

Trigeminal trophic syndrome: an unusual cause of a non-healing cheek ulcer

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ABSTRACT

Trigeminal trophic syndrome (TTS) is an uncommon condition characterised by anaesthesia, paraesthesias and ala nasi ulceration, following peripheral or central damage to the trigeminal nerve. Only about 100 cases have been described in the literature to date. We report a 74-year-old woman who presented with a right cheek ulcer accompanied by pruritus and paraesthesia for three months. An old right cerebellar infarct was demonstrated on magnetic resonance imaging of the brain. Vertebrobasilar insufficiency leading to the cerebellar infarct is likely to have predisposed her to developing TTS. An underlying infectious, malignant and vasculitic cause for the ulcer was excluded by a skin biopsy. An increased awareness of the predisposing factors and clinical presentations of this important disfiguring condition is necessary to ensure prompt diagnosis and treatment.

Keywords: cheek ulcer, pruritus, trigeminal trophic syndrome, vertebrobasilar insufficiency

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INTRODUCTION

Patients presenting with facial ulceration are usually extremely distressed by the cosmetic consequences of their condition. Prompt diagnosis and institution of therapy is crucial in the management of these patients. Often, patients are subjected to extensive tests and investigations to exclude more common causes of ulceration like infections, cutaneous malignancies and vasculitis. For patients whose evaluations are unyielding, it is imperative to consider trigeminal trophic syndrome (TTS) to be an important differential diagnosis. We report a patient who presented with typical features of TTS and illustrate some of the important diagnostic and management considerations, in patients with TTS.

CASE REPORT

A 74-year-old Malay woman, who had no past history

of note, presented with a right cheek ulcer for three months. She complained of “crawling” sensations and itch around the nose and the right cheek and admitted to scratching the area to relieve the itch. On examination, a 4 cm irregular superficial ulcer with an erythematous base on the right cheek was seen. The ulcer encroached onto the lower margin of the right eye and extended into the right ala nasi (Fig. 1). There was also ipsilateral opacification of the cornea. There were no other neurological signs or cervical lymphadenopathy. The initial impression was that of a basal cell carcinoma.

A biopsy of the ulcer edge revealed a partially ulcerated lesion with no atypia along the adjacent intact epidermis. Extensive dermal scarring with mixed inflammatory infiltrate of lymphocytes, plasma cells and some neutrophils were noted (Fig. 2). Pyogenic cultures of the ulcer grew *Staphylococcus aureus*. Magnetic resonance (MR) imaging of the brain and face showed a right cheek ulcer with erosion into the right nostril with no mass lesion or osteomyelitis (Fig. 3). Marked involucional changes of the brain with periventricular white matter microvascular ischaemia and an old right cerebellar infarct (Fig. 4) were also noted.



Fig. 1 Clinical photograph shows the right cheek ulcer eroding into the right ala nasi.

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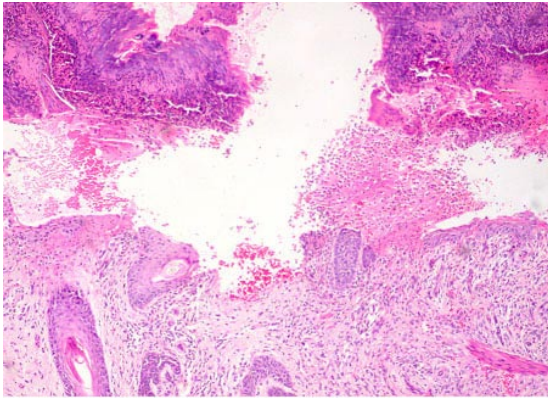


Fig. 2 Photomicrograph shows a partially ulcerated lesion with no atypia along the adjacent intact epidermis. There is extensive dermal scarring with mixed inflammatory infiltrate of lymphocytes, plasma cells and some neutrophils (Haematoxylin & eosin, x40).

