

## CASE REPORT

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## Physiotherapy and Rehabilitation in Shoulder Pain After Gynecological Laparoscopic Surgery: A Case Report

### ABSTRACT

**Objective:** In this study, the effectiveness of physiotherapy and rehabilitation was investigated in a patient with pain in the shoulder region after gynecological laparoscopic surgery. In the study, posture after surgery, shoulder joint active amount of motion, respiration capacity and perception of pain were evaluated of a 41-year-old female patient (58 kg, 158 cm) who underwent laparoscopic hysterectomy (L / S) + Bilateral Salpingectomy (BS) and myoma uteri operation (MUOP) with the diagnosis of uterine intramural leiomyoma. This patient received posture training, low-intensity stability training, diaphragmatic abdominal breathing exercises, neutral spine position control training, in-bed exercises, and scapulothoracic mobilization. Physiotherapy and rehabilitation was applied as 2 days and 4 sessions. After physiotherapy, the patient showed an increase in active joint movement and a decrease in perception of pain. These study results shed light on randomized controlled advanced studies in future larger samples.

**Keywords:** Gynecological Laparoscopic Surgery, Shoulder Pain, Physical Therapy And Rehabilitation, Diaphragmatic Breathing.

## Jinekolojik Laparoskopik Cerrahi Sonrası Gelişen Omuz Ağrısında Fizyoterapi ve Rehabilitasyon: Bir Vaka Sunumu

### ÖZET

Bu çalışmada, jinekolojik laparoskopik cerrahi sonrası omuz bölgesinde oluşan ağrısı olan bir olguda fizyoterapi ve rehabilitasyon uygulamasının etkinliği araştırılmıştır. Çalışmada, 41 yaşında uterus intramural leiomyomu tanısı ile myoma uteri operasyonu (MUOP), laparoskopik histerektomi (L/S) + Bilateral Salpenjektomi (BS) cerrahisi yapılan kadın hastanın (Ağırlığı 58 kg, Boy uzunluğu 158 cm) cerrahi sonrasında postürü, omuz çevresi aktif eklem hareket miktarı, solunum kapasitesi ve ağrı algısı değerlendirildi. Bu hastaya postür eğitimi, düşük şiddetli stabilite eğitimiyle birlikte diyafragmatik karın solunumu egzersizleri, nötral omurga pozisyon kontrol eğitimi, yatak içi egzersizleri ve skapulotorasik mobilizasyon uygulaması yapıldı. Fizyoterapi ve rehabilitasyon toplam 2 gün 4 seans şeklinde uygulandı. Fizyoterapi sonrası hastanın aktif eklem hareket miktarında artış ve ağrı algılamasında azalma görülmüştür. Bu çalışma sonuçları gelecekteki yapılabilecek büyük örneklerde randomize kontrollü ileri çalışmalara ışık tutucudur.

**Anahtar Kelimeler:** Jinekolojik Laparoskopik Cerrahi, Omuz Ağrısı, Fizik Tedavi ve Rehabilitasyon, Diyafragmatik Solunum

## INTRODUCTION

In 1910, Swedish surgeon Jacobaeus applied the method of examining the abdominal cavity with a tubular instrument in humans and used the term laparoscopy for the first time. After the second half of the 1960s, the practice of laparoscopy began to spread rapidly and the idea that it could be applied for therapeutic purposes was born. Therapeutic use of laparoscopy began for the first time in the 1970s by gynecologists (1).

It can be listed the reasons why laparoscopic surgery is preferred over open surgery are short hospitalization time, low postoperative pain, quick recovery, good cosmetic appearance, minimal incision and low complication rates (2).

During laparoscopic surgery, pneumoperitoneum is created and the abdomen area is better visualized so comfortable working area is created (3). First, Room air was used for pneumoperitoneum but various complications related to it developed (4). Various gases such as oxygen (O<sub>2</sub>), nitrogen (N<sub>2</sub>O), helium, carbon dioxide (CO<sub>2</sub>) were then tried. These gases have advantages and disadvantages compared to each other. It is because of the advantages of carbon dioxide (CO<sub>2</sub>) gas being preferred in laparoscopic surgery, being absorbed quickly, inexpensive and easily available, non-explosive, high dissolution, high diffusion rate, low risk of gas embolism and rapid removal from the blood (3,4).

Visceral pain and shoulder pain are mostly seen after laparoscopic surgery as a result of CO<sub>2</sub> insufflation resulting from CO<sub>2</sub> delivered to the abdominal cavity (5,6). Pneumoperitoneum formed as a result of CO<sub>2</sub> insufflation; Increased intraabdominal pressure causes stretching of the peritoneum, diaphragmatic irritation, stretching of the diaphragmatic muscle fibers, and due to these reasons, the patient develops shoulder pain (5,6).

This study was planned to investigate the effect of physiotherapy and rehabilitation program on the recovery of shoulder pain in the patient after surgery.

## CASE REPORT

**Patient Story:** A 41-year-old female patient was hospitalized in Ankara Etilik Zübeyde Hanım Gynecology Training and Research Hospital on 29.05.2017 with the diagnosis of uterine intramural leiomyoma. The patient underwent myoma uteri operation (OP), laparoscopic hysterectomy (L / S) + Bilateral Salpingectomy (BS) surgery.

