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Quantitative Evaluation of Palmar Hyperhidrosis before and after Unilateral Endoscopic Thoracic Sympathectomy

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*The picture of the ISSS board members and their families
from back then during the 12th ISSS in Fukuoka, Japan, 2017*





Background

Our questionnaire survey of 3-year follow-up showed that unilateral endoscopic thoracic sympathectomy (ETS) for the dominant hand of palmar hyperhidrosis (PH) could provide higher level of patient satisfaction, because of less incidence of compensatory sweating (CS) in comparison with bilateral ETS. Moreover, PH of the opposite hand was also alleviated to almost dryness in one third of patients after unilateral ETS probably due to the improvement of psychological stress of daily life (the 13th ISSS, Pisa, Italy, 2019).





Objectives

The aim of this study is to analyze quantitatively the resolution of each hand symptoms after unilateral ETS in patients with PH.





Materials and Methods

From July to October in 2022, 149 patients with PH underwent unilateral extended R4 (R4 + G3 partial ablation) ETS for a dominant hand in our institution. Quantitative analysis of each hand sweat of these patients using the perspiration meter (SKN-2000M, SKINOS Co., Ltd, Japan) was performed before and after unilateral ETS.





Characteristics of Patients with PH in this Study

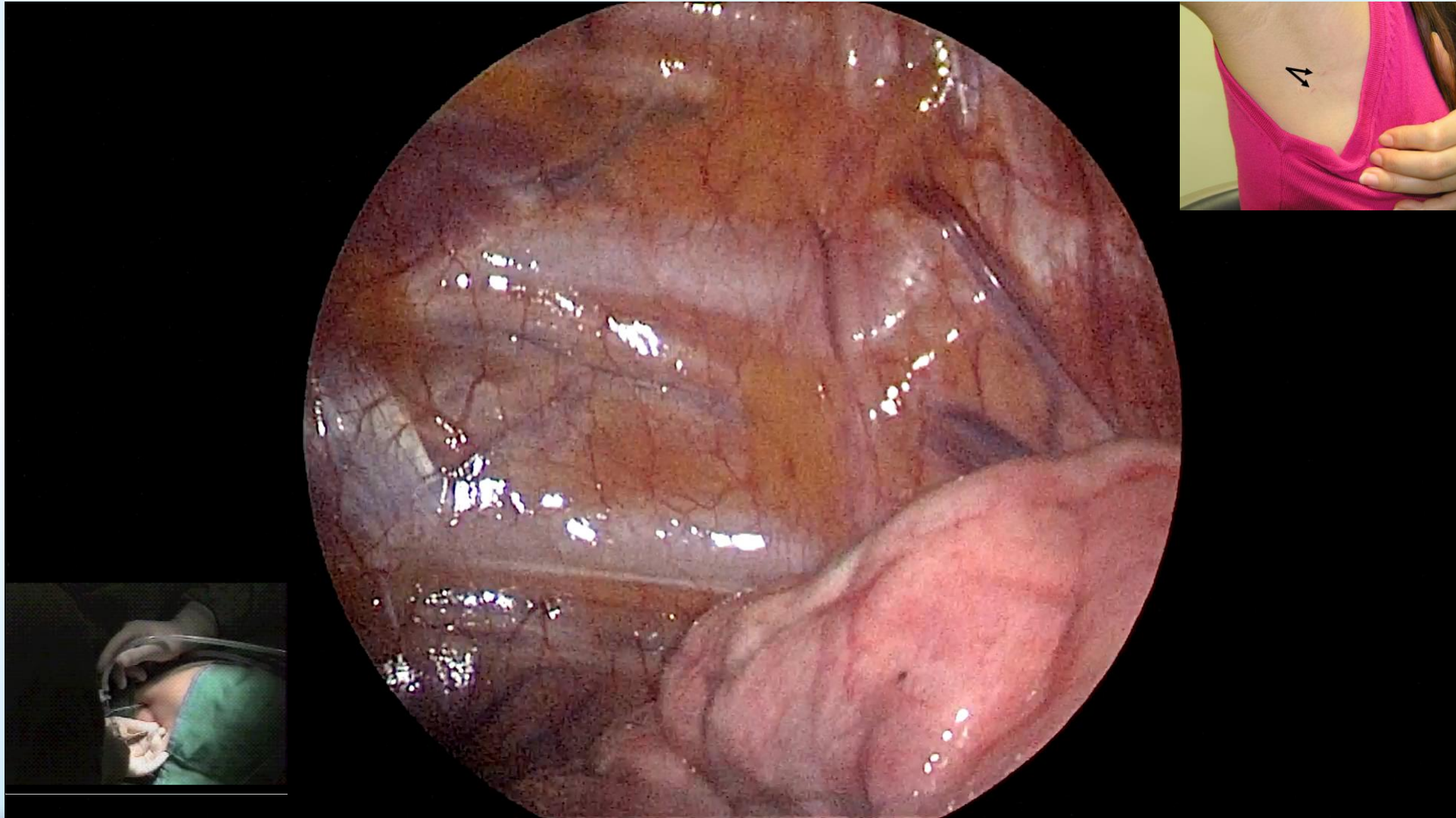
- Gender : 67 male, 82 female
- Age : 26 ± 12 years old (9 – 58 years old)
- Severity of PH :

