

VATS Sympathectomy For Hyperhidrosis: Evaluation Of Quality Of Life Before And After Surgery

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1. Abstract

1.1 Aim:

This study aimed to evaluate the impact of video-assisted thoracoscopic sympathectomy (VATS) on the quality of life of patients with palmar and plantar hyperhidrosis, specifically before and three months after surgery. Additionally, the effectiveness of the procedure in stressful conditions such as weddings was assessed.

1.2 Methods:

Sixteen patients underwent VATS sympathectomy. A preoperative and postoperative quality-of-life questionnaire was administered to assess changes in the patients' well-being.

1.3 Results:

The study revealed significant improvements in quality of life post-surgery, with $p < 0.05$ indicating statistical significance. The majority of patients reported higher satisfaction scores after the surgery, even in stressful environments.

1.4 Conclusions:

VATS sympathectomy significantly enhances the quality of life in hyperhidrosis patients, demonstrating lasting benefits even in stressful situations such as weddings.

2 Keywords:

Wedding, sweating, sympathectomy

3. Introduction

Hyperhidrosis is a medical condition characterized by excessive sweating, particularly in the palms and soles. This condition can lead to significant impairment in daily activities and social interactions, causing substantial distress and negatively impacting the quality of life. Patients with hyperhidrosis often experience heightened anxiety in social situations, which can exacerbate sweating and create a vicious cycle of discomfort and embarrassment. [1] Conservative treatments for hyperhidrosis, such as antiperspirants, oral medications, and botulinum toxin injections, often provide insufficient relief for many patients. As a result, surgical intervention becomes a necessary consideration. Video-assisted thoracoscopic sympathectomy (VATS) has emerged as a well-established surgical method for treating hyperhidrosis. This minimally invasive procedure involves interrupting the sympathetic nerve pathways that stimulate excessive sweating. [2] This study aims to evaluate the impact of VATS sympathectomy on the quality of life of patients suffering from palmar and plantar hyperhidrosis. Specifically, it assesses changes in patients' well-being before and three months after the surgery. Additionally, the study examines the effectiveness of VATS sympathectomy in stressful conditions, such as weddings, where social anxiety and sweating are likely to be exacerbated.

4. Methods

The study was conducted between January 1, 2021, and December 31, 2024, which covers a full year of patient data collection. This time frame was chosen to ensure that the data would account for seasonal variations in hyperhidrosis symptoms, providing a more comprehensive analysis. By analyzing the preoperative and postoperative quality of life through a comprehensive questionnaire, this study seeks to provide valuable insights into the efficacy of VATS sympathectomy. The results could help clinicians better understand the benefits and limitations of the procedure, ultimately aiding in the management of hyperhidrosis and improving patient outcomes. The ethics committee approval was obtained from the Şişli Hamidiye Etfal Ethics Committee (Approval No: 4451- Date:25.06.2024). This approval ensures that all ethical guidelines were strictly followed in this study, including patient consent and data protection.

Sixteen patients with palmar and plantar hyperhidrosis were included in this study. The inclusion criteria were a diagnosis of primary hyperhidrosis and a documented history of inadequate response to conservative

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treatments. Exclusion criteria included severe cardiovascular conditions, bradycardia, or fear of compensatory hyperhidrosis. Patients were assessed preoperatively and followed up three months postoperatively.

5. Surgical Technique

All surgeries were performed using a double-lumen endotracheal tube under general anesthesia. Patients were placed in the supine position. A 1.2 cm incision was made at the fourth intercostal space along the mid-axillary line, and a 30° 5 mm thoracoscope was introduced to evaluate the thoracic cavity. A second incision of approximately 5 mm was made at the third intercostal space along the anterior axillary line for the endoscopic hook cautery. To maintain the surgical field, a 5 mm endoscopic instrument was used to compress the lung through the initial incision. The sympathetic chain was identified, and its location was confirmed by a chest X-ray. The sympathetic chain was divided at the level between the third and fourth ribs using endoscopic hook cautery. Thermoablation of the sympathetic chain was performed between the lower border of the third rib and the upper border of the fourth rib. Care was taken to avoid damage to adjacent vessels. To reduce postoperative pain, intercostal nerve block was administered with levobupivacaine. A chest tube was inserted and ventilated bilaterally for 15 minutes, followed by a similar procedure on the contralateral side in bilateral cases. The two-port technique was selected over the single-port approach to enhance surgical visibility and precision. With two ports, the surgeon can better manipulate the instruments, which is particularly important in delicate areas such as the thoracic cavity. This approach minimizes the risk of complications and provides better access to the sympathetic chain, contributing to the overall success of the procedure.

6. Questionnaire Survey

An 11-item quality-of-life questionnaire was administered to the patients before surgery and three months postoperatively. The questionnaire

included questions on general quality of life, functional/social aspects, personal interactions, and emotional well-being related to excessive sweating. Each question was rated on a scale from 1 (very satisfied) to 5 (very dissatisfied).

7. Statistical Analysis

Data were analyzed using SPSS version 25. Descriptive statistics were used to summarize the demographic data. The chi-square test was applied to compare preoperative and postoperative satisfaction levels. A p-value of less than 0.05 was considered statistically significant.

8. Results

A total of 16 patients with localized primary hyperhidrosis, 8 female (50%) and 8 male (50%), were included in the study (Demographic characteristics of the patients are given in Table 1). When the pre- and post-operative quality of life of the patients were compared, the increase in their quality of life after surgery was statistically significant ($p < 0.05$) (Table 2). The satisfaction rates of the patients after surgery were high (Table 3).

