

# Banana leaves as a traditional dressing for pemphigus: a case report

Shrutakirthi D. Shenoi, MD, DVD <sup>1</sup>  
 Punya Suvarna, MBBS <sup>2\*</sup>  
 Shibani Bhatia, MD <sup>2</sup>  
 Sukriti Arora, MD <sup>2</sup>

1. Department of Dermatology,  
 Venereology and Leprosy, Kanachur  
 Institute of Medical Sciences,  
 Mangalore, Karnataka, India

2. Department of Dermatology,  
 Venereology and Leprosy, Kasturba  
 Medical College, Manipal, Manipal  
 Academy of Higher Education,  
 Manipal, India

\*Corresponding author:  
 Punya Suvarna, MD, DVD  
 Department of Dermatology,  
 Venereology and Leprosy, Kasturba  
 Medical College, Manipal, Manipal  
 Academy of Higher Education,  
 Manipal, India  
 Email: [punya93@gmail.com](mailto:punya93@gmail.com)

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*Pemphigus vulgaris* is one of the most common autoimmune blistering disorders, with most patients presenting in late stages with severe and extensive erosions over the skin. Along with systemic management of the disease, it is important to provide local wound care to prevent secondary infection. Here, we report the case of a patient who presented with extensive erosions and showed no response to standard dressing protocols. Thus, it is important to review alternate, easily available, environment-friendly dressing materials. This case report discusses how banana leaves and gentian violet were used to manage severe and extensive erosions in a pemphigus patient who showed no improvement with modern-day dressings. We also compared the costs of modern-day dressings with the banana leaf dressing used in our setup. Following the success of this methodology, we have been using banana leaves for various chronic non-healing wounds and ulcers.

**Keywords:** developing countries, pemphigus, ulcer

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## INTRODUCTION

*Pemphigus vulgaris* is an autoimmune-mediated blistering disorder characterized by flaccid blisters and erosions over the mucocutaneous surface. Auto-antibodies are directed against desmoglein 1 and 3, which cause separation and acantholysis of keratinocytes, leading to blisters and erosions. Loss of the epidermis predisposes to secondary infection and other complications, which are managed with the help of immunosuppressants, antibiotics, and adequate wound care.

The ideal wound dressing should combine the following features: a moist environment at the wound interface, a barrier function to microorganisms, and non-adherent, non-toxic, non-allergenic, and non-sensitizing properties <sup>1,2</sup>. Most modern-day dressings possess these features but

can be difficult and expensive to obtain, especially in resource-poor settings. Alternative dressing materials like banana leaves and potato peels have been described by Chongchet and Gore *et al.* for superficial and partial thickness epidermal burns, with similar efficacy to traditional dressings <sup>3-5</sup>.

Noting the similarity between burn erosions and pemphigus erosions, we decided to try banana leaves as a dressing material for our patient. We started this dressing protocol when our patient failed to respond to modern-day dressing, alongside adequate antibiotics and immunosuppression.

## CASE PRESENTATION

A 66-year-old female with nil pre-existing comorbidities and a biopsy and immunofluorescence-proven diagnosis of pemphigus vulgaris presented

with multiple flaccid bullae and erosions covering 40% of the body surface area over her chest, back, and upper arms but no mucosal involvement. Her initial anti-desmoglein 1 and 3 titers were more than 200 IU. She was admitted to the dermatology ward and started on systemic antibiotics based on wound culture and sensitivity (growth of *Staphylococcus aureus* and *Pseudomonas aeruginosa*). The patient was started on intravenous clindamycin (600 mg every 8 hours), intravenous linezolid 600 mg (every 12 hours), oral steroids (prednisolone; 1 mg/kg body weight), and cyclophosphamide (50 mg daily). However, she worsened clinically with the evolution of new bullae and rupture of pre-existing ones, leading to the development of multiple superficial erosions over the bullae sites, coalescing to involve the entire back, chest, inframammary region, and buttocks (Figure 1). The steroid dose was increased to 1.25 mg/kg/day body weight, and petroleum jelly impregnated gauze dressing and an ointment containing nano-colloidal silver were initiated daily. However, there was no improvement or epithelialization

of erosions even after 15 days. Also, the patient complained of intense, intolerable pain (visual analogue scale of 7-8) while the dressing was changed, and the investigators noticed bleeding from the raw areas. This prompted the use of an alternative dressing. Banana leaves were prepared by stripping the central stem and dividing each leaf into uniform halves. The leaves were cleaned with saline, autoclaved and applied on the erosions after painting the raw areas with gentian violet. The leaves were secured in place with tape and roller gauze (Figure 2). The patient was content with this dressing as the pain during dressing change (visual analogue scale of 2-3) was negligible and the dressing was less bulky and more comfortable as opposed to the gauze dressing. The investigators also noticed a faster healing of the erosions with reduced bleeding from the raw areas and epithelialization of the erosions, evidenced by the fact that less dressing material was required as the days progressed (8 leaves and 4 bottles of gentian violet on day 1; reduced to half during the final days). Daily dressing, along with the