HDSS 2	10
HDSS 3	43
HDSS 4	96



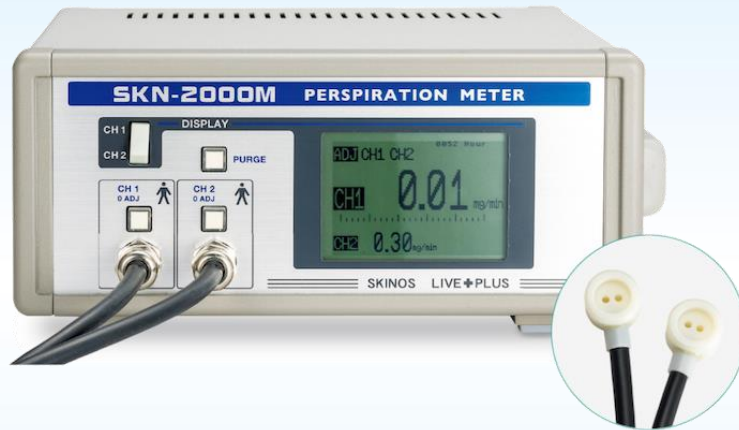


Extended R4 (R4 + G3 partial ablation) ETS



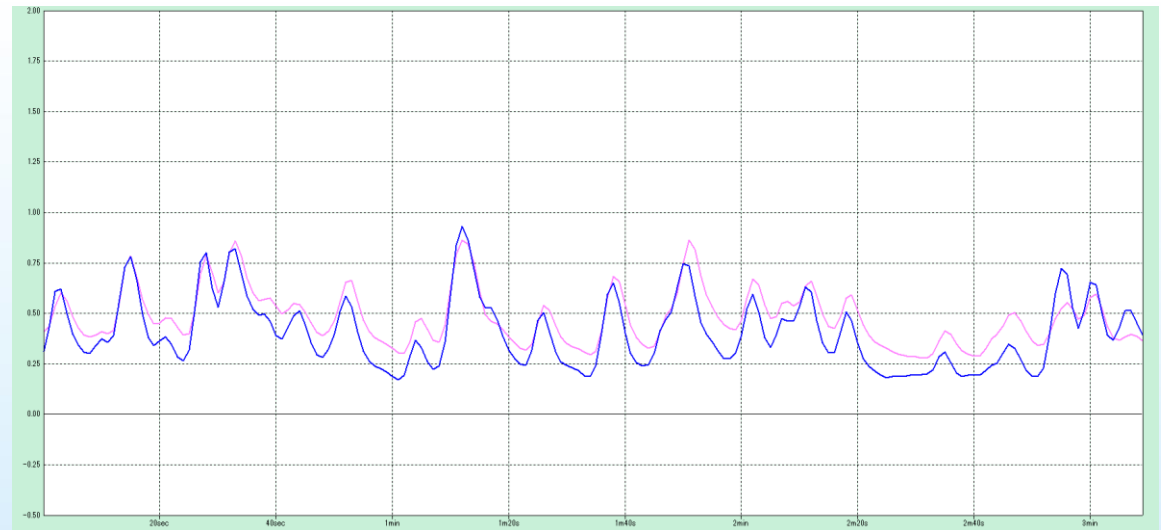


Perspiration Meter



SKN-2000M, SKINOS Co., Ltd, Japan

The amount of sweating is expressed as transepidermal water evaporation rate and the unit of measurement is $\text{mg}/\text{cm}^2/\text{min}$.
Red: dominant hand, blue: opposite hand



