

Endoscopic Thoracic Sympathectomy for Palmar and Axillary Hyperhidrosis; Analysis of Five Years

Palmar ve Aksiller Hiperhidrozis için Endoskopik Torasik Sempatektomi; Beş Yılın Analizi

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Abstract

Hyperhidrosis can cause serious social problems to the patients who live with this condition. Endoscopic thoracic sympathectomy is the preferred treatment modality for hyperhidrosis. This study evaluated the outcomes of endoscopic thoracic sympathectomy in the management of hyperhidrosis. A 5-year retrospective study of adults who underwent endoscopic thoracic sympathectomy at the thoracic surgery department of Eskişehir Osmangazi University Medicine Faculty. There were 20 patients, 13 were males and 7 were females, with a median age of 26.65 years. All of the patients were performed bilateral endoscopic thoracic sympathectomies so forty thoracoscopic procedures were performed with one conversion to open procedure. The mean operation time was 20 min. for one side. All the patients were discharged from the hospital on postoperative second day with a mean hospital stay of 4 days. Postoperative complications occurred as transient unilateral Horner's syndrome in one patient. Complete relief of palmar hyperhidrosis was achieved in all patients. one patient had a recurrent hyperhidrosis after two years of the operation, three patients have compensatory sweat in abdominal site. The outcome was very satisfactory in 15 patients, satisfactory in 4 patient, Only 1 patient with recurrent palmar hyperhidrosis was not satisfied with the outcome. Endoscopic thoracic sympathectomy has effective and satisfactory outcomes for palmar and axillary hyperhidrosis with acceptable complication rate.

Keywords: Hyperhidrosis, palmar, axillary, endoscopic thoracic sympathectomy

Özet

Hiperhidrozis, bu durumu yaşayan kişilerde ciddi sosyal sorunlara neden olabilen bir durumdur. Hiperhidrozis için endoskopik torasik sempatektomi tercih edilen tedavi yöntemidir. Bu çalışmada endoskopik torasik sempatektominin hiperhidrozis tedavisindeki sonuçları değerlendirilmiştir. Eskişehir Osmangazi Üniversitesi Tıp Fakültesi Göğüs Cerrahisi Kliniğinde endoskopik torasik sempatektomi uygulanan yetişkinlerin 5 yıllık retrospektif çalışması ele alındı. Olan 20 hastanın, 13'ü erkek, 7'si kadındı. Ortanca yaş 26.65 idi (16-68). Tüm hastalara bilateral endoskopik torasik sempatektomi yapıldı, bu nedenle kırk torakoskopik işlem uygulandı. Bir hastada açık torakotomi prosedürüne dönüldü. Ortalama ameliyat süresi 20 dakikaydı. Tüm hastalar postoperatif ikinci gün, ortalama 4 gün hastanede yatış ile taburcu edildi. Postoperatif komplikasyonlar, bir hastada geçici tek taraflı Horner sendromu olarak ortaya çıktı. Tüm hastalarda palmar hiperhidrozisinin tamamen düzelmesi sağlandı. Bir hastada ameliyattan iki yıl sonra tekrarlayan hiperhidrozis vardı, üç hastada karın bölgesinde kompensatuar terleme vardı. 15 hastada sonuç çok tatmin ediciydi, 4 hastada tatmin edici, tekrarlayan palmar hiperhidrozisli sadece 1 hasta sonuçtan memnun değildi. Endoskopik torasik sempatektomi palmar ve aksiller hiperhidrozis için kabul edilebilir komplikasyon oranıyla beraber etkili ve tatmin edici sonuçlara sahiptir.

Anahtar Kelimeler: Hiperhidrozis, palmar, aksiller, endoskopik torasik sempatektomi

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1. Introduction

Sweating that exceeds the need for normal thermoregulation of the skin is called hyperhidrosis. Hyperhidrosis most commonly occurs spontaneously, or in response to temperature and emotional changes, or as a result of increased sympathetic activity (1,10) The condition affects between 0.6% to 1.1% of the population. When severe, it can effect to one's social and professional life. For severe palmar hyperhidrosis, conservative therapy is usually unsatisfactory. Sympathectomy with open thoracotomy was performed for treatment as early procedure but now endoscopic thoracic sympathectomy (ETS) has been considered an effective treatment for palmar and axillary hyperhidrosis. Many reports have shown good results for ETS. Many different procedures have been used for ETS: simple resection of the sympathetic ganglion, transection or ablation with cautery, or simple clipping of the sympathetic chain with titanium clips (2). This study is a retrospective review of 20 consecutive patients undergoing thoracoscopic sympathectomy at our institution.

