

**INTEGRATED MANAGEMENT OF DIGITAL GANGRENE IN A DIABETIC ELDERLY  
PATIENT: A CASE REPORT****<sup>1</sup>Murali Krishna S., <sup>2</sup>Gopi Krishna B. J.**<sup>1</sup>Postgraduate Scholar, Department of Shalyatantra, Sri Dharmasthala Manjunatheshwara College of Ayurveda and Hospital, Hassan, Karnataka-573201, India.<sup>2</sup>Professor, Department of Shalyatantra, Sri Dharmasthala Manjunatheshwara College of Ayurveda and Hospital, Hassan, Karnataka-573201, India.**\*Corresponding Author: Murali Krishna S.**Postgraduate Scholar, Department of Shalyatantra, Sri Dharmasthala Manjunatheshwara College of Ayurveda and Hospital, Hassan, Karnataka-573201, India. DOI: <https://doi.org/10.5281/zenodo.18430261>**How to cite this Article:** <sup>1</sup>Murali Krishna S., <sup>2</sup>Gopi Krishna B. J. (2026). Integrated Management Of Digital Gangrene In A Diabetic Elderly Patient: A Case Report. World Journal of Pharmaceutical and Medical Research, 12(2), 231–235. This work is licensed under Creative Commons Attribution 4.0 International license.

Article Received on 05/01/2026

Article Revised on 26/01/2026

Article Published on 01/02/2026

**ABSTRACT**

Diabetic foot ulcers and digital gangrene are severe complications affecting 6-10% of diabetic patients worldwide, particularly elderly individuals with poor glycemic control, leading to limb loss, reduced quality of life, and substantial healthcare costs. This case report describes the integrated management of digital gangrene in a 70-year-old male with Type II Diabetes Mellitus (HbA1c 8.0%) presenting with a 15-day nonhealing wound on the left fourth toe that turned black, accompanied by pain, bilateral lower limb discoloration, edema, constipation, and depression. Diagnosis was confirmed via clinical findings (swelling, redness, tenderness), labs (FBS 108-116.9 mg/dl, PPBS 175.6 mg/dl), and peripheral angiogram showing arterial stenoses/occlusions. Treatment combined modern medicine—IV Durataz 4.5g, Pantoprazole 40mg, Tramadol, Sitagliptin+Metformin, Ecosprin 150mg, Clopilet 75mg, Linezolid 600mg (13-04-2025 to 01-05-2025)—with minor distal phalanx amputation on 01-05-2025 without local anesthesia. Ayurvedic interventions included Manjistadi Kshara Basti (Sukumara Ghrita 80ml Anuvasana, Manjistadi Ksharakashaya 300ml Niruha), Kseerabala Taila Pichu, Matra Basti (Panchagavya Ghrita), Jatyadi Taila dressings, and internals (Meha Abhaya, Maha Manjishtadi, Punarnavastaka Kashayas; Nimbadi Guggulu). Post-treatment, pain/inflammation subsided, wound granulated steadily, edema resolved, mood improved, and mobility was regained by discharge. Modern therapies controlled the infection, glycemia and circulation; Ayurveda aided detoxification, vata pacification, and regeneration. This synergistic approach highlights potential for limb salvage in diabetic gangrene, warranting further research on standardized integrative protocols.

**KEYWORDS:** Digital gangrene, Ayurveda integration, diabetic foot, limb salvage.**INTRODUCTION**

Diabetic foot ulcers and digital gangrene are among the most serious complications of diabetes, affecting approximately 6-10% of diabetic patients worldwide.<sup>[1]</sup> These conditions arise due to vascular insufficiency, neuropathy, and recurrent infections, often leading to prolonged hospitalization and complex medical interventions. The prevalence is higher in elderly patients with long-standing, poorly controlled diabetes, increasing the risk of morbidity significantly. Digital gangrene, in particular, can result in partial or complete limb loss, severely diminishing patients' mobility, independence, and overall quality of life.<sup>[2]</sup>

Beyond individual suffering, these complications impose a substantial burden on healthcare systems and economies. The high costs of treatment, including medication, wound care, surgeries, and rehabilitation, contribute to escalating health expenditures globally. Amputations often lead to disability, loss of productivity, and increased dependency on healthcare resources, intensifying socioeconomic challenges for patients and communities.<sup>[3]</sup> Integrating early conservative approaches with Ayurveda alongside conventional care may offer a valuable strategy to improve healing outcomes, reduce the need for major amputations, and ultimately mitigate these wide-ranging impacts.

