

An example of a typical patient suffering with axillary hyperhidrosis, which shows the unsightly effects of the condition



Axillary hyperhidrosis

Hyperhidrosis—otherwise known as excessive sweating—is often underdiagnosed and undertreated. **Dr Prashant Murugkar** focuses on the main diagnostic features and management of axillary (underarm) hyperhidrosis

Hyperhidrosis can be generalised by the area involved or classified as primary or secondary on the basis of the cause. In primary hyperhidrosis, the cause for the excessive sweating is not known; in secondary hyperhidrosis, the primary disorder—such as pituitary or thyroid dysfunction, diabetes mellitus or menopause—is responsible for the hyperhidrosis. Primary axillary hyperhidrosis is the most common location for excessive sweating in patients and often presents along with palmo-plantar hyperhidrosis.

Sweating is controlled by emotions through the limbic system and the thermo-regulatory centre in the hypothalamus. These affect the post-ganglionic sympathetic outflow of the para-spinal sympathetic chain. While the definitive cause of this condition is yet to be elucidated, most evidence points to a hyperactive autonomic system.

The patient will often give a history of focal, visible and excessive sweating that has come on without any apparent cause over the last six months. Often he or she has a family history of similar problems.

To be diagnosed as primary axillary hyperhidrosis, at least two of the following characteristics have to be present in an otherwise healthy patient:

- bilateral and relatively symmetric involvement
- impairment in daily activities
- age of onset < 25 years, and
- cessation of focal sweating during sleep.

Assessment

Assessment of sweat stains on shirts or blouses can give a clue as to the severity of the hyperhidrosis. A mild sweat stain, 5–10cm, still confined to armpit; moderate, 10–20cm, still confined to armpit; severe, 20cm, reaching the waistline.

Minor (starch-iodine) test: this is a commonly used test, but it can be rather messy. A 2% iodine solution or 10% povidone iodine antiseptic solution is applied to both the armpits and allowed to dry; corn-starch powder is then brushed on to this area. The test is positive when the light-brown colour turns dark purple as an iodine-starch complex forms in the presence



Figure X. The hair-bearing areas in the axilla corresponds well with the area of hyperhidrosis. This can be outlined by drawing a grid or a diamond shape, as shown in this image. Dots can be spaced 1 to 1.5cm apart as in the starch-iodine method to indicate where to inject. This could be performed at a 30-45 degree angle and not into the dot as this could cause a tattoo.

of sweat. The area can then be photographed as a preoperative record of the affected area and also to gauge the response to treatment.

Despite nearly 1–2% of the population being affected, there is very little awareness of this problem and the resources available for its solution. There are no nationally agreed guidelines for the management of hyperhidrosis in the NHS.

Treatments

Antiperspirants are one treatment. These can be roll-on gels or powders that bring about a reduction of eccrine sweat production by physical obstruction of the ductal openings by the metal salts from the chemicals used.

The most common ingredient is 20% aluminium chloride hexahydrate, which is available as Anhydrol Forte or Driclor. This should be applied every night after carefully drying the skin for 5–7 days, or until the maximum benefit is achieved. Thereafter, the frequency of application can be reduced to once or twice a week.

It is important to wash off the medication in the morning, and some even suggest neutralising the area with an application of baking soda. If the patient develops pain or has a rash, interruption of treatment and application of a topical steroid such as 1% hydrocortisone cream can reduce the inflammation. Once this has settled, the antiperspirant, such as Driclor, can be restarted.

Botulinum toxin type A

Botulinum toxin type A—Botox or Dysport—is a purified neurotoxin derived from clostridium botulinum. It works by blocking the release of acetylcholine at the neuro-muscular endplates of the sympathetic cholinergic nerve fibres of the sweat glands.

After mapping the involved area by the minor test, an outline is drawn out with a skin marking pen. The enclosed area is then divided into a grid pattern with each of the grid squares being approximately 1–2cm. This is because the dispersion of the botulinum toxin when placed intradermally is about 1–2cm.

Under antiseptic precautions using a 30 gauge needle, 50 U (of a 100 U/4.0 mL dilution) of Botox is injected intradermally (ensuring that a bleb is raised) into each axilla. For Dysport, use 150 to 250 mU per axilla (reconstituted with 0.6-2.5ml of 0.9% sterile saline).

Ensure that the injection is spread evenly over the grids marked out, starting from the periphery and moving to the centre, ensuring even coverage of the injections.

Most patients have a perceived benefit from the treatment within 1–2 weeks and have duration of relief ranging from 6–18 months.

Contraindications

The main contraindications include an allergy to any ingredient of the formulation; rare neurological diseases such as myasthenia gravis Eaton Lambert syndrome; presence of infection at the site; lactating mother, or pregnancy.

Fewer than 1% of the patients experience any kind of side-effects. The most common are compensatory hyperhidrosis (an increase in non-axillary sweating), injection site pain, hot flushes, body odour, pruritus and rash.

Other treatments are sympathectomy—the fourth thoracic ganglion of the sympathetic chain controls axillary hyperhidrosis—the part of the nervous system used to control the sweat glands in the axilla. This can be managed using an open or endoscopic approach to get relief from axillary hyperhidrosis. However it is associated with a high incidence of compensatory hyperhidrosis from other areas of the trunk and is more suited for palmar hyperhidrosis.

Another is the use of anticholinergic drugs—propranolol bromide and glycopyrrolate work by blocking the acetylcholine secretion and can offer relief from the symptoms. However, the incidence of adverse symptoms, such as visual blurring, dryness across mucosal surfaces and constipation reduce their utility when given systemically. Glycopyrrolate has, therefore, been delivered topically using iontophoresis.

Iontophoresis involves an application of a direct electrical current across the skin. The mechanism of action of this modality is uncertain. While iontophoresis pads for axillary application are available, the real utility of this modality is in treating palmar and plantar hyperhidrosis.

Surgery of the sweat glands is another treatment of this condition and can include retrodermal curettage (essentially scraping the sweat glands away) or liposuction to remove the sweat glands from the undersurface of the axillary skin. However these procedures carry a risk of infection and significant scarring.

Axillary hyperhidrosis is often underdiagnosed and undertreated. It could be initially managed by antiperspirants, but if uncontrolled, botulinum toxin A is an effective solution. This can be simply administered by an appropriately trained medical aesthetic practitioner.

Relief from the misery of axillary hyperhidrosis tends to be a very rewarding achievement and creates satisfied patients for the practitioner.

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