

# 액와부 다한증에 대한 R4,5 교감신경 절단술의 효과

— 5예 보고 —

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## Effect of Fourth and Fifth Chain Sympathicotomy in Axillary Hyperhidrosis

— Five case report —

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Thoracoscopic sympatricotomy is effective in treating not only palmar hyperhidrosis, but, also in treating axillary hyperhidrosis. In previous studies in Korea, sympatricotomy was focused on combinations including the 2nd to 4th sympathetic chains (R2,3,4). Using a minimally invasive technique, the results of sympatricotomy of the 4th and 5th chains (R4,5) of five patients, from February to August, 2002, for axillary hyperhidrosis without osmidrosis, were reviewed. All patients had a successful operation, their profuse sweating ceased. Three patients suffered from some degree of compensatory sweating. Among the three patients, only one patient suffered from moderate compensatory sweating over his back and thighs. Thoracoscopic R4,5 sympatricotomy offers a very appealing method in the treatment for axillary hyperhidrosis in patients who have profuse axillary sweating.

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**Key words:** 1. Hyperhidrosis  
2. Sympatricotomy R4,5

### CASE

#### Case 1

This male 27 year old patient visited our outpatient clinic due to symptoms of profuse axillary sweating. The patient had trouble in the office setting and constantly was drenched with sweat. He did not have osmidrosis.

The patient was admitted on the operative day and underwent sympatricotomy of his 3rd, 4th, and 5th chains (R3,4,5). The right side was done with ease and exposure

was made with the help of CO2 insufflation. The left side posed problems due to the position of the aorta. The aorta did not allow visualization of the 4th and 5th chains (R4,5), thus, a third 2mm port was used to retract the aorta during the procedure. Strategically positioning the initial ports may have prevented the need for an additional port. Total operative time was 140 minutes.

The patient was discharged on the day after the operation. The patient visited our outpatient clinic 1 week later. The patient was happy with his operation and showed absence of sweating, but, he developed delayed left pleural effusion,

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which was treated with low dose oral diuretic (lasix 20mg #1 po) for 1 week. His next visit a week later showed complete absorption. The patient had initially developed compensatory sweating in moderate, but, tolerable amounts over his facial, solar, and inguinal areas. Seven months later he had complaints of moderate amounts of compensatory sweating over his back and inguinal areas.

#### Case 2

A female 25 year old patient visited our outpatient clinic with complaints of profuse axillary sweating without odor. The patient constantly had excessive sweating and was daily left with drenched clothing.

The patient was admitted on the operative day and underwent sympathectomy of her 4th and 5th sympathetic chains (R4,5). Both sides were done with ease and with only 2 ports on each side. The two ports on the left side were strategically placed slightly laterally to provide better exposure that may have been compensated by the aorta. Total operative time was 70 minutes.

The patient presented no complications, except for mild compensatory sweating over her back and soles, which disappeared at 5 month follow up.

#### Case 3

This 24 year old female patient was admitted to our outpatient clinic due to symptoms of profuse axillary sweating with negligible osmidrosis. The patient complained of embarrassing episodes of excessive axillary sweating.

The patient was admitted on the operative day and sympathectomy of her 4th and 5th chains were performed (R4,5). Both sides were done with ease and the total operative time was 75 minutes.

The patient was pleased with her operation and presented no compensatory sweating.

#### Case 4

This 19 year old female patient complained of profuse sweating of her axillae, palms, soles, and facial areas. The main complaint was profuse axillary sweating.

The patient was admitted on the operative day and sympathectomy of her 2nd, 3rd, 4th, and 5th chains were

done (R2,3,4,5). Both sides were done with relative ease. The total operative time was 80 minutes.

The patient was happy with her operation. She has no axillary sweating and no facial or palmar sweating, but, has mild compensatory sweating over her back and posterior thighs.

#### Case 5

This 42 year old female patient visited our outpatient clinic with symptoms of profuse axillary sweating without osmidrosis.

The patient was admitted on the operative day and sympathectomy of the 4th and 5th chains (R4,5) were performed. Both sides were done with ease and without complications. The total operative time was 65 minutes.

The patient was happy with her operation and displayed no compensatory sweating and no palmar hyperhidrosis.