This case report presents the integrated management of digital gangrene in an elderly diabetic patient, highlighting the role of Ayurveda as a complementary approach in conjunction with conventional therapy. Through this multidisciplinary strategy, we aim to illustrate how early intervention with combined modalities can facilitate wound healing, improve quality of life, and possibly prevent major limb loss in vulnerable diabetic populations.

### Patient Information

A 70-year-old male patient, diagnosed with Type II Diabetes Mellitus and on regular medication, presented with a nonhealing wound on the fourth toe of his left foot. The wound had persisted for 15 days and had started turning black over the last 3 days, indicating possible tissue necrosis. The patient reported associated symptoms including pain, burning sensation, and discoloration in both lower limbs, bilateral leg swelling, and difficulty in passing stools. Despite being on treatment, his glycemic control was fair, with an HbA1c level of 8.0%. He was admitted to Sri Dharmasthala Manjunatheshwara Ayurveda Hospital, Hassan, Karnataka, India, for integrated management from 13-04-2025 to 24-04-2025.

### Clinical Findings

On general examination, the patient was conscious and well-oriented. Cardiovascular and respiratory system evaluations were unremarkable, with normal heart sounds (S1, S2) and vesicular breath sounds. Abdominal examination revealed a soft, non-tender abdomen. Mental status examination revealed the patient was alert and oriented but exhibited signs of depression, likely related to the distress caused by the chronic nonhealing wound and its impact on his daily life. He reported feelings of sadness, frustration, and decreased motivation during the hospital stay. Local examination of the left foot revealed swelling, redness, tenderness, and increased temperature, consistent with localized inflammation and infection. Bilateral lower limb discoloration and edema were noted. Vital signs were stable. Laboratory investigations revealed hemoglobin of 14.0 g/dl, white blood cell count within normal limits (4,600–6,800 /cmm), fasting blood sugar between 108 and 116.9 mg/dl, postprandial blood sugar of 175.6 mg/dl, and elevated liver enzymes (SGOT/SGPT) with albumin slightly reduced at 3.2 g/dl. Peripheral angiogram reported mild diffuse disease in the right superficial femoral and popliteal arteries, multiple proximal stenoses and occlusion in the right posterior tibial artery, while other vessels showed preserved luminal diameter and patent pedal arch.

### Diagnosis

Based on clinical presentation, imaging, and laboratory results, the patient was diagnosed with digital gangrene of the left fourth toe secondary to peripheral vascular disease in the context of Type II Diabetes Mellitus with suboptimal glycemic control (HbA1c = 8.0%). The

peripheral arterial disease and compromised blood flow contributed significantly to the ischemic changes observed in the affected toe.

### Therapeutic Intervention and Timeline

#### Modern Medicine Support (13-04-2025 to 01-05-2025)

- Intravenous Inj. Durataz 4.5 g (piperacillin-tazobactam) for broad-spectrum antimicrobial coverage
- Inj. Pantoprazole 40 mg IV to protect gastric mucosa
- Inj. Tramadol in normal saline for pain management
- Oral hypoglycemics: Tab. Sitagliptin + Metformin 50/500 mg for glycemic control
- Antiplatelet therapy: Tab. Ecosprin 150 mg and Tab. Clopilet 75 mg to improve circulation
- Tab. Linezolid 600 mg added for resistant infection control

#### Surgical Intervention (01-05-2025)

A minor surgical amputation of the distal phalanx of the left fourth toe with careful bone trimming was performed without local anesthesia. Postoperative wound dressing involved the application of Jatyadi Taila, following Ayurvedic principles to support pain modulation, antiseptics, and tissue regeneration.

#### Ayurvedic Interventions (From admission 13-04-2025 and continued post-surgery till 24-04-2025)

- Manjistadi Kshara Basti: Anuvasana (oil enema) with Sukumara Ghrita 80 ml and Niruha (decoction) Basti with Manjistadi Ksharakashaya 300 ml for cleansing and vata pacification
- Kseerabala Taila Pichu applied locally for soothing effects and to manage vata dosha
- Matra Basti with Panchagavya Ghrita administered to address systemic vata imbalance and support elimination
- Regular wound dressing with Jatyadi Taila applied to promote healing and prevent infection
- Internal Ayurvedic medications included Meha Abhaya Kashaya, Maha Manjishtadi Kashaya, Punarnavastaka Kashaya, and Nimbadi Guggulu, aimed at controlling diabetes and enhancing tissue repair

