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Your patients deserve consistent care from experienced surgeons who are Board Certified in Pediatric Surgery. Regardless of which PSA surgeon is on call, or which one is rounding on the group's patients that day, you will find little variation in expertise among the four of us; we have the most total years of surgical experience, and most importantly, each of us is Board Certified in Pediatric Surgery.

AUGUST

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
We are available 24 hours every day. Page us directly to the number listed for direct referrals or for an immediate consultation.			**1** David Bliss	**2** Tom Black	**3** David Bliss	**4** Tom Black
5 David Bliss	**6** José Iglesias	**7** Tom Black	**8** José Iglesias	**9** David Bliss	**10** Tom Black	**11** David Bliss
12 Tom Black	**13** José Iglesias	**14** Tom Black	**15** Glaze Vaughan	**16** David Bliss	**17** José Iglesias	**18** Glaze Vaughan
19 José Iglesias	**20** David Bliss	**21** Glaze Vaughan	**22** David Bliss	**23** José Iglesias	**24** Glaze Vaughan	**25** David Bliss
26 Glaze Vaughan	**27** Tom Black	**28** José Iglesias	**29** David Bliss	**30** Glaze Vaughan	**31** José Iglesias	

HYPERHIDROSIS

A recent application of thoracoscopy has been in the treatment of **hyperhidrosis** or excessive sweating. This condition affects about 0.1% of the population and is probably genetically inherited. The unpleasant effects of hyperhidrosis usually begin during adolescence; however, they may start anytime between infancy and adulthood. The condition is thought to be due to over-activity of the sympathetic nervous system. The most frequent form of hyperhidrosis involves the hands, but foot, underarm and facial sweating are also common. Hyperhidrosis is always unpleasant and often incapacitating. For one young lady we recently treated, it had become increasingly difficult to play the piano because the keys would quickly become wet and slippery. Shaking hands with others is embarrassing, and attempts at writing result in wet paper and blurred ink. The problem associated with axillary hyperhidrosis is obvious.

Before arriving at the diagnosis of hyperhidrosis, other causes of excessive sweating such as hyperthyroidism must be excluded. Once the diagnosis has been made, however, several non-surgical options are available for treating hyperhidrosis. Unfortunately, these are generally cumbersome, unpleasant, associated with undesirable side effects, and have only temporary and, at best, inconsistent results. **Topical anti-perspirant agents** reduce the output of eccrine and apocrine sweat glands, but the only agents with significant benefit to patients with hyperhidrosis contain aluminum chloride hexahydrate, which may be irritating to the skin of some individuals. A 20% solution of aluminum chloride hexahydrate (Drysol®, and others) is available by prescription and, although moderately beneficial at the onset of treatment, it may lose effectiveness in the long term. These preparations are generally applied each night before bed, allowed to remain at least 6 hours, and washed off in the morning. This type of treatment works best if plastic gloves or plastic wrap is worn over the hands while the medication is in place. One of the categories of **systemic agents** used to treat hyperhidrosis is the **anticholinergics**. These include glycopyrrolate (Robinul®), propantheline bromide (Probanthine®), and oxybutynin (Ditropan®). These must be taken several times daily, and high doses are generally required to achieve any beneficial effects. Side effects, including dry mouth, constipation, urinary retention, blurred vision and tachycardia, are common. The second category of systemic agents used to treat hyperhidrosis is the **beta-blockers** such as propranolol, which may be effective in treating stress-related sweating. Side effects include tiredness, bradycardia, low blood pressure and dizziness. **Iontophoresis** is an electrical treatment that induces changes in the sweat glands and disrupts sweat production. Severe cases of hyperhidrosis do not respond to this form of treatment. With iontophoresis, affected areas are moistened with tap water and a mild electrical current is passed through the skin. Even if the method is successful, each treatment requires about twenty minutes every day, may be uncomfortable, and must be continued indefinitely. **Botox** injections work well for axillary hyperhidrosis. In this method, botulinum toxin type A is injected subcutaneously at 15-20 sites in each axilla. The effects last for 4-6 months and may be repeated with similar effects. Botox is expensive and the injections are painful. Furthermore, Botox is of limited usefulness in treating palmar hyperhidrosis as few people are willing to undergo multiple painful injections into their hands. Also, temporary weakness of the hand muscles may occur. Other non-surgical treatment methods available include **herbal medication**, **biofeedback**, **acupuncture**, and **hypnosis**; allegations regarding the efficacy of these methods are specious. A simple **surgical procedure** similar to liposuction effectively removes axillary sweat glands but does not address palmar hyperhidrosis, usually a much more distressing condition.

