

# Assessment of Compensatory Sweating Following Video Assisted Thoracoscopic Sympathectomy for Treatment of Primary Palmar Hyperhidrosis at Two Different Levels (T2-3) Versus (T2-T4)

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## Introduction

Palmar hyperhidrosis (PH) is not an uncommon condition that is characterized by excessive sweating in the hand away from normal thermoregulatory needs. It apparently originates from not fully understood stimulation of sympathetic nervous system. Its incidence is almost 2% of the people worldwide and it apparently seems to have a genetic factor.

It affects males and females equally, mainly at adolescent age, with an underestimated incidence because of the feeling of shame as well as guilt of affected persons. This pathology has important implications on the life of the affected patients. Over years, numerous conservative medical and surgical treatments have been suggested. However, surgery is considered the best modality for its treatment. The interruption of sympathetic chain and ganglia via conventional sympathectomy or the cutting of sympathetic trunk (ST) via sympathectomy at different levels depending on the sweaty areas.

## Aim of the work

The aim of the present study was to evaluate and to assess the compensatory sweating following VATS sympathectomy for the treatment of primary palmar hyperhidrosis at two different levels T2, 3 versus T2-4 regarding the incidence, site, severity and patient satisfaction.

## Patients

This study involved 50 eligible patients presented with primary palmar hyperhidrosis. 25 patients in group A were treated with VATS sympathectomy at thoracic level T2-3. 25 patients in Group B were treated with VATS sympathectomy at thoracic level T2-4. **Inclusion criteria:** Patient suffering from primary palmar hyperhidrosis either isolated or associated with axillary or plantar hyperhidrosis. **Exclusion criteria:** Severe cardio-pulmonary insufficiency. Presence of history of severe pleural diseases (empyema, pleuritis). Previous thoracic surgery and sympathectomies. Inability to maintain adequate arterial oxygen saturation with single-lung ventilation or CO<sub>2</sub> insufflation. Untreated hyperthyroidism. Informed consent was taken from all patients included in the study according to the Committee of Ethics.

## Methods

All individuals included in this study were subjected to: **1-**Detailed history taking and general and local examination. **2-**Laboratory investigations including thyroid functions. **3-**ECG and chest x-ray. **4-** The procedure was performed under general anesthesia via a conventional endotracheal tube. **5-**Patients were positioned in a semi sitting supine position with 30–45 degrees tilt and with the upper limbs extended at a 90-degree angle to the body. **6-** One cm incision at the anterior axillary line of the 5th intercostal space used for the 10 mm trocar to be used as a camera port. **7-** Another skin incision; 5 mm in length; was made at the 2nd intercostal space behind the fold of the pectoralis major muscle to be used for the other endoscopic instruments. **8-**After identification of the sympathetic chain, using a hook or a Maryland grasper, to cut of segment of sympathetic chain at the level of T2 and T3 in group A (figure 1), and to cut of segment of sympathetic chain at the level of T2 to T4 in group B.(figure 2) **9-** Cauterization over the upper border of corresponding rib laterally for about 2-3 cm, including the nerve of Kuntz



Figure 1: Cutting of the sympathetic chain at level T2-T3



Figure 2: Cutting of the sympathetic chain at level T2-T4

**Effect of sympathectomy on hyperhidrosis:** Effect on palmar hyperhidrosis, compensatory hyperhidrosis and overall patient satisfaction on VAS 10 at three-time intervals, 1 month, 6 month and 1 year in both groups were evaluated.

10. Statistical tests used:

- T test for 2 groups comparison with normal distribution
- Paired t test to compare variables for the same subject.
- Mann-Whitney U test for non-normal distribution.
- Fischer exact test for categorical variables (too few numbers for Chi square test).
- Chi-square test for categorical variables.

## Results

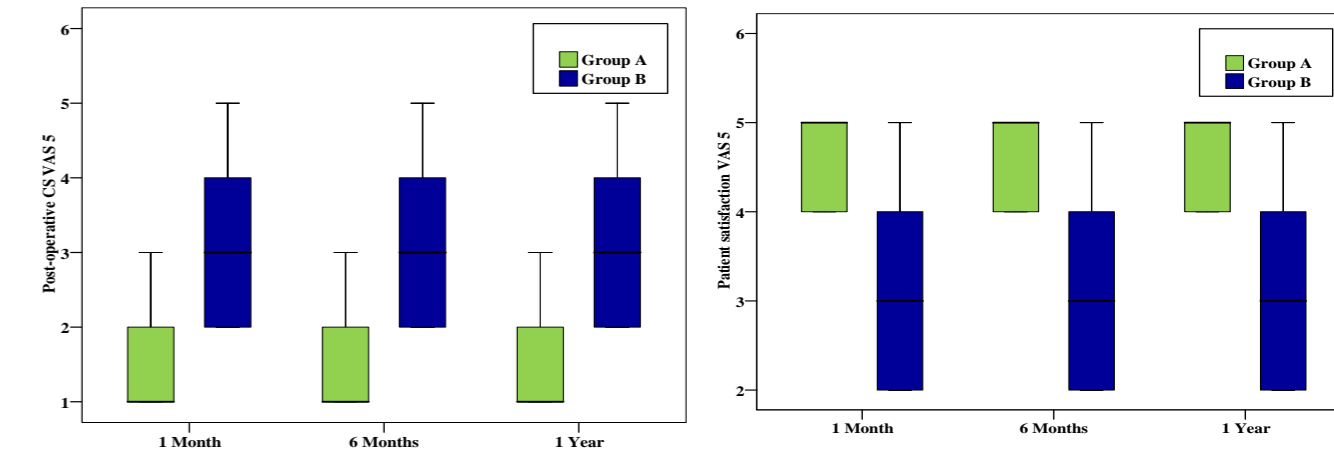


Figure (3): Comparison of the post-operative CS on VAS scores between the two study groups

Figure (4): Comparison of the two study groups according to patient satisfaction on VAS score

Between both groups, there was a statistically significant difference regarding the degree of severity of compensatory sweating post-operatively between both groups. In group A 44 % of patients had CS, while in group B 96 % of patients had symptoms of CS with varying degrees from 1 to 5 on VAS-Score of five degrees. Therefore, the more the level is cauterized, the more the compensatory sweating is occurred. In term of patient's satisfaction, the main issue was about irreversibility of compensatory sweating, which causes some patients to be unsatisfied. It was obvious that group A is more satisfied (92 %) than group B (52%) as they had less compensatory sweating.

## Conclusion

This study confirms that endoscopic thoracic sympathectomy is effective and safe technique for the treatment of primary palmar hyperhidrosis.

The level of cauterization has no significant effect on the palmar hyperhidrosis dryness. However, the more number of the levels that are cauterized, the more the severity of the compensatory sweating. Patient satisfaction is inversely correlated with the severity of compensatory sweating. Either, T2, T3 and T2-T4 exerts no significant difference in the complications or post-operative Hospital stays.