Gynecological laparoscopic surgery was performed in the patient in the Trendelenburg

(upside down) position between 15-20 degrees, in which the abdomen was inflated with 15 mmHgCO<sub>2</sub>. During surgery, the patient was given 200 mg Propofol, 0.1 mg Fentanyl, 30 mg Rocuronium Bromide, 1-2 MAC Sevoflurane, 1 mg Remifentanyl with general anesthesia. It was observed that the patient complained of pain especially in the right shoulder region after surgery. The patient from the gynecology service was consulted to the physiotherapy clinic to be evaluated and treated. The patient was discharged on 02.06.2017 after all medical procedures were completed. For the scientific publication of the patient's evaluation and treatment data, permission numbered 1757.2017, dated 17.05.2017, was obtained at the Etilik Zübeyde Hanım Gynecology Training and Research Hospital Medical Specialization Training Board (TUEK).

**Patient Evaluation:** During the medical follow-up, the physiotherapy and rehabilitation program created after the first evaluation on 01.06.2017 was applied for 2 days (4 sessions). Active joint motion amount, posture, pectoral muscle shortness, oxygen level (with pulse oximeter), respiratory capacity (chest circumference and incentive spirometry measurement) were evaluated. In order to evaluate the patient's perception of pain, the pain severity She felt, with the Visual Analogue Scale (VAS), that is, A 10-cm VAS anchored from zero (no pain at all) to 10 (the worst pain I have ever felt) was used to determine the severity of each subject's shoulder pain. The woman was asked to mark the pain severity scores and was calculated (7). In the measurement made using McGillMelzack Pain Question Form; the location of the pain, its relationship with time, the feeling of severity in the patient, and the patient's pain status (8).



**Table 1.** Patient Evaluation Results

	B.T. Evaluation	T.S. Evaluation
Posture head prominence	(+)	(-)
Presence of shoulder protraction	(+)	(-)
Pectoral shortness (Sternal part) (cm)	4	2
Pectoral shortness (clavicular part)(cm)	2	1
Oxygen saturation (%)	93	99
Incentive Spirometer Inspiratory capacity (cc)	600	1200
VAS (cm)	5.5	1.2
McGill-Melzack questionnaire	48	19
C.E.M. Axiller region Nötr. insp.-exp. (cm)	88 90-87=3	88 91/87=4
C.E.M. Xiphoid region Nötr. insp.-exp. (cm)	93 94-92=2	93 94-91=3
C.E.M. Subcostal region Nötr. insp.-exp. (cm)	84 86-83=3	84 87-81=5

B.T.: Before Treatment, A.T.: After Treatment, VAS: Visual Analogue Scale, C.E.M.: Chest Environmental Measurement ,Nötr.: Nötral, insp.:inspiration, exp.:ekspiration

**Table 2.** Patient Active Joint Movement Amount Evaluation

Active Joint Movement Amount		Initial evaluation (Before Treatment)	Second assessment (After Treatment)
Shoulder flexion (°)	Right	160	175
	Left	180	180
Shoulder abduction (°)	Right	165	180
	Left	175	175
Shoulder external rotation (°)	Right	85	90
	Left	90	90

**Patient Treatment:** Immediately after surgery, the patient was administered intramuscular injection in the form of painkiller 75 mg, the active ingredient of which was diclofenac. The first oral feeding of the patient was achieved with liquid feeding approximately 1 day after surgery. The first gas discharge of the patient occurred approximately 1 day after surgery, that is, after the first physiotherapy and rehabilitation application. The patient was taken to the physiotherapy and rehabilitation program approximately 12 hours after surgery in the gynecology service. The patient was treated 2 times a day for 2 days until he was discharged. After their final evaluations, their treatments were completed and exercise program was recommended. The patient was given low-intensity stabilization training within the central column training to ensure proper posture. Low-intensity stabilization training; Includes diaphragmatic breathing, neutral spine position control training, and training of deep muscles that provide local motor control(9). Scapulathoracic joint mobilization was performed for restriction and pain in the shoulder junction (10,11). In order to increase independence in the patient, in-bed exercises were started.

As a result of the treatments and trainings, changes were observed in the patient's recovery. The patient's postural smoothness, an increase in the amount of active joint movement and a decrease in pain perception level were also recorded.



## DISCUSSION

When we look at the literature, the incidence of shoulder pain, which is an important complication after general laparoscopic surgery, varies between 31% and 83% (12). Medical

analgesic applications are frequently used in the treatment of such patients after laparoscopic surgery (13,14). In one study, acupuncture was applied for shoulder pain that developed after laparoscopic surgery, pain perception level was evaluated with Visual Analogue Scale (VAS) and a significant decrease was observed (15). In the literature, there are no physiotherapy and rehabilitation studies for shoulder pain that develops after gynecological laparoscopic surgery. In this sense, our study sheds light on randomized

controlled advanced studies in larger samples that may be performed in the future.

### CONCLUSION

This study is a case study with important results in terms of using and generalizing physiotherapy and rehabilitation approaches in reducing pain and increasing functionality after myomateria operation (MUOP), laparoscopic hysterectomy (L / S) + Bilateral Salpingectomy (BS) surgeries.

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