

Thoracoscopic Sympathectomy for Primary Palmar Hyperhidrosis: The Penang Hospital Experience

B H Gooi, FRCSI, S Manjit, FRCSEd, N Premnath, FRCSEd, Department of Surgery, Penang Hospital, 10990 Penang

Summary

Background: Primary palmar hyperhidrosis is a functionally and socially disabling condition. The choice of treatment is controversial.

Objective: To examine the clinical presentation of primary palmar hyperhidrosis and the results of treatment with thoracoscopic sympathectomy in a local setting.

Materials and Methods: A retrospective study of 7 patients involving 10 sympathectomies between October 1997 and October 2000 was undertaken.

Results: The duration of anaesthesia ranged from 55 to 130 minutes with the majority being 1 hour. The immediate results were good, with all operated limbs dry soon after operation. There was no mortality or serious morbidity in this study. All were satisfied with the results of surgery.

Conclusions: Primary palmar hyperhidrosis is not uncommon but rather underdiagnosed. Thoracoscopic sympathectomy is an effective treatment with minimal complications.

Key Words: Thoracoscopy, Sympathectomy, Hyperhidrosis

Introduction

Primary palmar hyperhidrosis is pathological excessive perspiration of the palms of unknown aetiology. Other sites such as the face, axilla, groin, back, leg and foot may also be involved. It is a source of severe emotional, occupational and social handicap to the patients. Symptoms usually appear at puberty but may date back to early childhood and usually persist throughout adult life. The management of hyperhidrosis remains

controversial. Medical treatment is effective only in the mildest cases. Non-operative approaches include application of topical agents such as aluminium chloride, glutaraldehyde and tannic acid, iontophoresis, systemic anticholinergic medication and psychotherapy. Operative treatment includes excision of axillary sweat glands, suction assisted lipolysis and sympathectomy¹. Sympathectomy remains the cornerstone of surgical management. Various

This article was accepted: 9 November 2001

Corresponding Author: N Premnath, Department of Surgery, Penang Hospital, 10990 Penang

operative approaches have been described including the cervical or supraclavicular approach, the posterior approach, the transaxillary approach and thoracoscopic sympathectomy^{2,3}.

Objectives

The aims of this study were to examine the clinical presentation of primary palmar hyperhidrosis and the results of treatment with thoracoscopic sympathectomy in local settings, with particular reference to the effectiveness of treatment, complications of surgery, duration of hospital stay, patient satisfaction and cosmetic results.

Materials and Methods

A retrospective study of 7 patients involving 10 sympathectomies between October 1997 and October 2000 was undertaken. Data were retrieved from the admission records, outpatient follow-up records and telephone interviews, using questionnaires. The data included age, sex, reasons for referral, duration of operation, complications, length of hospital stay, effectiveness of surgery, cosmetic results and patient satisfaction.

All surgeries were performed by the same consultant surgeon in Penang Hospital. The first thoracoscopic sympathectomy was introduced in October 1997 and throughout the period of 3 years, a total of 10 sympathectomies were carried out on 7 patients. The age of patients in this study ranged from 15 to 42 years. The median age was 21 years. They consisted of 5 males and 2 females. 4 patients were referred from Neurology, one patient by Dermatology and one patient from Outpatient Department after failed medical treatment. One of the patients was introduced by another patient who had similar operation done. All of them had the problem of hyperhidrosis since early childhood and 2 of them had strong family history of Primary Palmar Hyperhidrosis.

All of them suffered from palmar as well as axillary and plantar hyperhidrosis. There was no significant past medical or surgical history in all patients. They were carefully counseled on the potential complications of the procedure prior to the surgery.

Operation Technique

The operation is performed under single lung anaesthesia using a double lumen endotracheal tube. The patient is placed in the lateral position with the arm abducted on the operative side. An artificial pneumothorax is created by occluding the ipsilateral lumen of the endotracheal tube and introducing ports. Two ports are inserted, one in the 4th intercostal space at the midaxillary line, and the other one in the 5th intercostal space in front of the anterior axillary line. Via the thoracoscope, the sympathetic chain is visualized beneath parietal pleura, running down over the necks of the second, third, fourth and fifth ribs. The 2nd, 3rd and sometimes 4th sympathetic ganglia are identified and cauterized with the use of diathermy. Following this, the lung is reinflated and the incisions are closed after routine insertion of 28F chest tube through the anterior port.