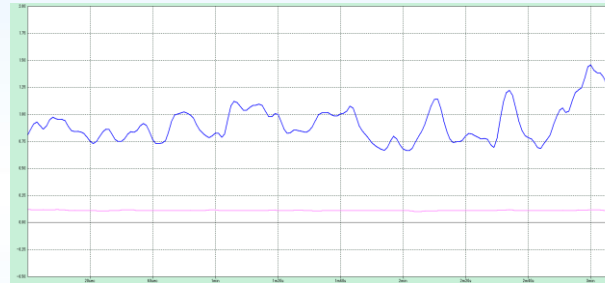
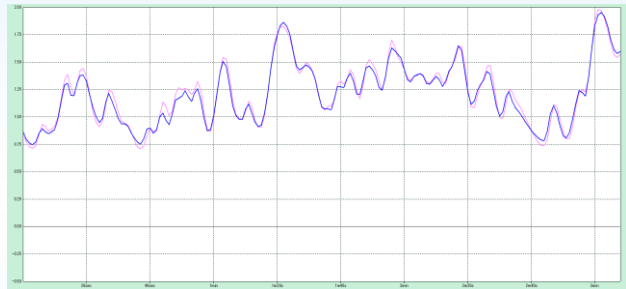


Representative Records of Perspiration Meter before and after Unilateral ETS

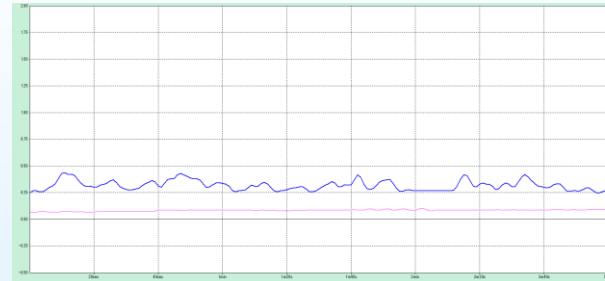
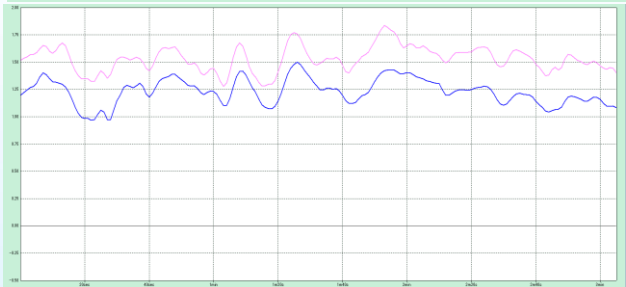
before

after

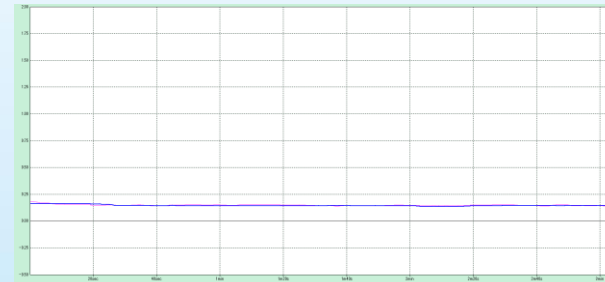
Red: dominant hand, blue: opposite hand



Group 1
dominant hand: dry
opposite hand: wet



Group 2
dominant hand: dry
opposite hand: slightly
~ moderately wet



Group 3
dominant hand: dry
opposite hand: dry





Quantitative Analysis of Sweating of Each Hand before and after Unilateral ETS

	before operation		after operation	
	dominant hand	opposite hand	dominant hand	opposite hand
Group 1 (n=69, 46%)	1.34 ± 0.56	1.36 ± 0.59	0.18 ± 0.11	1.19 ± 0.43
Group 2 (n=39, 26%)	1.11 ± 0.44	1.13 ± 0.47	0.15 ± 0.07	0.68 ± 0.28*
Group 3 (n=41, 28%)	1.12 ± 0.44	1.08 ± 0.49	0.17 ± 0.10	0.16 ± 0.14*
Total	1.21 ± 0.51	1.22 ± 0.54	0.17 ± 0.10	0.77 ± 0.55

* $p < 0.001$ (vs : before operation)

Contol value: 0.19 ± 0.06 mg/cm²/min, n=10)