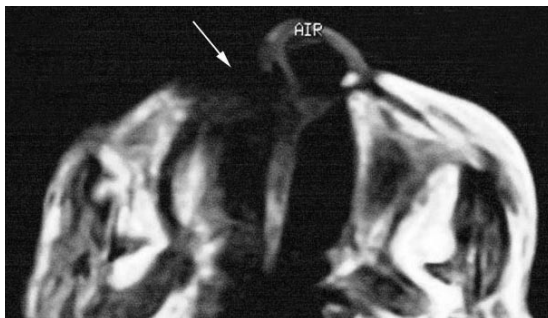


Fig. 3 Axial T2-W MR image of the face shows a right cheek ulcer with erosion into the right nostril with no mass lesion or osteomyelitis.

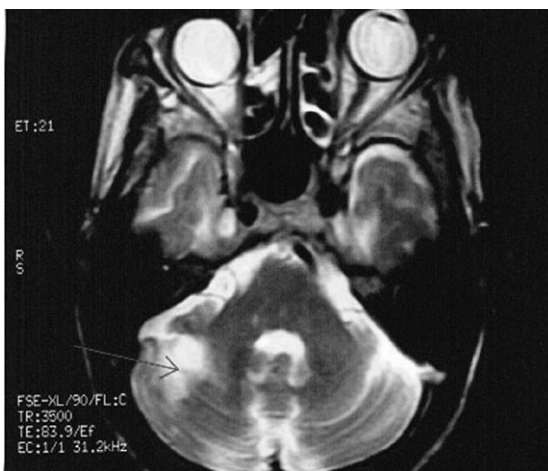


Fig. 4 Axial T2-W MR image of the brain shows an old right cerebellar infarct.

The patient was diagnosed with TTS based on: (1) the presence of facial paraesthesia, (2) long history of repeated physical manipulation of the affected area, (3) the characteristic crescentic ulceration with sparing of the nose tip, and (4) the relevant history

of a cerebrovascular accident. She was educated about the self-induced nature of the ulceration and counselled to stop picking on the ulcer. Tetracycline ointment was prescribed to control infection. The ophthalmologist diagnosed the opacified cornea to be secondary to a corneal ulcer and prescribed topical antibiotic eyedrops. Despite these measures, there was little improvement in the ulcer on her subsequent follow-ups and she passed away from an unrelated cause one year later.

DISCUSSION

TTS is an unusual condition, first described by Loveman⁽¹⁾ and McKenzie⁽²⁾ in 1933. The ala nasi is the most usual site of ulceration. The tip of the nose is often spared because of a different innervation from the medial branch of the anterior ethmoidal nerve⁽³⁾. This was also observed in our patient (Fig. 1). A comparison of our patient's clinical picture with the clinical photographs of previously reported cases demonstrated a stark resemblance in the site and configuration of the ulcer. TTS is a clinical diagnosis and should be suspected in all patients who present with facial ulceration and a relevant neurologic history, particularly if all the investigations and biopsies have been unyielding. TTS manifests as a chronic ulcer with minimal infiltrate without giant cells, granulomas or vasculitis on histological examination⁽³⁾. In contrast to patients with factitial dermatitis, patients with TTS are often more ready to report paraesthesias and admit to inflicting injury on their skin.

TTS typically results from an injury to the peripheral sensory fibres of the trigeminal nerve or the trigeminal ganglion^(4,5). It can also occur secondary to conditions that affect the trigeminal nucleus in the pons, such as the posterior inferior cerebellar artery (PICA) syndrome or syringobulbia⁽⁴⁾. Both the pons and the cerebellum derive their vascular supply from branches of the basilar arteries. We propose that the vascular compromise that has predisposed to the cerebellar infarct in this patient has similarly affected the pons and injured the central trigeminal nucleus, resulting in TTS. In a review of 63 patients with TTS, the majority of cases followed trigeminal ablation by rhizotomy or alcohol injection into the trigeminal ganglion⁽³⁾. Another recent review found that 33% of the affected patients had a history of stroke, half of which were Wallenberg's lateral medullary syndrome secondary to an occlusion of the PICA⁽⁶⁾. The other causes of TTS include acoustic neuroma⁽³⁾, herpes zoster infections⁽⁷⁾ and vertebrobasilar insufficiency⁽⁶⁾. No discernible cause was found in less than 1% of patients⁽⁶⁾.

