Scleroderma Renal Crisis in Association with Essential Oils

Sir,

Systemic sclerosis, a connective tissue disease characterized by sclerotic skin changes and visceral organ involvement, results from disturbance during collagen formation and from intimal damage of small- and medium-sized arteries. Renal involvement is common, affecting some 45% of patients, and is associated with the highest mortality (1). The cause of the disease remains unknown.

Scleroderma renal crisis in a patient with systemic sclerosis manifests as acute onset of malignant hypertension and progressive renal failure. Its incidence in scleroderma patients is between 10 and 25%, and if untreated leads to end-stage renal disease and death (2). About 3% of patients with scleroderma renal crisis show only limited cutaneous involvement (3).

Occupational and environmental hazards have been associated with the development of scleroderma or scleroderma-like disease, including exposure to silica dust in miners, to epoxy resins, organic solvents, trichloroethylene, polyvinylchloride, or after ingestion of toxic rapeseed oil (4–6). We report here a case of scleroderma renal crisis sine scleroderma which might be related to the patient's occupation as an aromatherapist, in which she is constantly exposed to essential oils through her skin and nasal mucosa.

CASE REPORT

A 60-year-old woman was admitted to the emergency room with headache, vomiting and blood pressure of 270/130 mmHg following 2 weeks of headaches and a first-time experience with high blood pressure. During the week preceding hospitalization she developed cold and swollen fingers, two of them turning bluish in colour. She had a history of peptic disease and osteoporosis, for which she took replacement therapy for 1 year. She had no history of hypertension.

Physical examination on admission revealed high blood pressure (180/90 mmHg after administration of nifedipine in the emergency room), no papillodema, multiple telangiectasiae on the chest, a short systolic murmur over the apex of the heart and left sternal border, and palpable peripheral pulses. The remainder of the physical examination, including neurological examination, chest X-ray and ECG, was normal. High resolution computer tomography of the lung, echocardiography and right heart catheterization were not performed. Laboratory investigations showed Hb 8.8 gr%, mCV 95, MCH 32, BUN 47, creatinine 2.1, and LDH 1210. This contrasted with Hb 11.9 gr% and creatinine 1.1 one month earlier. Liver and muscle enzymes were normal. At this stage, haemolytic-uraemic syndrome due to hormonal therapy was suspected.

Treatment with verapamil and nifedipine was administered with fresh frozen plasma, but haemoglobin levels and renal function continued to deteriorate and blood pressure remained uncontrollable. After several days the patient developed retinal bleeding, jugular congestion, hepatomegaly, ascites, and bilateral pleural effusion without lung parenchyma involvement. She also complained of diffuse arthralgia.

Following the development of a murmur over the left renal artery, subsequent investigations were focused on the patient's kidneys. Intravenous pyelography showed normal to small kidneys, and bilateral decreased perfusion with no drainage problems. Abdominal ultrasound revealed kidneys of normal size and shape, with no evidence of obstruction. Kidney biopsy was not performed.

Based on the combination of telangiectasiae, arthralgia, malignant blood pressure, and the sudden onset of Raynaud's phenomenon, scleroderma renal crisis was suspected. Further investigations revealed that C_3, C_4, anti-DS DNA, anti-RNP and anti-Sm were normal, and results were negative for anti-SCL70, anti-Ro, anti-La, ANCA, rheumatic factor, and cold agglutinins. FANA was $++++$ with nucleolar pattern. Capillaroscopy of the nailfolds showed great ectasies of the capillaries at the nail borders with a few haemorrhages. Double contrast esophageal X-rays revealed esophageal dysmotility.

Scleroderma renal crisis was diagnosed, and treatment with captopril was added. Blood pressure gradually returned to near normal values, and the ascites and pleural effusion resolved. Renal function remained seriously disturbed, but the haemolysis stopped. The patient was discharged from hospital with controlled blood pressure and in good general condition.

COMMENT

The patient's occupation as a beautician and aromatherapist signalled a possible cause of her condition, since she had been using essential oils daily for 8 years. Essential oils are mixtures of terpens, which are distilled, expressed or extracted from seeds, bark, roots, leaves, flowers and fruit (7, 8). They are widely used in cosmetics as perfumes, in mouth rinses and toothpastes, as preservatives in food (because of their anti-bacterial effect), and as flavourings. They are also widely used in aromatherapy as part of the pharmacopia of alternative medicine. Those used in aromatherapy are inhaled, ingested or massaged.

The extensive exposure of the patient to essential oils raises the question of a possible etiologic connection between the oils and the development of her scleroderma renal crisis, although the pathogenesis is not clear. It is noteworthy that although the patient's hands and lungs were exposed daily, they showed no clinical signs of fibrosis – indicating a probable systemic rather than local effect of the essential oils on the body.

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Accepted November 10, 1997.

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