A nonhealing scalp ulceration in a patient with a history of herpes zoster infection

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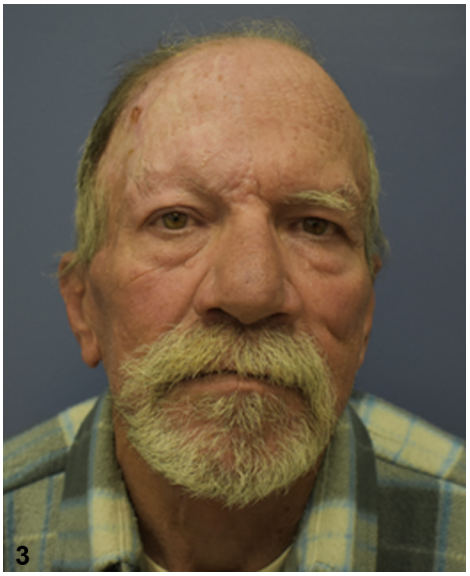
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A 63-year-old male smoker presented with a nonhealing, enlarging wound on his right parietal scalp and an associated 2-month history of pruritus and "needle-like" pains. Medical history was significant for a herpes zoster eruption in the same area 7 months prior, treated with acyclovir. Examination found right-sided facial asymmetry with alopecia of the eyebrow, a sharply demarcated scalp ulceration with exposed periosteum, an angulated erosion at the anterior border of the ulcer, and another angulated erosion over the right medial eyebrow (Figs 1 and 2). Laboratory values showed elevated erythrocyte sedimentation rate and C-reactive protein. The patient's vital signs and the remainder of systemic examination were unremarkable.

Question 1: What is the most likely diagnosis?

A. Recurrent herpes zoster infection

B. Basal cell carcinoma

C. Temporal arteritis

D. Pyoderma gangrenosum

E. Trigeminal trophic syndrome (TTS)

Answers:

A. Recurrent herpes zoster infection — Incorrect. Recurrent infection with herpes zoster is uncommon in immunocompetent individuals and does not produce the ulcerations and disfigurement seen in this patient.

B. Basal cell carcinoma — Incorrect. Although basal cell carcinoma is common on the head and neck and may present as an ulcerative plaque if untreated, the clinically sharp, angulated margins make this diagnosis unlikely.

C. Temporal arteritis — Incorrect. Temporal arteritis is a systemic vasculitis that commonly presents with headache and jaw claudication, not seen in this patient. Additionally, cutaneous manifestations are rare.

D. Pyoderma gangrenosum — Incorrect. Pyoderma gangrenosum is a neutrophilic dermatosis that initially presents as a papule and rapidly develops into an ulcer with overhanging violaceous borders. It most commonly affects the trunk or lower extremities and is regarded as a diagnosis of exclusion.

E. TTS — Correct. This patient presents with altered sensation and self-induced trauma after trigeminal nerve injury from a previous varicella zoster infection. TTS can result from trigeminal nerve or brainstem nuclei damage, most commonly from iatrogenic causes, but other causes include herpes infection, stroke, or trauma. Nerve injury results in paresthesia, prompting patients to reflexively scratch the affected area and cause self-induced ulcerations. The patient's history of a prior herpes zoster infection in the same dermatomal distribution as the presenting ulcerations along with neuropathic pain is consistent with TTS. TTS is a diagnosis of exclusion, and laboratory tests and biopsies are often ordered to differentiate it from other dermatologic diseases.

Question 2: Which part of the face does this condition most commonly affect?

A. Nasal tip

B. Cornea

C. Eyelid

D. Nasal ala

E. Parietal scalp

Answers:

A. Nasal tip — Incorrect. A central feature of trigeminal trophic syndrome is sparing of the nasal tip due to innervation by the anterior ethmoidal branch of the ophthalmic division (V1) of the trigeminal nerve.[1] This knowledge can aid in the early detection and diagnosis.

B. Cornea — Incorrect. Corneal lacerations have been observed in multiple cases of trigeminal trophic syndrome; however, it is not the most commonly affected area. However, this knowledge highlights the importance of early ophthalmologic consultation in patients with TTS.

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C. Eyelid – Incorrect. This area is partially innervated by the V1 distribution of the trigeminal nerve; however, it is not the most commonly affected area.

D. Nasal ala – Correct. The nasal ala is the most commonly reported area affected by trigeminal trophic syndrome.[2] It is innervated by the V2 distribution of the trigeminal nerve. Patients typically develop a slowly enlarging, unilateral ulcer caused by constant self-inflicted trauma secondary to neuropathic pain and paresthesia.

E. Parietal scalp – Incorrect. Although there was involvement of the parietal scalp in this patient, it is not the most commonly affected area, making this a unique clinical presentation. This region is innervated by the V1 distribution of the trigeminal nerve.

Question 3: What is a potential long-term treatment for this condition?

A. Acyclovir prophylaxis

B. Innervated skin flap

C. Intralesional corticosteroid injection

D. Selective serotonin reuptake inhibitors

E. Local wound care

Answers:

A. Acyclovir prophylaxis – Incorrect. Acyclovir is helpful in the treatment and prevention of herpes outbreaks; however, post–herpes zoster TTS is the result of nerve injury not the infection itself.

B. Innervated skin flap – Correct. In addition to barrier protection and anticonvulsant medications, surgical management with an innervated skin flap offers the greatest chance of resolution. There are several case reports of regional skin flaps with their own blood and nerve supply showing promising results in the setting of TTS.[1] This patient underwent surgical reconstruction of the defect using a rotational fasciocutaneous flap and a split-thickness autograft with subsequent wound vac placement to close the posterolateral scalp donor site (Figs 3 and 4). He has also required close monitoring and optimization of both gabapentin and carbamazepine and regular barrier protection. Of note, the most essential intervention for TTS is behavior modification.

C. Intralesional corticosteroid injection – Incorrect. The efficacy of intralesional corticosteroid in the treatment of trigeminal trophic syndrome has not been well studied.

D. Selective serotonin reuptake inhibitors – Incorrect. Abnormal psychological behaviors are common in patients with trigeminal trophic syndrome (eg, digital picking/mutilation); however, selective serotonin reuptake inhibitors will not treat the neurologic symptoms or underlying pathology.

E. Local wound care – Incorrect. Wound care is not sufficient for the management of trigeminal trophic syndrome. A multidisciplinary approach should be used, involving optimization of neuropathic pain and possible surgical reconstruction, depending on the degree of self-inflicted trauma.[3,4]

Abbreviation used:

TTS: trigeminal trophic syndrome

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