

# Teledermatology- A Life-Saving Experience and its Usefulness in Nepal: A Case Report

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## ABSTRACT

Teledermatology is a means of diagnosing and managing dermatological cases virtually using digital tools. This is an important method which has been in use in Nepal and has a lot of potential to provide quality care to the patients from the remote corners of Nepal. It has been mostly used to manage chronic dermatological conditions. Here, we report a patient, suffering from multiple painful ulcers and a steadily declining quality of life, was diagnosed with pyoderma gangrenosum via mobile teledermatology. Prompt intervention based on this remote diagnosis led to successful management and significant clinical improvement. We try to put an emphasis on the mobile teledermatology that it is even useful in hard to diagnose cases and provide proper management. We also would like to highlight that this modality should be promoted and used more often to provide specialists medical services to the rural communities Nepal.

**Keywords:** Digital dermatology; pyoderma gangrenosum; teledermatology; telemedicine.

## INTRODUCTION

Telemedicine is a practice in the field of medicine where management is provided to a patient not physically present in the same location and somewhere far through the use of digital technology.<sup>1</sup> It is more useful when it involves the dermatological diagnosis and management, particularly by use of digital methods. This system is useful in a country like Nepal which has a less-developed transport system and hard to reach areas in the remote corners of the country. It has a potential make even specialized health care more effective, organized and available even to the remote corners of the country.<sup>2</sup> Here, we report a case of a middle-aged male who had lost all hope due to multiple painful ulcers not responding to various modalities of treatment over the course of one year but was ultimately managed successfully through teleconsultation. This case report highlights that teledermatology can be an useful platform in even in providing a life-saving treatment.

## CASE REPORT

A 44 year old male from Salyan, presented with multiple painful non-healing ulcers over bilateral lower extremities of one-year duration to Chaujhari Hospital, Rukum West, a health center which is located more than

650 km from the capital, Kathmandu which takes almost 19 hours of travel by road to reach.

Over the course of one year, the patient consulted multiple healthcare institutions for his condition. In many of these centers, various antibiotics were prescribed; however, they provided no relief. He also visited a cancer center which performed biopsy which showed only minor inflammatory infiltrates but no sign of malignancy and was started on different medications which still did not improve his condition. After exhausting multiple treatment options and facing increasing financial burden, the patient turned to traditional healing practices. These included ritual sacrifices of several chickens and goats, which not only failed to improve his condition but also led to further clinical deterioration and additional financial hardship. His ulcers worsened to the point where ambulation became nearly impossible. With limited resources and no other viable options, he eventually sought care at our center, which offered free services and was located several hours away of walking distance.

On examination, there were multiple painful deep ulcers with surrounding erythema over bilateral lower legs. Patient was ill-looking and cachectic and unable to walk. A new biopsy was done and sent to Kathmandu for histopathological examination. He was started Cloxacillin

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and analgesics. The wound care also involved regular dressing of the all the ulcerated lesions. The ulcer was also treated with skin graft which was not well taken. Still the patient conditions and pain didn't improve and to the point of becoming almost completely bound. At the same time, the biopsy report showed granulomatous inflammation suggestive of cutaneous tuberculosis. So, the patient was started on daily oral anti-tubercular medicine consisting of daily However, despite completing one month of anti-tubercular therapy (ATT), the patient's condition continued to deteriorate rather than show any signs of improvement. Patient started feeling for the worse and even requested the consulting physician to get himself euthanized. With all else failed, the treating physician decided to seek for a different opinions through online consultation. Multiple pictures from the leg ulcers were sent to a dermatologist using the Viber® platform. On close examination and the history of the patient, the lesions were suggestive of Pyoderma gangrenosum. On further discussion with the treating physician, we conducted a series of test available in that center including complete blood count, renal function test, liver function test, routine urine and stool examination. There was no abnormalities noted in these tests. The biopsy suggestive of cutaneous tuberculosis and the lesion not improving on ATT contradictory. So, we decided to start the patient on a trial of Oral Prednisolone @ 1m/kg/day. To our relief, patient pain reduced significantly over the course days. Similarly, his appetite also improved. Over the course of 1 week, the ulcer was gradually showing signs of improvement. Following the other week, they already started showing signs of healing. Gradually over the 1 month period with steroid, there was significant improvement on the ulcer and the pain healing with scarring.

After 2 months, the patient was discharged happily and was easily able to walk to his home. No side-effects were noted during the course of treatment.



Figure 1. A. On presentation, minute ulcers coalesce to become large ulcer. B. Over the course of 2 weeks on oral Prednisolone. C. After 1 month of treatment with oral Prednisolone.





Figure 2. A. Large ulcers with oozing noted over the right forearm. B. Same ulcer with decreasing erythema and healing with scarring in 1 month period.



Figure 3. A. Ulcers on the healing phase over the right thighs B. Healing ulcer on the left foot dorsum. C. Almost completely healed ulcer right thigh after 1 month of oral prednisolone.

## DISCUSSION

Telemedicine is one of the recent advances in modern medicine which allows physicians to manage patients remotely. It should also be noted that ulcers with violaceous, undermined borders are typically characteristic of pyoderma gangrenosum (PG)—a finding which is visible in the clinical photographs—further supporting the utility of teledermatology in accurate diagnosis through the clear photographs. A patient who had nearly lost all hope was ultimately restored to good health through a cost-effective and accessible intervention. Equally important is the role of compassion and empathy demonstrated by the treating physician, who went above and beyond to provide the best possible care under challenging circumstances. named teledermatology in case of dermatological disease management.<sup>1</sup> This method of consultation involves the use of digital platforms to exchange information between the physician and the patient. Telemedicine which particularly involves treating patients at remote corners, has also shown to improve health care delivery even at the urban centers as well.<sup>3,4</sup>

Teledermatology in Nepal has been a useful tool in providing quality dermatological services to patients living in the remote regions and has been used frequently to manage various dermatological conditions.<sup>5-7</sup> It has also been implemented even for the emergency cases of dermatology in the emergency department with good efficacy, in Western world.<sup>8</sup> It also reduces referral and improves access to dermatologists and their expertise.<sup>9</sup> This case highlights multiple benefits of teledermatology for a country like Nepal, more importantly in managing

even complicated dermatological conditions when referral to higher center are impossible. Many patients in Nepal can not get specialists treatment due to their remote location where specialist dermatologist don't practice or are not allocated by the government due to lack of government placement system. At times, the diagnosis of certain dermatological conditions are not straight forward and the biopsy can be confusing. This case brings hope to many patients from the remote parts of the country even for a complicated skin condition with associated poor prognosis.

Pyoderma gangrenosum is an uncommon neutrophilic dermatosis leading to painful cutaneous ulcers. The pathogenesis is still not clear however, it is no longer considered as a disease of exclusion and can be diagnosed on a basis of validated and accepted scoring system.<sup>10</sup> The mainstay of treatment is with systemic corticosteroids and/or cyclosporine.

## CONCLUSIONS

It should also be noted that ulcers with violaceous, undermined borders are typically characteristic of pyoderma gangrenosum (PG)—a finding which are visible in the clinical photographs—further supporting the utility of teledermatology in accurate diagnosis through the clear photographs. A patient who had nearly lost all hope was ultimately restored to good health through a cost-effective and accessible intervention. Equally important is the role of compassion and empathy demonstrated by the treating physician, who went above and beyond to provide the best possible care under challenging circumstances.

## CONFLICT OF INTEREST

None

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