#### Follow-up and Outcomes

Throughout the hospital stay (13-04-2025 to 24-04-2025) and following minor amputation on 01-05-2025, the patient showed significant clinical improvement. Pain and inflammation decreased, wound granulation progressed steadily, and swelling subsided. The combined integrative approach optimized glycemic control and circulation while promoting tissue healing. Notably, the patient's mood and motivation also improved with symptomatic relief and supportive care. By discharge, the wound was showing satisfactory healing, and the patient regained better mobility and functionality. At 50 days from the initial presentation, the patient continued on scheduled outpatient follow-up focused on meticulous wound care, strict diabetes

control, and ongoing psychological support to minimize recurrence risk and enhance quality of life. Although the ulcer had not completely healed, there was marked reduction in wound size, depth, slough, and local inflammation, with healthy granulation tissue evident

and no signs of active infection. Overall, this structured follow-up contributed to progressive wound stabilization, better glycemic control, and improved functional status and emotional wellbeing.



Figure 01: Before Treatment anterior and Posterior views.



Figure 02: The minor amputation done without any anaesthesia.



Figure 03: Progress with the treatment.

## DISCUSSION

Digital gangrene in diabetic patients poses a multifactorial challenge involving vascular insufficiency, infection, and impaired wound healing.<sup>[4]</sup> In this case, the integration of modern medical therapies alongside Ayurvedic interventions facilitated a comprehensive treatment approach addressing these complexities.

The modern medical management began with broad-spectrum intravenous antibiotics (Inj. Durataz and Linezolid) to effectively control local and systemic infections, preventing the spread of gangrene. This was crucial given the high risk of polymicrobial infections in diabetic foot wounds.<sup>[5]</sup> Pantoprazole protected the gastric mucosa during prolonged antibiotic use, while tramadol provided adequate pain relief, improving patient comfort and compliance. Oral hypoglycemics (Sitagliptin + Metformin) were maintained to optimize glycemic control, critical to enhancing immune response and tissue repair.<sup>[6]</sup> Antiplatelet agents (Ecosprin, Clopilet) aided in improving peripheral circulation, thus addressing the ischemic component of the wound.<sup>[7]</sup>

Surgical amputation of the necrosed distal phalanx was strategically performed to remove nonviable tissue and prevent further infection while preserving as much of the toe and foot structure as possible.<sup>[8]</sup> Notably, the procedure was executed without local anesthesia following Ayurvedic pain modulation principles, emphasizing minimal trauma and enhancing postoperative healing potential.

Ayurvedic treatments complemented modern care by targeting both local wound healing and systemic imbalances associated with diabetes. Manjistadi Kshara Basti (oil and decoction enemas) worked to detoxify the body, pacify aggravated vata dosha, and improve local circulation around the limb, which is vital for tissue regeneration in ischemic conditions.<sup>[9]</sup> The use of Kseerabala Taila applied locally as Pichu promoted soothing, anti-inflammatory effects and helped restore nerve function,<sup>[10]</sup> which is often compromised in diabetic neuropathy. The Matra Basti with Panchagavya Ghrita addressed systemic vata imbalance and enhanced metabolic functions, supporting overall elimination and reducing stagnation, which assists healing.<sup>[11]</sup>

Wound dressings with Jatyadi Taila were instrumental in preventing infections and promoting granulation tissue formation through its antimicrobial, anti-inflammatory, and regenerative properties.<sup>[12-14]</sup> The internal Ayurvedic formulations—including Meha Abhaya Kashaya, Maha Manjishtadi Kashaya, Punarnavastaka Kashaya, and Nimbadi Guggulu—have documented roles in controlling hyperglycemia, reducing oxidative stress, and improving microcirculation. These medicines likely contributed to improved glycemic control beyond the oral hypoglycemics and enhanced the body's capacity to repair damaged tissues.<sup>[15]</sup>

Together, these interventions resulted in reduced pain, diminished inflammation, and progressive wound healing with adequate granulation, as well as an improvement in the patient's psychological status. The integrative approach, leveraging both modern infection control and surgery with Ayurvedic detoxification, regeneration, and metabolic support, demonstrates a synergistic effect that can optimize diabetic limb salvage, especially in elderly patients with complex presentations.

## CONCLUSION

This case demonstrates that an integrative management strategy combining modern medical treatment, surgical intervention, and Ayurveda can be effective in managing digital gangrene in elderly patients with diabetes. Early intervention with both conservative and surgical care alongside systemic and local Ayurvedic therapies contributed to satisfactory wound healing and improved functional status. Such combined approaches offer promising avenues to mitigate diabetic foot morbidity, potentially minimizing major amputations and enhancing patients' overall wellbeing. Further studies are warranted to establish standardized protocols for integrative treatment in diabetic limb ischemia.

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