In previous reports, the mean age of affected patients was 60 years⁽⁶⁾. The period of latency from the precipitating event to developing the syndrome varied

from weeks to decades⁽⁶⁾. Our patient is an elderly woman with right-sided facial ulceration. This concurs with the majority of patients described in the literature. Her concomitant ipsilateral corneal ulcer is likely secondary to neurotrophic keratopathy⁽⁸⁾, a condition known to occur in patients with similar predisposing factors for TTS. Skin cultures from the ulcers of reported patients frequently grew *Staphylococcus aureus* or coagulase-negative *Staphylococcus* species, both skin commensals⁽⁶⁾. This could result from the constant transfer of pathogens from the fingers to the ulcer, during the act of scratching.

The pathogenesis underlying the sensation of itch after a cerebrovascular accident is not known. It may share the same mechanisms that possibly underlie intractable post-herpetic itch. Herpes zoster causes the degeneration of peripheral sensory neurons and patients often get post-herpetic dysaesthesias. It has been proposed that post-herpetic itch is generated by central itch neurons, when the usual afferent input is being deprived, akin to “phantom-limb pain”⁽⁹⁾. Neuropathic itch are known to drive patients to scratch incessantly.

TTS must be differentiated from other causes of facial ulceration, like basal or squamous cell carcinomas, pyoderma gangrenosum, Wegener’s granulomatosis, deep fungal infections, *Mycobacterium tuberculosis* infections, cutaneous leishmaniasis and sinonasal NK/T cell lymphoma which often involve the face^(6,10). A good clinical history that includes exposure or travel history, symptoms of immunosuppression, history of neurological disease and a thorough systemic review is necessary to elucidate the correct diagnosis in these patients. Apart from a detailed physical examination, tissue cultures and skin biopsies are invaluable in the exclusion of other common causes of facial ulceration discussed earlier.

TTS is a difficult condition to manage. Apart from counselling the patients against manipulating their skin, topical antibiotics are used to prevent secondary bacterial infection. Medications reported to reduce paraesthesias and compulsive behaviour include vitamin B supplementation⁽¹⁰⁾, diazepam⁽¹¹⁾, amitriptyline⁽¹¹⁾, chlorpromazine⁽⁴⁾ and carbamazepine⁽¹²⁾. Transcutaneous electrical nerve stimulation⁽¹³⁾, ipsilateral cervical sympathectomy⁽²⁾, stellate ganglionectomy⁽²⁾, ionising radiation⁽¹⁾ and iontophoresis with nerve blockade⁽¹⁴⁾ have been tried with variable success. Successful surgical reconstruction with skin grafting^(7,15), followed

by pulsed radiofrequency treatments⁽⁶⁾ to improve paraesthesias has been reported. Despite all these available measures, TTS remains a therapeutic challenge in most cases. In some cases, a multidisciplinary approach involving the neurological evaluation, psychological counselling for behaviour modification, medical treatment and surgical repair is necessary.

This case highlights a rare but important clinical entity that may be clinically mistaken for a cutaneous malignancy. TTS is likely to be more common than reported, with a globally aging population burdened with a high incidence of stroke disease. Some elderly in our society still delay medical attention for their symptoms. Hence, it is possible to encounter patients with advanced disease like this, be it in the dermatological, otolaryngological or general practice. Awareness of this disease is necessary for accurate diagnosis and proper counselling of the patients and their families.

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