Results

The duration of anaesthesia ranged from 55 to 130 minutes with the majority being about an hour. The immediate results were good. All operated limbs were dry soon after operation. There was no mortality or serious morbidity in the study. Two patients developed mild pneumothorax on post operative CXR but resolved after a day. In one patient, the operation had to be converted to open sympathectomy in order to stop bleeding from a pleural vessel. The duration of hospital stay varied from 3 to 6 days, with the majority of them being discharged on the second postoperative day. They were followed up one week after discharge, and then 3 months later if there were no complications. 3 patients developed compensatory hyperhidrosis during

Table I
Patients' Perception of the Effectiveness of Surgery

Effectiveness Soon after Surgery	Number of Sympathectomies
Very much improved	8
Moderately improved	2
Slightly improved	0
Same	0
Worse	0
Total	10

Table II
Complications of Surgery

Complication	Number of Sympathectomies
Compensatory Hyperhidrosis	3
Pneumothorax	2
Haemorrhage	1
Horners' syndrome	0
Neuralgia	0
Wound infection	0
Recurrence	0
Total	6

subsequent follow up. Two patients claimed to develop increased sweating over the face and another patient had increased sweating over the back. No serious complications such as Horner's syndrome, neuralgia and wound infection occurred. Patients were also assessed for the effectiveness of surgery during follow up. There was no recurrence in our series. No patients expressed dissatisfaction in terms of cosmesis. All were satisfied with the results of surgery.

Discussion

Thoroscopic sympathectomy is a minimally invasive procedure with several advantages over open surgery in the treatment of hyperhidrosis

palmaris. It is technically not difficult and provides excellent visualization of the sympathetic chain. Postoperative pain is minimized and the duration of hospital stay is reduced to a minimum. A successful operative treatment of hyperhidrosis is one in which the sweating is permanently abolished without any major and persistent complication resulting from the surgery.

Most of the immediate complications are reversible and self-limiting. The major complication of this operation is Horner's Syndrome. It is irreversible, permanent and causes severe functional disturbance to the patient. The incidence in the literature varies between 0 and 12%^{4,5}. The incidence in this series was 0. Relapse following surgery is possible. Both late complete relapse and the return of mild sweating have been reported. The latter is often considered a favourable end result because absolutely dry hands may require the use of moisturizer. In this series, there was no relapse and only in one patient was there mild sweating after 3 months on follow up. Compensatory sweating is unpredictable and has been reported in 1/4 to 2/3 of the cases and usually starts within the first 6 months after surgery^{6,8}. In some it may subside spontaneously, in others it persists. Three of the patients in this study developed compensatory hyperhidrosis. Two of the patients experienced increased sweating following surgery on the opposite side of the face and the other one on the back. However they were not adversely affected.

All patients were satisfied with the surgery and no serious complication was observed in the series. The data presented has shown that thoroscopic sympathectomy is a rewarding therapeutic modality for hyperhidrosis. Thoroscopic sympathectomy produces good results with minimal pain, short hospital stay, good cosmesis and minimal complications. Thoroscopic sympathectomy is thus a feasible and safe procedure to be performed for hyperhidrosis palmaris in centres with adequate facilities and expertise.

References

1. KT Moran, MP Brady. Surgical management of primary hyperhidrosis. *Br J Surg* 1991; 78(3): 279-83.
2. Gossot D, *et al.* Thoracoscopic sympathectomy for upper limb hyperhidrosis: looking for the right operation. *Ann Thorac Surg* 1997; 64: 975.
3. Harris JP, Satchel PM, May J. Upper extremity sympathectomy. Rutherford ed. *Vascular Surgery*, Vol. 1. Philadelphia: W.B. Saunders, 1995: 1008-16.
4. S Erak, K Sieunarine, M Goodman. Endoscopic Thoracic Sympathectomy For Primary Palmar Hyperhidrosis: Intermediate term results. *Aust N J Surg*, 1999; 69: 60-64.
5. M Hashmonai, D Kopelman, O Kein. Upper thoracic sympathectomy for primary palmar hyperhidrosis: long term follow up. *Br J Surg* 1992; 1 79(3): 268-71.
6. J Byrne, TN Walsh, WP Hederman. Endoscopic transthoracic electrocautery of the sympathetic chain for palmar and axillary hyperhidrosis. *Br J Surg* 1990; 77(9): 1046-49.
7. Shacor D, Jedeikin R, Olsfanger D, Endahan J, Sivak G, Freunk U. Endoscopic transthoracic sympathectomy in the treatment of primary hyperhidrosis. *Ar Surg* 1994; 129: 241-44.
8. John P Harris, Geoffrey H White, James May. Rationale and Technique of Thoracic Sympathectomy in *Vascular Surgery* 1999; 22(3): 273-81.