pain sensation that impacts the patient in a functional context (1). Chronic pelvic pain can be defined as cyclic or non-cyclical pain that lasts at least six months. Dysmenorrhea, dyspareunia, dysuria, and dyschezia are some of the symptoms associated with it (2). Although the etiology is unclear, many risk factors have been identified. Psychological factors such as young age, female gender, pain epigenetics, and previous pain at the surgery site or elsewhere are also included, as well as anxiety, sadness, stress, and lack of social support (3,4). Conditions such as irritable bowel syndrome, painful bladder syndrome, and cystitis should be included in the differential diagnosis. Their associations are common laboratory and imaging findings, which can help rule out organic and anatomical pathology (5,6). Although it is a procedure with a low probability of serious side effects, permanent problems after hysterectomy may affect the quality of life of patients and may present with negative results (7). Persistent pain symptoms may occur depending on the surgical anatomy and the abdominal neurovascular network (8).

This study aimed to evaluate the development of chronic pelvic pain in the group who underwent hysterectomy for benign and malignant reasons and to examine the pain scores and associated depression development.

MATERIALS AND METHODS

This study included patients who underwent hysterectomy between 01.01.2019 and 03.12.2024 at Selçuk University Faculty of Medicine, Department of Gynecology and Obstetrics. This prospective study recieved the approval of Selçuk University Faculty of Medicine Ethics Committee (09.25.2024-469) and was conducted by evaluating the questionnaires and file information routinely used in the clinic. Patients whose information could not be reached were called by phone. Patients who underwent hysterectomy were divided into two main groups according to benign and malignant indications. The inclusion criteria for the study are the patient who is scheduled for surgery due to myoma uteri, abnormal uterine bleeding resistant to treatment, and early-stage endometrial cancer. The exclusion criteria are the detection of endometriosis/endometrioma, continuous use of psychiatric and/or analgesic drugs, and the presence of hematological and rheumatological comorbidities. Chronic pelvic pain was defined as cyclic or non-cyclic pain lasting at least six months (2). Only laparotomy patients were evaluated in this study. Standard analgesia techniques were used in the postoperative period. Beck depression inventory and visual analog scale pain were performed and retested at the third and ninth months. The visual analog scale is scored on a scale of 0 to 10, with 10 representing the most intense pain and 9 representing no pain (9). The scores of the Short Beck depression inventory (7 question) change from 0 to 21, and from 0-3 minimal/no depression. According to the Beck depression inventory, a score of 4 or higher indicates the presence of depressive symptoms, with 4-6 indicating mild depression, 7-9 indicating moderate depression, and 10-21 indicating severe depression (10).

Statistical Analysis

The data were analyzed using the Statistical Package for the Social Sciences (SPSS) 26.0 software. The categorical variables pertaining to the hysterectomized patients were presented as numbers and percentages, while the numerical variables were expressed as medians, minimums, and maximums. The conformity of the pain and Beck depression inventory (BDI) levels of the hysterectomized patients to the normal distribution was determined by examining the skewness and kurtosis values. It was observed that the data did not conform to the rules of normal distribution with regard to pain and Beck depression levels. The reference value for normal distribution is between ±1.96 (11). The Wilcoxon

test was employed to compare the pain and Beck depression inventory (BDI) levels of hysterectomized patients at the three-month and nine-month marks. The Mann-Whitney U test was employed to evaluate the Beck depression levels at the 3-month and 9-month intervals, with respect to age, the presence of comorbidities, and the indication status. Throughout the study, the significance levels were determined with reference to the 0.05 and 0.01 values.

RESULTS

A total of 163 patients were examined with regard to the indication for surgery. Of these, 52 patients (31.9%) underwent surgery for benign conditions, while 111 patients (68.1%) had surgery for malignant conditions. The mean age of female patients who underwent hysterectomy was 51.06 years. A total of 28.8% of the patients were 45 years of age or younger, while 71.2% were 45 years of age or older. The majority of patients (83.4%) have no additional diseases.

There was no significant difference in pain levels in the third month, depending on the indication ($p<0.05$). However, there was a significant difference in pain levels in the third month depending on the age of the patients ($p<0.05$). The prevalence of pain in patients under the age of 45 in the third month of treatment is less than that observed in patients over the age of 45. There was no significant difference in the pain levels of the patients in the ninth month according to the indication status ($p<0.05$).

In the benign patient group, pain scores increased from the third month to the ninth month. Similarly, in the malignant patient group, pain scores rose from the third month to the ninth month. However, no significant difference in pain scores was found between the two groups. Overall, pain scores were higher in individuals over the age of 45 during the third month (Table 1).