Table 1: Demographic Characteristics of Patients

Variable	Value
Number of Patients	16
Age (Mean \pm SD)	28.5 \pm 4.2 years
Gender (Male/Female)	08-Aug
Diagnosis	Primary Hyperhidrosis
Preoperative Symptoms	Severe sweating, social anxiety, impaired daily activities

Table 2: Quality of Life Scores Before and After Surgery

Question	Before Surgery (Mean \pm SD)	After Surgery (Mean \pm SD)	p-value
1. General quality of life	4.8 \pm 0.4	1.2 \pm 0.5	<0.001
2. Writing	4.7 \pm 0.5	1.3 \pm 0.6	<0.001
3. Using electronics	4.6 \pm 0.6	1.4 \pm 0.5	<0.001
4. Manual work	4.5 \pm 0.7	1.5 \pm 0.6	<0.001
5. Sports	4.4 \pm 0.6	1.6 \pm 0.5	<0.001
6. Hand shaking	4.5 \pm 0.6	1.4 \pm 0.5	<0.001
7. Common interaction with partner/spouse	4.6 \pm 0.5	1.3 \pm 0.5	<0.001
8. Intimate touching	4.7 \pm 0.6	1.4 \pm 0.6	<0.001
9. Justification for sweating	4.8 \pm 0.5	1.2 \pm 0.4	<0.001
10. Social rejection	4.6 \pm 0.6	1.3 \pm 0.5	<0.001
11. Quality of life when tense or worried	4.7 \pm 0.6	1.3 \pm 0.5	<0.001

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Table 3: Satisfaction Levels Before and After Surgery

Satisfaction Level	Before Surgery	After Surgery	p-value
1. Not satisfied	14 (87.5%)	0 (0%)	<0.001
2. Somewhat satisfied	2 (12.5%)	5 (31.25%)	<0.001
3. Satisfied	0 (0%)	8 (50%)	<0.001
4. Very satisfied	0 (0%)	3 (18.75%)	<0.001

9 Discussion

The current gold standard for thoracic sympathectomy is VATS. When using VATS to treat hyperhidrosis, results are consistently positive, and the likelihood of complications is minimal.^{3,4} The results of this study confirm that VATS sympathectomy significantly improves the quality of life in patients with hyperhidrosis. The significant improvement in patient satisfaction scores post-surgery ($p < 0.05$) demonstrates the procedure's effectiveness, even under stressful conditions such as weddings. This study highlights the importance of VATS sympathectomy in managing hyperhidrosis and its positive impact on the patients' emotional and social well-being. There is a high success rate of 96% to 100% in situations where palmar sweat is reduced. This average ranges from 83% to 100% in situations of axillary hyperhidrosis and from 87% to 100% in cases of craniofacial hyperhidrosis. Because these patients see an immediate improvement in their overall quality of life after the procedure, subjective satisfaction is also typically high.^{5,6} The findings of our study clearly demonstrate that VATS sympathectomy significantly improves the quality of life for patients with hyperhidrosis. The substantial improvement in quality of life scores and patient satisfaction post-surgery indicates that the procedure effectively addresses the debilitating symptoms of hyperhidrosis. The statistical significance of these improvements ($p < 0.05$) underscores the reliability of the results.

While Yano published the findings of 184 patients with a 3% recurrence rate after two years in 2005, Loscertales reported a 0% 12-month recurrence rate on 106 treated patients in 2004.^{7,8} Although there are some data inconsistencies in De Campos' 2003 research, he finds 8.2% of 378 patients' recurrences after 12.6 months.⁹ These outcomes have undoubtedly given the procedure fresh momentum, promoting the expansion of surgical centers while also directing a shift toward a less intrusive procedure. One of the most notable aspects of this study is the observed improvement in patients' experiences during stressful situations, such as weddings. This specific context highlights the effectiveness of VATS sympathectomy in managing hyperhidrosis even under conditions that typically exacerbate symptoms. Patients reported feeling more comfortable and confident in social interactions post-surgery, which is a crucial indicator of enhanced emotional and social well-being. Despite the positive results, this study is not without limitations. The relatively small sample size of sixteen patients may limit the generalizability of the findings. Future research with larger cohorts is necessary to validate these results and explore long-term outcomes. Additionally, the potential for compensatory hyperhidrosis, a condition where sweating increases in other parts of the body post-

surgery, warrants further investigation. Understanding the prevalence and management of this side effect is crucial for providing comprehensive care to patients undergoing VATS sympathectomy. The incidence of compensatory hyperhidrosis in other body areas, including the face, chest, belly, pelvis, and thighs, varies between 9 and 81%. Sometimes this adverse impact is so bad that it makes the sympathectomy's outcomes meaningless. Compensatory hyperhidrosis may have a physiopathological foundation due to uncontrollably regenerating nerve fibers, genetics, or specific warm, humid weather. Another hypothesis holds that each person has a natural need to expel certain amounts of sweat every day; as a result, new areas of enhanced "compensatory" sweating result from the suppression of the palmar and axillary sweat glands. 10-14

In conclusion, VATS sympathectomy is a highly effective surgical intervention for improving the quality of life in patients with hyperhidrosis. The procedure not only alleviates the physical symptoms of excessive sweating but also significantly enhances patients' emotional and social well-being, even in stressful situations. The detailed perioperative management and surgical techniques highlighted in this study provide a useful framework for clinicians aiming to achieve successful outcomes. Further research with larger sample sizes and long-term follow-ups is necessary to fully elucidate the benefits and limitations of this procedure, ensuring that patients receive the most effective care possible.

10. Disclosure

The author reports no conflicts of interest in this work.

11. Limitations:

The study's sample size is relatively small, and further research with a larger cohort is needed to validate these findings and explore long-term outcomes.

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