**Figure 1.** The patient's back on day 15 of admission.



**Figure 2.** Day 17 of admission; the banana leaf dressing was applied on the patient's back.



**Figure 3.** The patient's back on the day of discharge.

standard treatment protocol for pemphigus, saw the patient making a marked recovery, and the patient was discharged with significant healing of all wounds (Figure 3). She is being reviewed to date, and her steroids were gradually tapered because of achieving clinical remission.

## DISCUSSION

Wound dressing is an important aspect of the management of pemphigus patients. Because of the flaccid nature of the bullae, large superficial erosions are formed, which can get secondarily infected and prolong the pain that the patient has to suffer. Thus, it is important to provide adequate local management. Modern dressings like hydrocolloids, alginates, and hydrogels possess most of these features. However, these dressings are expensive, especially when required over a long period of time. These dressings are not readily available in most developing countries due to a lack of resources or financial constraints. Hence, alternative dressing materials should be considered.

Banana leaves are easily available in most tropical

countries. The first documentation of the use of banana leaves for wounds was in 1980, when sterile, steamed leaves were used as an inner dressing in burn wounds<sup>3</sup>. Further studies were conducted in India, where banana leaves were used in skin graft donor areas<sup>4</sup>. Gore *et al.* observed that the average pain score with banana leaves was much less than petroleum jelly gauze, while the rate of epithelialization was also much faster<sup>4</sup>.

Banana leaves are a natural product and must be sterilized before use to remove the pathogenic flora. Untreated leaves are profoundly contaminated with aerobic spore-forming bacilli, Gram-positive cluster-forming cocci, anaerobic spore-forming bacilli, and molds<sup>6</sup>. Guenova *et al.* studied various sterilization methods to arrive at the conclusion that steam sterilization/autoclaving is the best method to reduce the number of spores that are present on the leaves.

Gentian violet is a triphenylmethane dye with antibacterial, antifungal, anti-helminthic, anti-trypanosomal, anti-angiogenic, and anti-tumor properties. It was commonly used in the past as monotherapy in wound care or as an adjuvant in the treatment of other diseases. However, with the discovery and use of antibiotics, the use of

**Table 1.** Dressing cost per day

PARAFFIN GAUZE DRESSING		
MATERIALS	COST (RUPEES)	COST (DOLLARS) <sup>†</sup>
Normal saline - 500 ml (2)	30 (60)	0.42 (0.84)
Dressing pack	100	1.42
MegaHeal gel 50 gm	225	3.21
Vaseline gauze	150	2.14
Stripping pads (4)	70 (280)	1 (4)
Gauze pack (2)	50 (100)	0.72 (1.42)
Tape	10	0.14
TOTAL	925	13.19
BANANA LEAF DRESSING		
MATERIALS	COST (RUPEES)	COST (DOLLARS) <sup>†</sup>
Normal saline - 500 ml (1)	30	0.42
Dressing pack	100	1.42
Gauze pack	50	0.72
Gentian violet - 10 ml (4)	12 (48)	0.17 (0.68)
Banana leaves*	-	-
Autoclaving	100	1.42
Tape	10	0.14
TOTAL	338	4.80

\*Banana leaves were provided by the patient as her family grew banana plants in their home. The market cost of ten leaves is Rs 50.

<sup>†</sup>The dollar rate was calculated with the exchange rate of 1 USD = Rs 70.

gentian violet was discontinued to further the use and scientific research of newer antibiotics. With the emergence of antibiotic resistance, the use of gentian violet has regained popularity for anti-sepsis therapy. Along with banana leaves, we combined this time-tested solution for wound care and achieved positive results <sup>7</sup>.

There are many instances of banana leaves being used for burn wounds and at donor graft sites. However, we could not find any articles where it has been used for patients with pemphigus. As these patients require prolonged dressing, it was necessary to find an alternate solution that is effective and financially acceptable (Table 1). Hence, we started banana leaf dressing for our patient. The pain associated with dressing changes was reduced, the healing rate was faster, and it was an economical solution to her long stay in the hospital. This re-introduction of banana leaves as a dressing material for pemphigus erosions requires further evaluation and practice.

**Conflict of interest:** None declared.

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