clearly indicate the diagnosis of Buruli ulcer caused by *M. ulcerans* or *M. shinshuense* subspecies *shinshuense* as the causative organism. Lane M represents a 100-bp ladder marker; lane NC, a negative control; lane S1, a DNA sample extracted from paraffin-embedded skin (patient) before antibiotic use; lane S2, a DNA sample extracted from paraffin-embedded skin (patient) after antibiotic use. B, Under PCR analysis of virulence plasmid pMUM001, only lane 3 was found to be negative. These results ruled out several other etiologies, including photosensitivity, laboratory testing, and histopathologic examination, which present immediately or early in the course of therapy. Herein, we describe a patient who had been using brimonidine for nearly 7 months before developing what we believe to be a novel adverse drug reaction.

Interestingly, our patient's symptoms were in areas surrounding the site of brimonidine use, sparing the tissue in direct contact with the gel. Brimonidine is a relatively selective α2 adrenergic agonist. Topical application causes vasoconstriction of superficial vessels at the site of application, allowing for the reduction of erythema. We hypothesize that the reaction seen in our patient represents a compensatory vasodilation of vessels in the surrounding skin due to chronic vasoconstriction at the site of long-term brimonidine use. Findings from history, physical examination, laboratory testing, and histopathologic examination ruled out several other etiologies, including photosensitivity and autoimmune conditions. We therefore conclude that this is a probable adverse drug reaction to brimonidine. A logical treatment for this adverse effect is discontinuation of brimonidine application. Because this is a relatively new therapy, these mechanisms are not well established, and further investigation is warranted.

**Discussion**

Since its approval by the US Food and Drug Administration in 2013, topical brimonidine gel has offered effective therapy for certain patients with persistent facial erythema secondary to rosacea. Previous studies reveal that most patients tolerate this therapy quite well without any adverse reactions. However, there have been reports of cutaneous adverse reactions at the site of brimonidine application. These include flushing, worsening erythema, burning sensation, and contact dermatitis, most of which present immediately or early in the course of therapy. Herein, we describe a patient who had been using brimonidine for nearly 7 months before developing what we believe to be a novel adverse drug reaction.

**Figure 1. Genetic Analysis by Polymerase Chain Reaction (PCR) Targeting IS2404 and Virulence Plasmid pMUM001**

**A** PCR analysis of IS2404

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<th></th>
<th>NC</th>
<th>PC</th>
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<tr>
<td>β-Globin</td>
<td>205 bp</td>
<td>–</td>
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<tr>
<td>IS2404</td>
<td>154 bp</td>
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**B** PCR analysis of pMUM001

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<th>M</th>
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<tr>
<td>500 bp</td>
<td>–</td>
<td>–</td>
<td>–</td>
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<td>–</td>
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<td>–</td>
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<tr>
<td>154 bp</td>
<td>–</td>
<td>–</td>
<td>–</td>
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A, Under PCR analysis of IS2404, the biopsy specimen was found to be strongly positive for the 154-bp product, which raised the possibility of *Mycobacterium ulcerans* or *M. ulcerans* subspecies *shinshuense* as the causative organism. Lane M represents a 100-base pair (bp) ladder marker; lane NC, a negative control; lane PC, a positive control; lane S1, a DNA sample extracted from paraffin-embedded skin (patient) before antibiotic use; lane S2, a DNA sample extracted from paraffin-embedded skin (patient) after antibiotic use. B, Under PCR analysis of virulence plasmid pMUM001, only lane 3 was found to be negative. These results clearly indicate the diagnosis of Buruli ulcer caused by *M. ulcerans* subspecies *shinshuense*. Lane M represents a 100-bp ladder marker; lane 1, repA (413 bp); lane 2, repA (501 bp); lane 3, the serine/threonine protein kinase gene MUP011 (479 bp); lane 4, a loading domain of mls (560 bp); lane 5, an acyltransferase domain of mls (504 bp); lane 6, the rep type II thioesterase gene (500 bp); lane 7, the rep type III ketosynthase gene (496 bp); and lane 8, the rep P450 hydroxylase gene (500 bp).
Academic areas sometimes leads to diagnostic delay. Significant delay places patients at risk of more extensive disease. Negative-pressure wound therapy (NPWT) is considered to be a great alternative because it accelerates wound healing. Herein, we report an advanced case of BU successfully treated with NPWT.