2. Materials and Methods

All of the patients were intubated with double-lumen endotracheal intubation. The aim of the double luman intubation is to get the lung deflation on operative side. Positioning of the patient was important point in improving the technique. All procedures are performed with the patient in lateral decubitus with elevation of the trunk and upper limbs in an abducted position, taking care of vascular structures and brachial plexus. Two separate 3-mm incisions are then made. One of them is on the 3rd intercostal space placed in the hairy region of the axillae transected with the mid axillary line and the other is 5 th intercostal space that transected with midaxillary line. Two thoracoscopic ports were inserted. We used upper side port for working channel and the other port was used for camera. The pleural space is then inspected using a 0-degree endoscope. No CO2 insufflation was used in our cases. The deflation of the lung on our operative side was

adequate for the visualization of the pleural cavity apex and the sympathetic chain. The ribs were carefully identified. Appropriate segment of the sympathetic chain is visualized and the overlying parietal pleura incised. Using monopolar cautery the sympathetic ganglia at T2, T3, or T4 are isolated and individually excised. T2 and T3 ganglion were ablated with facial symptoms and palmar hyperhidrosis, T3 ganglion was ablated alone for palmar symptoms, and the T3-T4 ganglion for patients with palmar and axillary hyperhidrosis. . After completing the isolation and ablation of sympathetic ganglia and control of bleeding, we inserted 28-F chest tube for under water seal. Then the procedure was repeated on the other side. The aim of inserting the chest tubes on both sides is to avoid the pneumothorax and subcutaneous emphysema on postoperative course. All chest tubes were taken out from the patients on postoperative first day. No residual pneumothoraxes and no prolonged air leaks were observed in our patients.

3. Results

Twenty patients with palmar, axillary, facial hyperhidrosis underwent video-assisted thoracoscopic sympathectomy at our institution between January 2015 and January 2020. Patient demographics included 13 males and 7 females, mean age 26.65 years old (range 16 to 68 years old). Complications during the operation were rare. Only 1 operation was complicated by active bleeding of more than 100 mL from injury to an intercostal vein and converted to open procedure to control the bleeding. The effect of ETS on the palmar and axillary hyperhidrosis was observed in early periods of postoperative course. Upon recovering consciousness in the intensive care unit, the hands and axillary regions were warm and dry in all patients in early periods of postoperative course stages of the operation. One patient developed a mild, transient Horner's syndrome (ptosis). This condition has resolved after 8 months of the operation. One patient had a palmar hyperhidrosis again after two years of the operation, Three patients had an abdominal sweating increase as compensatory sweating.

Table 1. Distribution of Sweating

Distribution of Sweating	Number of patients (n 20)
Palmar	6
Axilla	3
Palmar and axilla	9
Palmar and Face/scalp	2

4. Discussion

Hyperhidrosis is not a life-threatening disease but significantly interferes with person's social activities and relationships. This condition may lead psychological problems. With the improvement of video-assisted thoracoscopy technique and the spread of this method with its safety, thoracoscopic sympathectomy has acquired an important position in the treatment of this disease. The therapeutic options for the management of hyperhidrosis included topical agents, absorbing powders, and anticholinergic drugs are not sufficient for treatment. Other methods of treatment have included iontophoresis, botulinum toxin, and percutaneous phenol block. These methods seldom give sufficient relief, their effects are usually transient(3). Thoracic sympathectomy for hyperhidrosis was first described in the 1920s by Kotzareff(4). Thoracic sympathectomy is now an established treatment for palmar hyperhidrosis. With the introduction of high resolution videoendoscopy, endoscopic thoracic sympathectomy has become the treatment of choice compared with the open procedure(5,6) The endoscopic technique is associated with less postoperative morbidity and better cosmetic scarring when compared with open procedure. Görür et al. (7) stated that ETS with two ports can be performed in confidence with low operation morbidity. In their study, they performed 530 ETS surgery and reported that postoperative patient satisfaction rates were quite high. In our study, two ports were used as a route. Erdik et al. (8) reported that 349 ETS operations performed using two ports were safe and successful in the treatment of hyperhidrosis and vasospastic vascular diseases.