Table 1. Examination of pain levels at different time points according to descriptive characteristics of patients undergoing hysterectomy

Descriptive characteristics		**Pain T1**	**Pain T2**	
		Med (Min–Max)	**Med (Min–Max)**	**p[1]**
Age	45 years and under	0 (0-8)	3 (0-9)	0.000**
	Over 45 years	2 (0-9)	4 (0-9)	0.000**
	p[2]	0.019*	0.712	
Comorbidities	Absent	0 (0-9)	4 (0-9)	0.000**
	Present	2 (0-8)	3 (0-8)	0.374
	p[2]	0.179	0.473	
Indication	Benign	1 (0-9)	4 (0-9)	0.000**
	Malign	0 (0-9)	4 (0-9)	0.000**
	p[2]	0.631	0.448	

*p<0.05, **p<0.01.

p1: Wilcoxon Test (Comparison of each group's data at 3rd and 9th months).

p2: Mann-Whitney U Test (Separate comparison of 3rd and 9th month data between groups).

There was no significant difference between Beck depression levels at the 3rd and 9th months due to pain in different ages, with and without comorbidities, and in different indications (p>0.05) (Table 2).

Table 2. Examination of beck depression levels at different time points according to descriptive characteristics of patients undergoing hysterectomy

Descriptive characteristics		Beck Depression T1	Beck Depression T2	
		Med. (Min–Max)	Med. (Min–Max)	p[1]
Age	45 years and under	0 (0-6)	0 (0-8)	0.715
	Over 45 years	0 (0-4)	0 (0-6)	1.000
	p[2]	0.112	0.146	
Comorbidities	Absent	0 (0-6)	0 (0-8)	0.686
	Present	0 (0-2)	0 (0-0)	0.317
	p[2]	0.858	0.437	
Indication	Benign	0 (0-2)	0 (0-0)	0.317
	Malign	0 (0-6)	0 (0-8)	0.686
	p[2]	0.547	0.233	

p1: Wilcoxon Test (Comparison of each group's data at 3rd and 9th months).
p2: Mann-Whitney U Test (Separate comparison of 3rd and 9th month data between groups).

DISCUSSION

Although chronic problems are rare after hysterectomy, studies in the literature on persistent and chronic pelvic pain following the procedure suggest that while most women experience pain after a hysterectomy for benign reasons (12-14). In this study, the change of pain scores according to postoperative time was evaluated in the homogeneous group in order to determine the conditions that constitute risk factors for chronic pelvic pain. For chronic pelvic pain, groups with pain patterns lasting at least six months and unexplained causes in laboratory and imaging parameters were evaluated.

In some studies, it is assumed that the uterus is in an important and functional position due to its nerve and vascular network structure and that its surgery is important because it is close to the bowel and bladder area. Risk factors include preoperative pelvic pain, pain status of disabled patients, early postoperative pain, psychosocial burden of surgery, and psychological problems such as depression and anxiety (15). Neuropathic pain may occur in 5-50% of cases. There may be problems in both the gastrointestinal and genitourinary pathways, functional bowel dysfunction and chronic constipation may occur, and sometimes both may occur together (16-19). In this study, those with known endometriosis and endometrioma or known chronic pelvic pain at the time of the operation or subsequent pathologies were not evaluated. Pain scores that developed due to the effect of surgery were recorded in a homogeneous group. The use of cutoff values was avoided, and the potential influence of pain on depressive symptoms was investigated. The objective was to determine subjectivity in the perception of pain.

In another study, laparoscopy was considered to be more effective in reducing pain during the early postoperative period. However, it was noted that there was a lack of clarity and a lack of a standardized

scale for measuring chronic pelvic pain and functional somatic syndrome in the late postoperative period (20). In this study, only laparotomy patients were evaluated, but it is thought that the type of anesthesia and the type of surgery affect the pain scale. This effect is especially evident in the early period. Further studies are needed for the development of chronic pelvic pain.

Although some studies have indicated that surgical stress and fluctuations in cortisol levels may contribute to the development of depression and algesia, a recent investigation employed a comprehensive approach to assess the systemic response in patients undergoing hysterectomy. This included the use of mobilization pain scores, fatigue scores, C-reactive protein, and interleukin-6 as biomarkers to evaluate the impact of different surgical techniques. The findings revealed a notable difference in the postoperative outcomes between the various techniques employed for hysterectomy. It has been determined that the same neuroendocrine response is achieved with the same anesthesia technique (21,22). Guidelines can be established by combining other survey methods and biochemical parameters. Although there are risk factors for the patient and the surgery for the cause of pain, there are also many biochemical processes and epigenetic mechanisms that may cause hyperalgesia. Longer-term follow-up may be required. It is thought that it may be effective in adhesions. It is thought that mediators released from malignant cells and the tumor microenvironment may be effective in the pain cascade.

This study evaluated patients who were hysterectomized by a single physician in a single center. In this study, it was shown that although pain scoring increased over time in both groups, it did not lead to a significant clinical outcome, and, accordingly, depression scores did not occur.

Limitations: The limitation of the study is that the pain parameters of the patients cannot be clearly defined, and the permanence is subjective. Evaluation can be made in larger series with more patient numbers and multicentric case-control series.

CONCLUSION

Surgical situations can activate many metabolic pathways and affect the receptor pain response due to stress factors. In this regard, risk factor analysis should be conducted and the patient should be informed, particularly prior to surgical intervention. Additionally, the provision of psychological support is essential. This may be a situation that will improve the quality of life.

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