Outpatient thoracoscopic sympathicotomy for axillary osmidrosis

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Abstract

Objective: We evaluate the clinical results of thoracoscopic T3-4 sympathicotomy for axillary osmidrosis. Methods: From July 1995 to June 2001, 262 patients (208 females, 54 males) with axillary osmidrosis have been treated by thoracoscopic T3-4 sympathicotomy. All patients were followed up for a minimum of 10 months (average 42 months). The patients were evaluated by telephone or mail questionnaires. The results were categorized as excellent, good, fair, or poor. Results: There were no surgical mortalities and major complications in this series. The surgical outcomes were excellent in 144 (55%) patients, good in 39 (15%) patients, fair in 55 (21%) patients, and poor in 24 (9%) patients. Compensatory sweating developed in 171 (65%) patients. Dry hands developed in 40 (15%) patients. Conclusions: Thoracoscopic T3-4 sympathicotomy is a safe, fast, cosmetic, and effective method in treating axillary osmidrosis.

Keywords: Thoracoscopic sympathicotomy; Axillary osmidrosis

1. Introduction

Axillary osmidrosis is a troublesome and distressing problem that causes a serious personal and social handicap, especially in an Asian society. Topical deodorants and antiperspirants may be ineffectual. Systemic anticholinergic medications may cause excessive dryness and drowsiness. Currently, local surgery is the treatment of choice for axillary osmidrosis and many techniques have been described since 1962 [1–6]. But all these techniques have the concerns of wound-healing problems, prolonged uncomfortable compressive dressing, long convalescent time, and sometimes unsightly scars. The role of thoracoscopic sympathicotomy in treating palmar and axillary hyperhidrosis has been accepted worldwide since the early 1990s [7–9]. More than 1400 thoracoscopic sympathicotomies have been performed for palmar or axillary hyperhidrosis in our hospital since 1991. In our early experience, we observed that the patients with axillary hyperhidrosis and osmidrosis got excellent results about the malodor elimination after thoracoscopic sympathicotomy.

So we have expanded our indications for performing thoracoscopic sympathicotomy to treat axillary osmidrosis since 1995. The purpose of this retrospective study was to evaluate the effect and complication of thoracoscopic sympathicotomy for axillary osmidrosis.

2. Patients and methods

2.1. Patients

From July 1995 to June 2001, 262 consecutive patients were operated on for bilateral axillary osmidrosis. A total of 521 thoracoscopic sympathicotomies were performed in these 262 patients (208 females, 54 males, average age 24.3 years, range 13–47 years). Three sides of sympathicotomies could not be performed due to severe pleural adhesion. All operations were carried out at an outpatient facility, with general anesthesia. The mean operative time was 51 min (range 35–64 min). The mean duration of stay in patients undergoing this procedure was 3.2 h (range 2.8–4 h).

The surgical outcomes were evaluated first by direct patient interview in the outpatient clinic 1 week after the
operation and then by telephone or mail questionnaires. Although no direct interviews may introduce a certain bias in reliability and validity, the strategy of combining mail and telephone questionnaires administration is also an adequate procedure to obtain information of good quality [10]. All patients had been followed up for at least 10 months (mean 42 months, range 10–82 months). The patients were asked to describe the results of malodor elimination, any postoperative complications, distribution of compensatory sweating, and the condition of dry hands. The outcomes were categorized as excellent (neither the patient nor the persons close by are aware of malodor), good (the patient has marked improvement and only mild malodor sometimes), fair (the patient has mild improvement but can be aware of malodor sometimes during daily activity), or poor (the patient has almost no improvement and not only the patient but also the persons nearby are aware of malodor).

2.2. Surgical techniques

The operation is performed on an outpatient basis. General anesthesia and a single-lumen endotracheal intubation are used for the procedure. The patient is positioned in a Fowler’s position, with both arms abducted 90°. The skin is prepared and draped to expose both axillary regions. We routinely begin on the right side. A small incision (about 1 cm) is made just lateral to the pectoris major in the third intercostal space in the anterior axillary line. The soft tissue is dissected until the rib is exposed. The anesthesiologist disconnects the ventilator and places suction on both axillary regions. A trocar (10 mm) is inserted into the pleural cavity through the third intercostal space. The thoracoscope (Circon-Cabot, Langhome, Tuttingler, Germany) is introduced into the pleural cavity. After a general inspection and identifying the second rib, the coagulation electrocautery probe is introduced through the side-hole of the thoracoscope and T3-4 sympathectomies are performed (Fig. 1). During the apneic period, the anesthesiologist will perform pulmonary inflation once the patient’s oxygen saturation decrease to 90%. But the sympathectomies can usually be accomplished in 3 min. Then the thoracoscope is withdrawn, and a 10F silicone thoracostomy tube is inserted into the pleural cavity through the trocar site. The proximal end of the silicone tube is placed into a small cup of saline solution to form a modified underwater seal device. The lung is reinflated, and air bubbles indicate that the intrathoracic air has been evacuated successfully. The anesthesiologist provides an airway pressure of 20 cm H2O. When no air bubbles are seen in the water, the silicone tube is withdrawn from the pleural cavity. The skin wound is closed with one subcutaneous stitch. The same procedure is performed on the opposite side. Heart rate, blood pressure, and peripheral oxygen saturation are monitored throughout the operation. All patients are discharged on the day of operation.