The most common complication of endoscopic thoracic sympathectomy is compensatory sweating. There are publications reporting the incidence varying between 3% and 98%. (9). This broad distribution depends on the heterogeneous patient group, the variable climate and the difference of surgical procedures. In a study of compen-

satory sweating zones Lin and Fang (10), the back, lower extremity, abdomen and axillary region, respectively. In a study by Görür et al (7), the back, chest, lower extremity, abdomen, head and genital area were reported. In our study, compensatory sweating was found in three patients as abdominal sweating.

Horner syndrome is the most serious complication of endoscopic thoracic sympathectomy and it is a serious and annoying condition to be detected in the early postoperative period. Temporary or permanent Horner syndrome has been reported in 5% and below in various studies, with variability after endoscopic thoracic sympathectomy (10). In our study one patient had a transient and mild Horner syndrome and resolved after 8 months of the surgery.

Gossot et al (11) reported 6.6% recurrence in sympathectomies performed due to hand sweating. The recurrence rate varies according to the surgical technique and the segment removed. In our study, we found that one patient had partial temporary hand sweating after two weeks of the operation and resolved at third month control, one patient had serious hand sweatings after two years of the operation.

The mean length of stay in hospital in our series was 4 days similar to the average stay reported in the literature (3).

In some series, after completing operation, 14 or 16-F catheter is used for air removal, using a water seal system during pulmonary reexpansion without chest tube insertion. But in our series, all patients were placed chest tube to avoid pneumothorax and subcutaneous emphysema.

In conclusion, we believe that in selected patients, ETS with two ports can be applied aesthetically and safely with high postoperative satisfaction rate in the treatment of palmar and axillary sweating. Our experience suggests that ETS provides a definitive treatment of palmar and axillary hyperhidrosis if other options have already been tested without satisfactory results.

1. Quraishy MS, Giddings AEB. Treating hyperhidrosis. *BMJ* 1993;306:122–2.
2. Lin TS, Fang HY. Transthoracic endoscopic sympathectomy in the treatment of palmar hyperhidrosis—with emphasis on peri-operative management (1360 case analyses). *Surg Neurol* 1999;52:453–73
2. Leseche G, Castier Y, Thabut G, et al. Endoscopic transthoracic sympathectomy for upper limb hyperhidrosis: limited sympathectomy does not reduce postoperative compensatory sweating. *J Vasc Surg* 2003;37:124–8.
3. Moran KT, Brady MP. Surgical management of primary hyperhidrosis. *Br J Surg* 1991;78:279–835.
4. White JC, Smithwick RH, Allen AW, et al. A new muscle splitting incision for resection of the upper thoracic sympathetic ganglia. *Surg Gynecol Obstet* 1933;56:651–76.
5. Byrne J, Walsh TN, Hederman WP. Endoscopic transthoracic electrocautery of sympathetic chain for palmar and axillary hyperhidrosis. *Br J Surg* 1990;77:1046–9.
6. Kopelman D, Hasmonai M, Ehrenreich M, et al. Upper dorsal thoracoscopic sympathectomy for palmar hyperhidrosis: improved intermediate-term results. *J Vasc Surg* 1996;24:194–8.
Görür R, Yıldızhan A, Türüt H, Şen H, Yiyit N, Candaş F, et al. Analysis of 530 sympathectomy operations performed for palmar hyperhidrosis and long-term results *Turk Gogus Kalp Damar Cer dergisi* 2009;17:28–32.
8. Erdik O, Karasu S, Haberal İ, Yıldızhan A, Ayata A, Yıldırım A et al. Surgical results of 349 thoracoscopic sympathectomies *Turk Gogus Kalp Damar Cer dergisi* 2006;14:290–4.
9. Lyra Rde M, Campos JR, Kang DW, Loureiro Mde P, Furian MB, Costa MG, et al. Guidelines for the prevention, diagnosis and treatment of compensatory hyperhidrosis. *J Bras Pneumol* 2008;34:967–77.
10. Lin TS, Fang HY. Transthoracic endoscopic sympathectomy in the treatment of palmar hyperhidrosis—with emphasis on perioperative management (1,360 case analyses). *Surg Neurol* 1999;52:453–7.
11. Gossot D, Galetta D, Pascal A, Debrosse D, Caliandro R, Girard P, et al. Long-term results of endoscopic thoracic sympathectomy for upper limb hyperhidrosis. *Ann Thorac Surg* 2003;75:1075–9.