Bilateral thoracic sympathectomy (BTS) is the surgical interruption of the sympathetic nerve chain within both sides of the upper chest. This procedure was first performed in 1920, and although it is a reliable treatment for hyperhidrosis, it should be considered a "last resort" to be chosen only after considering the above-mentioned non-surgical options. BTS prevents the stimulation for sweating to occur by interrupting the conduction pathway by which those impulses are transmitted. The nerves are usually transected at the T_3 level when treating palmar hyperhidrosis, at the T_4 level when treating axillary hyperhidrosis or both (Figure 1). After removing a short section of nerve, care is taken to cauterize the tissue a short distance on the surface of each rib (Figure 2) to interrupt any collateral nerve fibers (Kuntz fibers) that might otherwise cause a recurrence. The thoracoscopic route allows cosmetically acceptable incisions and a minimum of discomfort.

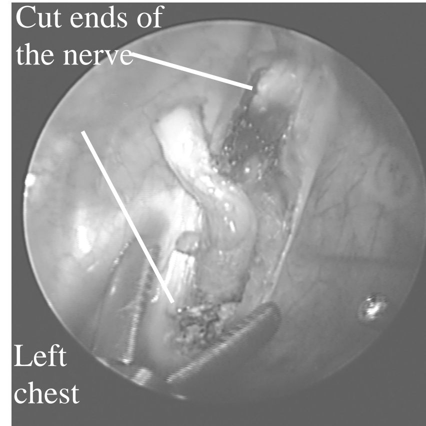

Figure 1

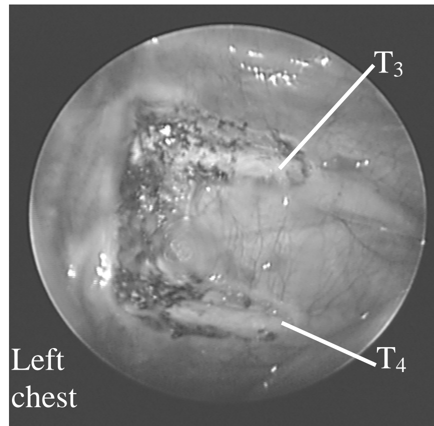

Figure 2

Most patients experience an immediate reversal in underarm and palmar sweating after BTS. A few individuals experience an improvement in pedal hyperhidrosis as well, but this is never expected. Side effects of sympathectomy include compensatory sweating which usually involves the trunk. This occurs frequently and is very disconcerting to some individuals, but the majority of patients agree that it is more tolerable than the original axillary or palmar hyperhidrosis. A mild (approximately 10%) decrease in heart rate is a rare postoperative occurrence, as is Horner's syndrome; both are related to disturbance of the sympathetic nerve at higher levels. Less than 0.01% of patients experience chronic pain. Younger patients may require an overnight hospital stay although surgery on an outpatient basis is common. Although BTS has an overall 98% satisfaction rate, as with any surgical procedure, a careful evaluation of associated risks and benefits is mandatory, particularly when the objective is to improve the quality of life and not to preserve life itself.

Overall, most patients, particularly adolescents, are thrilled with the dramatic improvement they experience in their self-confidence and social ease.

Disclaimer: All material is intended for informational purposes only and is not intended, and should not be used, to replace medical advice offered by a qualified physician. We are always available and willing to discuss questionable conditions with you and we invite your request for our assistance.