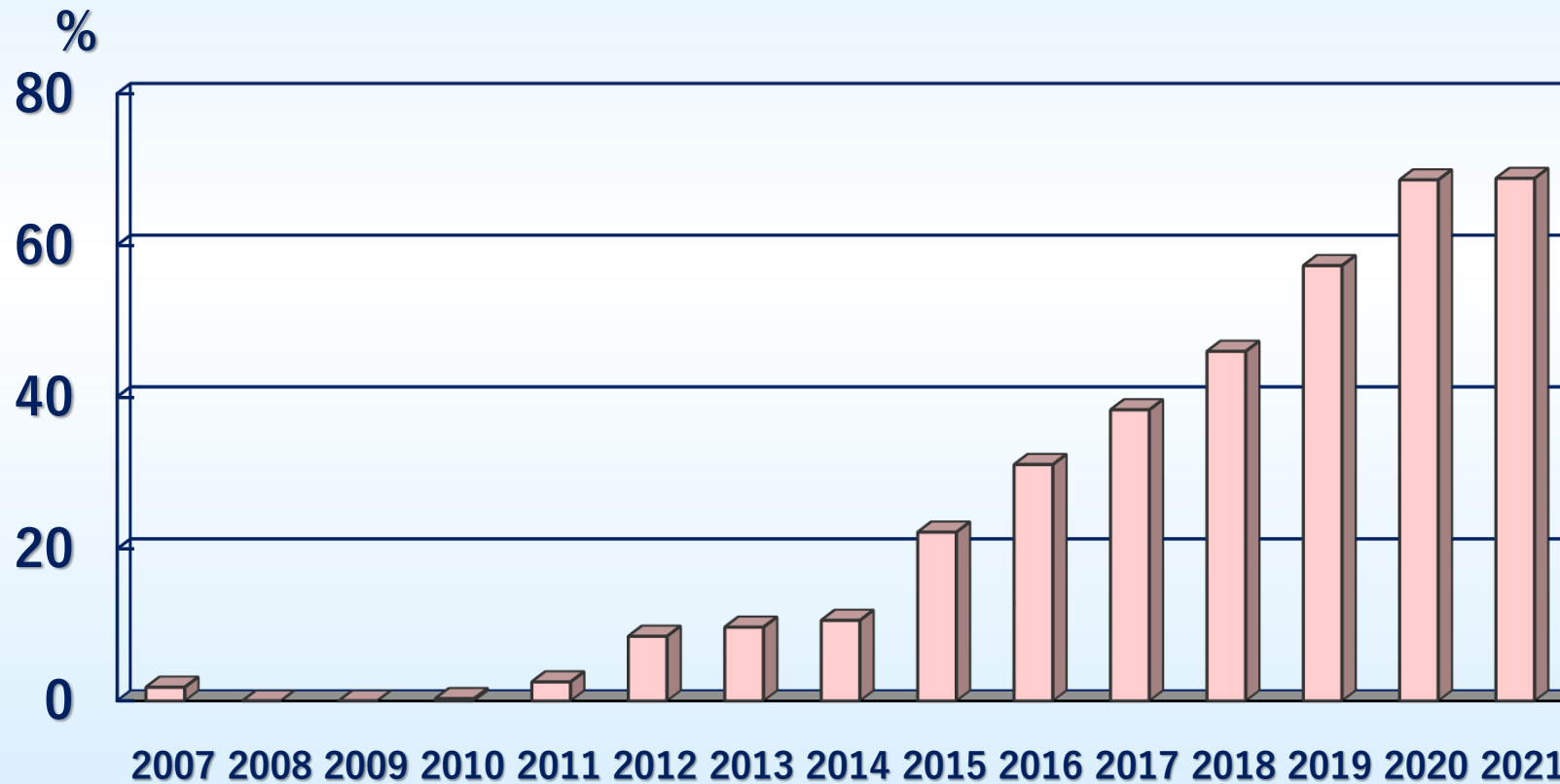
Possible Reasons of Some Relief of the Opposite PH after Unilateral ETS for a Dominant Hand

- By not sweating the dominant hand, patients improve the psychological stress of daily life and reduce the occasions of sweating opposite hand.
- There might be somewhat cross reactivities between bilateral sympathetic nerves.





Proportion of Unilateral ETS in Our Institution



(Oda Clinic, Day Surgery Center, Fukuoka, Japan in October 2007~December 2021)





Present Status of Patients with PH in Our Institution

Patients with PH

(30%)



Bilateral ETS

(1 ~ 2%?)



Regret due to Sever CS

(70%)



Unilateral ETS

more than 1 Year Passed

(20%)



Secondary Opposite ETS

(80%)



No Additional Therapy





Conclusions

Unilateral ETS for the dominant hand in patients with palmar hyperhidrosis improved sweating in the opposite hand at varying levels. The patients may select the secondary ETS for the opposite hand depending on the degrees of residual sweating of the opposite hand and of CS following unilateral ETS.

