

can be found throughout the body. Previous reports³ have suggested that respiratory difficulties after intrapleural talc are related to a high dose (about 10 g) talc, but our experience shows that respiratory failure and death can occur after doses as low as 2 g of talc.

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Hospital das Clinicas and Instituto do Coracao of Faculty of Medicine of University of Sao Paulo, Brazil; Chief Pulmonary Exercise Laboratory, Veterans Affairs Medical Center Long Beach, Long Beach, CA 90822, USA (R W Light); University of California, Irvine

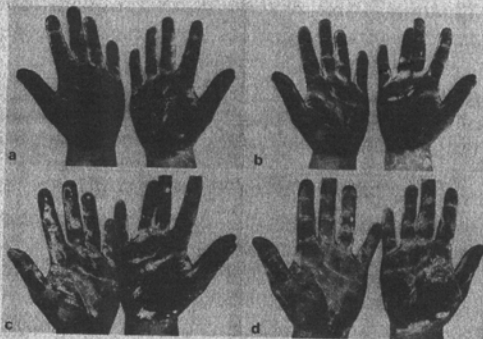
Botulinum toxin for palmar hyperhidrosis

Markus Naumann, Peter Flachenecker, Eva-B Bröcker, Klaus V Toyka, Karlheinz Reiners

A 26-year-old otherwise healthy woman had had continuous excessive sweating of palms and soles for 10 years. She was unable to work for 9 months because of the sweating. Inpatient treatment, including iontophoresis and topical aluminium chloride, was ineffective and abandoned after 6 weeks. Neurological examination was unremarkable apart from excessive hyperhidrosis. There were no other signs or symptoms of autonomic dysfunction. Nerve conduction studies, sympathetic skin responses, and autonomic tests of cardiovagal innervation and of sympathetic vasomotor function were normal.

Botulinum toxin (BTX) was given with informed written consent. Hyperhidrotic areas on both hands were determined by Minor's test before and after injection. BTX (Botox, Allergan, USA; 100 MU/3.0 mL saline 0.9%) was injected intracutaneously at ten different sites (3 MU/per site) on her left palm about 2.5 cm apart from each other. Confluent circular anhidrotic areas were noticed within 24 h after the injection. Hyperhidrosis was abolished after 1 week (figure). A slight decline of the force hand grip was shown on testing (110-90 kPa) after 2 weeks. Injection was occasionally painful, but no other side-effects occurred. The right hand was treated in a similar way and with good result. No recurrence of hyperhidrosis was observed during follow-up of 14 weeks.

Subcutaneous injections of BTX in healthy volunteers abolished physiological axillary¹ or palmar sweating.² This is the first report of intracutaneous BTX in hyperhidrosis. BTX not only blocks the release of acetylcholine in the



Palmar sweating documented by Minor's test. (a) hyperhidrosis before injection; (b-d) reduction of hyperhidrosis on days 2, 3, and 7

neuromuscular junction but also inhibits cholinergic transmission in postganglionic sympathetic cholinergic fibres to sweat glands as seen in botulism and shown experimentally.³ The effect of BTX on hyperhidrosis is similar to its effect on gustatory sweating caused by aberrant regrowth of secretomotor fibres after parotid gland surgery.⁴ With the small doses needed for the hand region, no major side-effects occurred although a subclinical decrease in muscle force probably due to diffusion of the toxin to hand muscles occurred in our patient. The duration of the anhidrotic effect of BTX in healthy volunteers^{1,2} varied between 3 and 8 months and seems to be longer in gustatory sweating (more than 12 months).⁴ BTX is promising as an effective and safer treatment than transthoracic sympathectomy.⁵

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Departments of Neurology and Dermatology (E-B Bröcker); Julius-Maximilians-Universität D-97080 Würzburg, Germany

Treatment of vaginismus with botulinum toxin injections

Mitchell F Brin, Jonathan M Vapnek

Vaginismus is a form of central nervous dysfunction characterised by inappropriate vaginal, perianal, and levator ani muscle spasm, which blocks penile penetration during intercourse,¹ and affects about one in 200 women.² Behavioural therapy with desensitisation, either with or without vaginal dilation, has been used; some patients fail these conservative therapies.³ We report a woman treated with local injections of botulinum toxin.

A 29-year-old woman developed bladder pain at age 17 after her first intercourse. The pain was unchanged during urination, and resolved over 1 month. Subsequently, she had intermittent vaginal and urethral pain with painful intercourse. She was diagnosed with multiple urinary tract infections and interstitial cystitis even though most urinary examinations showed no white cells or bacteria, urine cultures were inconsistently positive, and cystoscopy failed to show bladder abnormalities. Urodynamic examination at age 27 showed marked contractions of the urethral sphincter and voiding by straining; the post-void residual volume was raised at 200 mL. A bladder biopsy specimen at age 28 showed mild chronic inflammation, fibrosis, and increased mast cells. Urethral dilation helped relieve symptoms for 2 weeks. Oral baclofen, paracetamol with codeine, antibiotics, intravesical dimethylsulfoxide, amitriptyline, and a subtrigonal injection of 30 mL 1% lidocaine/0.25% marcaine were of no benefit. Her husband divorced her, they have two children.

Neurological examination was normal. Lumbo-sacral spine series, intravenous pyelography, and brain magnetic resonance imaging were normal. The pelvic floor contracted vigorously and painfully on gentle palpation of the vaginal orifice. At the time of botulinum toxin treatment, the urethral region was firm and exceedingly