

Retiree with burning soles of the feet

Commentary by **MICHAEL A. McGRATH** MD, FRACP

What would be your provisional diagnosis for this patient suffering from a burning sensation of the soles of his feet, and what other differential diagnoses should you consider?

Case scenario

Kim presented with a history of 'burning' of the soles of his feet that particularly worried him at night and often interfered with his sleep. He said that when he got up and walked around the discomfort lessened, and his symptoms did not worry him at all during the day.

Kim had retired at the age of 60 years from a sedentary job, and despite having some early osteoarthritis of his hips and knees, he played tennis weekly and went for walks regularly. He was not overweight but had a family history of ischaemic heart disease and was taking an ACE inhibitor, which controlled his hypertension. He did not smoke and his fasting lipids and glucose levels were within the normal range.

What is the mechanism of this patient's 'burning' soles?

Commentary

Kim's symptoms and the preliminary assessment would prompt a provisional diagnosis of erythromelalgia (also known as erythermalgia). This is an intriguing, uncommon condition, characterised by the triad of red, hot, painful extremities with the symptoms being more troublesome in the evening. Patients usually seek relief by cooling the affected extremities – for example, sleeping with feet out of the covers, walking on a tiled bathroom floor, or even immersing their feet in ice cold water. There is a profound disturbance of vasomotor control but representing the other end of the spectrum to Raynaud's phenomenon. The symptoms tend to be much more severe during the summer months. The hands are also involved in a small percentage of patients.

The five important criteria in making a diagnosis of erythromelalgia are as follows:

- burning pain involving the extremities
- pain aggravated by warming
- pain relieved by cooling
- erythema of the acral region
- increased skin temperature of the symptomatic region.

Clinically, the pulses (including digital pulses) and reflexes are normal and there is no evidence of connective tissue disorder, purpura, microemboli or cutaneous infarction.

Clinical conditions that might mimic some features of erythromelalgia include severe peripheral vascular disease, diabetes, peripheral neuropathy and connective

tissue disease. The effects of certain vasodilator medications may also mimic erythromelalgia features.

The continued immersion of the feet in ice cold water will ultimately aggravate the problem, and the temperature threshold at which symptoms recur will then gradually decrease. Furthermore, the relief of symptoms with intense cold can lead to secondary skin changes, pernio (chilblains), peripheral sensory neuropathy or a cold-induced neuritic syndrome that will amplify the condition.

The one cause of erythromelalgia that can be effectively treated is the group of myeloproliferative disorders, especially thrombocythaemia. These conditions can be accompanied by intense erythromelalgia that is exquisitely responsive to low dose aspirin. However, most cases of erythromelalgia are primary or idiopathic, and aspirin is ineffective. Baseline laboratory investigations should include full blood count, erythrocyte sedimentation rate, blood glucose measurement, liver function tests, and antinuclear antibody (ANA) and extractable nuclear antibody (ENA) measurements.

In some patients there is an interesting diurnal vasomotor pattern of Raynaud's phenomenon or acrocyanosis and cool extremities during the daytime alternating with features of erythromelalgia at night. When this is present, the intensity of erythromelalgia might be buffered by preventing the vasoconstrictor response in the skin during the daytime. Use of one of the glyceryl trinitrate patches (Minitran, Nitro-Dur, Transiderm-Nitro) applied to the dorsum of the feet during the daytime might prevent the vasoconstrictor phase, making the rebound reactive hyperaemic phase in the evenings less likely.

Erythromelalgia can be a most distressing and debilitating condition but the intensity varies considerably from patient to patient. Patients can at least be assured that it is a distinct clinical condition but is not limb threatening. **MT**

DECLARATION OF INTEREST: None.

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