3. Results

There were no surgical mortalities and major complications in this series. All patients were successfully contacted for follow-up. The surgical outcomes were excellent in 144 (55%) patients, good in 39 (15%) patients, fair in 55 (21%) patients, and poor in 24 (9%) patients. Compensatory sweating developed in 171 (65%) patients. Dry hands developed in 40 (15%) patients. There were no wound problems during follow-up. There were no pneumo- or hemothoraces developed in this series. The surgical results are summarized in Table 1.

Table 1
Surgical results after thoracoscopic sympathicotomy of axillary osmidrosis

<table>
<thead>
<tr>
<th>Total number of patients</th>
<th>262 (208 females, 54 males)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of operations</td>
<td>521</td>
</tr>
<tr>
<td>Follow up months (average)</td>
<td>10–82 (42)</td>
</tr>
<tr>
<td>Age range (mean)</td>
<td>13–47 (24.3)</td>
</tr>
<tr>
<td>Results</td>
<td></td>
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<tr>
<td>Excellent</td>
<td>144 (55%)</td>
</tr>
<tr>
<td>Good</td>
<td>39 (15%)</td>
</tr>
<tr>
<td>Fair</td>
<td>55 (21%)</td>
</tr>
<tr>
<td>Poor</td>
<td>24 (9%)</td>
</tr>
<tr>
<td>Compensatory sweating</td>
<td>171 (65%)</td>
</tr>
<tr>
<td>Dry hands</td>
<td>40 (15%)</td>
</tr>
<tr>
<td>Wound complication</td>
<td>0</td>
</tr>
</tbody>
</table>
4. Discussion

Axillary osmidrosis is a different entity from axillary hyperhidrosis. In this series, all the patients seek treatment for axillary osmidrosis. While axillary osmidrosis is usually associated with hyperhidrosis, the sweating is difficult to measure precisely by quantitative analysis preoperatively or postoperatively.

There are two types of sweat glands in the axilla, the apocrine, and eccrine glands. The apocrine glands play a more important role in osmidrosis. The unmyelinated adrenergic and cholinergic nerves of the sympathetic nervous system can be found near the apocrine gland [11]. Although the importance of neural stimulation in gland function remains uncertain, we think sympathicotomy plays a role in diminishing or blocking the gland secretion. Another possible mechanism of sympathicotomy for axillary osmidrosis may be related to the bacterial contamination [12], which is considered as the primary cause for osmidrosis first. Reduction of sweating and dryness of the axilla after sympathicotomy will definitely reduce the local bacterial decomposition.

Compensative sweating is not uncommon after T3-4 sympathicotomy. However, these conditions are not as severe as after T2 sympathicotomy for palmar hyperhidrosis. All our patients with these sequelae could tolerate well. But we always inform the patients about these possible sequelae before the subsequent sympathicotomy. Dry hands are noted in 40 (15%) of our patients after T3-4 sympathicotomy. We are undergoing a prospective study for this problem by performing T4-limited sympathicotomy. The preliminary results are promising (unpublished).

To treat osmidrosis, numerous surgical methods have been described [2–6], such as excision and repair of the axillary hair bearing area, undermining of skin with removal of sweat gland and subcutaneous fat, and liposuction. However, complications related to impaired blood supply of the skin flaps such as skin necrosis, hematoma, and seroma formation were not uncommon and most importantly, visible scarring of the axilla was inevitable. Another problem was the long operative and convalescent time. The advantages of thoracoscopic sympathicotomy for the treatment of axillary osmidrosis include an acceptable successful rate, rapid operative and recovery time, highly cosmetic effect, and minimal complication rate.

Many surgical approaches have been described for performance of a sympathicotomy. The transaxillary mini-thoracotomy has been the most common open approach because of the superior visualization of the sympathetic chain and the ability to perform a more extensive sympathicotomy. But open sympathicotomy is often accompanied by a considerably high morbidity. Thoracoscopic sympathicotomy increases surgical safety and the ease of operation without reducing the efficacy of the procedure [13,14].

The modified underwater seal device is a very helpful and economic design, as previously reported [7]. Chest tube drains became unnecessary. There have been no pneumo- or hemo-thoraces after the described procedure.

The incidence of axillary osmidrosis is unknown. In our group of patients, there is a strong predominance of young females, which is similar to previous report [5]. In this group of patients, they highly ask about the cosmetic effect and rapid convalescent time. Thoracoscopic sympathicotomy is very fit for these requirements with effectiveness.

In summary, we believe that thoracoscopic T3-4 sympathicotomy is a safe, fast, cosmetic, and effective method for treating axillary osmidrosis.

References