

type-A toxin are unsatisfactory. Surgical sympathectomy is at present the only long-term curative measure available in these cases.<sup>2,4</sup> The thoracoscopic approach has afforded an outpatient procedure in which both right and left sides can be approached in 1 sitting, compared with prior open procedures that necessitated unilateral surgery with in-patient hospitalization for pain control and tube thoracostomy. Whether the surgeon chooses sympathectomy or sympathicotomy, whether he or she chooses clipping, transection, or resection, and whether the level is T2 or T3, there is generally overwhelming success in treating palmar hyperhidrosis with any technique at any of these levels. (Occasional instances of failure do occur at levels below T2.)

One expected side effect of the procedure that must be carefully explained preoperatively is compensatory sweating, usually involving the truncal regions, most often the back. We have been gratified that very few of our patients have had major difficulties in coping with the compensatory sweating. Probably our very strict selection criteria for the surgery have been of help in this regard. The classic patient characteristics that generally predict extreme satisfaction with sympathectomy include: 1) massive palmar sweating to the point of dripping, 2) plantar sweating that approximates the severity of palmar sweating, 3) onset in early childhood or puberty, and 4) provocation of palmar sweating with the application of ordinary hand lotion.<sup>4,11</sup> The disorder is familial in approximately 50% of patients. It is the rare patient who would choose his preoperative state (of dripping sweat from the hands) over compensatory sweating. Also, as mentioned previously, it may be that sympathicotomy, which requires less dissection than sympathectomy and spares the ganglion itself, may lessen the chance of severe compensatory sweating.

Ready access to the upper sympathetic chain is a requisite for unimpeded thoracoscopic sympathectomy. In the right hemithorax, the presence of an azygous lobe with its associated membrane and dangling azygous vein may impede viewing the upper portion of the sympathetic chain, particularly in the regions of T2 and T3. Penetration of the azygous web is usually necessary

to expose the 2nd costal head for a T2 sympathicotomy, although the sympathetic chain at T2 can in some instances be seen outside the web margins (as in Patient 4).

The 4 cases presented here exhibit the anatomic anomaly of the azygous lobe and web, a condition which in itself has no clinical sequelae but must be recognized as posing particular difficulties when surgery of the right superior sulcus is undertaken, particularly via the thoracoscopic route.

## References

1. Thorek P, editor. Thorax: lungs (pulmones) in anatomy in surgery. 2nd ed. Philadelphia: JB Lippincott & Co.; 1962. p. 288-9.
2. Baumgartner FJ, Toh Y. Severe hyperhidrosis: clinical features and current thoracoscopic surgical management. *Ann Thorac Surg* 2003;76(6):1878-83.
3. Cohen Z, Levi I, Pinski I, Mares AJ. Thoracoscopic upper thoracic sympathectomy for primary palmar hyperhidrosis—the combined paediatric, adolescents and adult experience. *Eur J Surg Suppl* 1998;(580):5-8.
4. Baumgartner F. Compensatory hyperhidrosis after thoracoscopic sympathectomy. *Ann Thorac Surg* 2005;80(3):1161.
5. Hirose S, Cowles RA. Images in clinical medicine. Azygous lobe. *N Engl J Med* 2007;356(20):2082.
6. Gorenstein LA, Putnam JB Jr. Resection of pulmonary metastasis to the azygous lobe from a malignant fibrous histiocytoma. *Chest* 1992;101(3):863-5.
7. Asai K, Urabe N, Takeichi H. Spontaneous pneumothorax and a coexistent azygos lobe. *Jpn J Thorac Cardiovasc Surg* 2005;53(11):604-6.
8. Smith J, Karthik S, Thorpe JA. Pulmonary azygous lobe: a potential obstacle during thoracoscopic sympathectomy. *Eur J Cardiothorac Surg* 2004;25(1):137.
9. Gill AJ, Cavanagh SP, Gough MJ. The azygos lobe: an anatomical variant encountered during thoracoscopic sympathectomy. *Eur J Vasc Endovasc Surg* 2004;28(2):223-4.
10. Reisfeld R. Azygos lobe in endoscopic thoracic sympathectomy for hyperhidrosis. *Surg Endosc* 2005;19(7):964-6.
11. Baumgartner FJ. Surgical approaches and techniques in the management of severe hyperhidrosis. *Thorac Surg Clin* 2008; 18(2):167-81.