## DISCUSSION

Primary hyperhidrosis is a condition where there is excessive sweating of unknown etiology and occurs in 0.6 to 1% of the general population. Familial hyperhidrosis is found in 25 to 33% of patients with primary hyperhidrosis<sup>1,2</sup>.

Treatment of axillary hyperhidrosis includes local antiperspirant solutions, iontophoresis with specially adapted electrodes, and injection with botulinum toxin. Endoscopic thoracic sympathectomy in the treatment of patients with axillary hyperhidrosis has only recently been introduced.

Thoracic sympathectomy was first introduced by Alexander in 1889<sup>3</sup>. Transthoracic sympathectomy was first reported by Atkins in 1949<sup>4</sup>. Sympathectomy with the use of the thoracoscope was first described by Kux in 1951<sup>5</sup>. The procedure was not popular until the 1990s when video assisted thoracoscopic surgery was available.

The success rates of palmar hyperhidrosis are known to approach 99% in the experienced surgeon and for facial hyperhidrosis 75 to 95%. However, satisfactory results for axillary hyperhidrosis are more questionable. Success rates for axillary hyperhidrosis have shown results ranging from 68 to 91%, but, studies for axillary hyperhidrosis are few<sup>6,7</sup>.

In previous studies in Korea, sympathectomy was focused on combinations including the 2nd to 4th sympathetic chains<sup>8</sup> (R2-4). The purpose of this study was to evaluate results of

sympathicotomy of both the 4th and 5th sympathetic chain (R4,5).

From February, 2002 to August, 2002, thoracoscopic sympathectomy was performed in 5 patients with axillary hyperhidrosis. The indication for operation was profuse and excessive sweating of the axillae to the point of psychological discomfort without osmidrosis (foul odor). In all our patients, sympathectomy included the 4th and 5th sympathetic chains (R4,5).

Immediate postoperative satisfactory results were seen in all of our patients, shown by cessation of their profuse sweating. All patients were discharged on the day following the operative procedure. Postoperative pain did not exceed one week. Three patients suffered from some degree of compensatory sweating. Among those three patients, only one patient suffers from moderate compensatory sweating over his back and inguinal areas, the other two patients suffer only a minimal degree of compensatory sweating; back and thighs in one and back and soles in the other patient. Minimal compensatory sweating was defined as noticeable sweating, moderate as tolerable sweating, and severe compensatory sweating defined as debilitating and/or embarrassing amounts of sweating. The presence of compensatory sweating was evaluated during the hot summer months. Dry hands were present in all, but, one patient. That patient had normal palmar sweating. One patient had left pleural effusion which resolved after one week. One patient had a temporary relapse of sweating for a single day (etiology of which is unknown).

Thoracoscopic sympathectomy with the 4th and 5th sym-

pathetic chain (R4,5) may offer an effective and appealing method in the treatment for axillary hyperhidrosis in patients who have profuse axillary sweating without osmidrosis and we presented satisfactory results in all five of our patients. Unfortunately, our cases are few, and further studies with case analyses must be done in the future.

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### =국문 초록=

흉강내시경을 이용한 교감신경 절단술은 수장부 다한증뿐만 아니라 액와부 다한증에 대해서도 효과가 좋다고 알려져 있다. 이전에 R2,3,4 교감신경 절단술의 여러 가지 조합 방법들과 다르게 R4,5 절단 방법 효과를 알아보려고 한다. 액와부 액취증 없이 과도한 땀이 나는 환자들을 대상으로 2002년 2월부터 8월까지 2 mm 흉강내시경 이용하여 5예의 흉강경 교감신경절단술 시행하였다. 모든 환자들 수술 결과에 만족하였고 과도한 땀은 더 이상 없었다. 총 5예 중, 3예에서(60%) 보상성 다한증을 경험하였는데, 그중 1예만(20%) 의미 있게(불편한 정도는 아니지만) 보상성 다한증을 허리 및 허벅지에 보였다. 액와부 다한증에 대한 치료로 R4,5 교감신경절단술은 효과적인 치료 방법으로 생각한다.

중심 단어 : 1. 다한증  
2. 교감신경 절단술