Wound Sleuth

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Why hasn't this wound healed over the years?

A 58-year-old male with a seven-year history of non-healing lower leg wounds presented to our wound care centre. As a child, he had been successfully treated with radiation therapy to his lower legs for recurring furuncles. He went on to have no further issues with his legs until a traumatic injury at age 51 led to multiple wounds on his left leg that extended to the bone. At the time of presentation, his current illnesses included type 2 diabetes, hypertension, hypercholesterolemia, hypothyroidism and palmer/plantar psoriasis. These conditions were well controlled with an oral anti-hyperglycemic, valsartan, fenofibrate, rosuvastatin and levothyroxine. For his psoriasis, he had been on acitretin 50 mg daily, taken orally, for the last 17 years.

The patient's left leg wounds were treated with a variety of topical dressings, leg compression and occasional oral antibiotics prior to his attending our clinic. Unfortunately, the traumatic injuries sustained on his left leg improved but never fully healed.

Previous Treatment

For his wound care, he had been receiving home-care nursing services twice weekly for seven years. His wounds were considered to be non-healable due to the previous radiation treatments.[1,2]

Known late effects of radiation may include skin atrophy, dryness, telangiectasia, dyschromia, dyspigmentation, fibrosis and ulcers.[3] He presented with discolouration, skin atrophy, dry skin and wounds on the left leg where the radiation had taken place (Figure 1). His legs also showed signs of venous stasis disease, with some edema and varicosities. A biopsy of the wound was performed and confirmed venous stasis and venous stasis dermatitis showing clusters of vessels

Figure 1: Initial presentation of wounds (left anterior shin). Discolouration had been present for years and attributed to the prior radiation. The skin was atrophied with the presence of multiple superficial ulcers.

lined with plump endothelial cells, hemorrhage and hemosiderin pigment deposition. The clinic's treatment continued for two years with topical dressings, leg compression and occasional oral antibiotics, which led to some improvements but not full healing.

Q What are the reasons for non-healing?

The previous radiation damage and venous stasis were likely contributing to the non-healing nature of this wound. However, further evaluation was needed of the factors leading to this wound not healing. After the situation was assessed, the health-care team took a closer look at his medications.

A Acitretin is a medication in the retinoid class that is used for psoriasis. There is literature suggesting possible association between systemic retinoids and poor wound healing.[4] Studies have suggested that acitretin and other systemic retinoids can slow angiogenesis and epithelization, which are part of the proliferation stage of healing.[4–6] At this time, his palmar and plantar psoriasis had been well controlled for years with this oral medication. A consulting dermatologist suggested discontinuation of the oral acitretin and management with topical corticosteroid creams in the event of a psoriatic flare of his hands and feet.

The Outcome

After six weeks he returned to clinic with healed leg wounds. No further home-care nursing services were required. His psoriasis remains under control with the sporadic use of the clobetasol 0.05% cream to his hands and feet. Six months later (Figure 2), his wounds remained completely closed. The skin changes on his legs secondary to the radiation he had as a child are still present, but now without the presence of wounds.

Figure 2: Anterior shins six months after acitretin discontinuation. Wounds on left anterior shin were now healed.

The long-term use of the acitretin likely contributed as one of multiple reasons the wound was not healing. The wound healed rapidly after the discontinuation of the acitretin. In patients with chronic non-healing wounds who are on systemic retinoids, it may be beneficial to discontinue treatment.

The social and economic burden of non-healing wounds has profound impact on the sustainability of our health-care system and the welfare of our patients.[7] This case demonstrates the need to evaluate the patient's past medical history and current medical treatment to look for

factors that could delay wound healing[8] as well as the need for a multidisciplinary approach for successful healing of stalled wounds.

Key Lessons

- ✔ Health-care providers must evaluate the patient's past medical history and current medical treatment to look for factors that could delay wound healing.
- ✔ An integrated approach is needed for successful healing of stalled wounds.

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