**Report of a Case |** A woman in her 50s noticed a painless erythematous nodule, 1.0 cm in diameter, on the right ankle 4 months before her initial visit to our hospital. The patient had no history of traveling abroad but had been working in a vegetable field for the previous 9 months. She was diagnosed with pyoderma gangrenosum by a local dermatologist and prescribed oral cephem antibiotics and betamethasone (1 mg/d) for 2 months. However, the lesion grew, and she was referred for further evaluation.

Physical examination revealed a necrotic, ulcerative lesion, 10.0 × 5.5 cm, on the right ankle. Acid-fast bacilli were detected with Ziehl-Neelsen staining in smear specimens from the ulcer, though no pathogenic bacteria had been found by repeated cultures during the previous 4 months. By polymerase chain reaction (PCR), we confirmed the presence of insertion sequence (IS) 2404 in the DNA extracted from paraffin-embedded sections of the skin biopsy specimen, and it raised the possibility of *M ulcerans* or *M ulcerans* subspecies *shinshuense* as the causative organism (Figure 1A).

Then, we analyzed mycolactone-producing genes in the virulence plasmid pMUM001 from bacteria cultured from the wound. The PCR analysis showed the characteristic features of *M ulcerans* subspecies *shinshuense*, ie, only the serine/threonine protein kinase gene *MUP011* (479 base pairs) was not detected among mycolactone-producing genes in pMUM001 (Figure 1B). Thus, we established the final diagnosis of BU caused by *M ulcerans* subspecies *shinshuense*, and treatment was begun, adjusted to her low body weight of 38.4 kg, with clarithromycin (600 mg/d), rifampicin (450 mg/d), and levofloxacin (500 mg/d).

We regard the date when the specific treatment for BU was started as day 1. The lesion was larger than 15.0 cm in diameter

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**Figure 2. Time Series of the Clinical Features of Buruli Ulcer (BU)**

A, Painful ulceration with necrotic tissue surrounded by erythema on the right ankle on day 1 of BU-specific antibiotic treatment. B, The ulcer after radical debridement on day 20. The Achilles tendon and the calcaneal bone are exposed, and the articular capsule of the ankle joint has been destroyed. C, After negative-pressure wound therapy treatment, red granulation tissue covers the ulcer bed on day 69. D, The well-preserved skin graft completely encloses the lesion on day 127.
at that time (Figure 2A). Since it seemed difficult to heal the lesion completely with only antibiotics, she was given surgical debridement on day 20. The ulcer had a necrotic bed, with the Achilles tendon and the calcaneal bone exposed (Figure 2B). We started NPWT with V.A.C. Therapy System (Kinetics Concepts Inc [KCI]) as a pretreatment for skin grafting on day 42. The vacuum suction was maintained at 125 mm Hg, and the wound dressings were changed every third day for 24 days. By day 69, good granulation tissue covered the ulcer bed (Figure 2C). A mesh skin graft was successfully engrafted on day 78. By day 127, the ulcer was completely healed, and she was able to walk again by herself (Figure 2D). Treatment with antibiotics was continued throughout the 4-month treatment course.

Discussion | Buruli ulcer should be considered in patients who present with chronic refractory ulcers or atypical cellulitis unresponsive to standard treatment. Its diagnosis relies primarily on PCR methods, and PCR targeting of IS2404 is a highly sensitive and specific diagnostic test (sensitivity and specificity > 90%). In this case, although the lesion extended deeply and required radical debridement, we were able to avoid amputation and achieve good wound healing by wound bed preparation with NPWT, which increases wound blood flow and granulation tissue growth and decreases local edema and bacterial flora at the wound site. Portable NPWT treatment devices are adaptable for outpatients and also can be used in developing countries. This treatment outcome suggests that NPWT might be appropriate for treatment of advanced BU cases.

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Primary Cutaneous Trichosporonosis Responsive to Voriconazole

Primary cutaneous trichosporonosis in immunocompetent individuals is very rare.

Report of a Case | A woman in her 20s presented with a large erythematous indurated plaque involving the face and neck that had been first noted at age 2 years. The plaque progressively increased in size, and similar plaques developed over the back, right dorsal surface of the hand, suprapubic area (Figure 1A), and right thigh over the last 4 years. Scarring developed in the plaques over the face and hand during the course of the disease and led to flexion contracture of the hand with limita-