



Review Article

BRIDGING HORIZONS IN BURN CARE: CONTEMPORARY BIOMEDICAL ADVANCEMENTS AND THE EVOLVING SCOPE OF AYURVEDIC THERAPEUTICS

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Article info

Article History:

Received: 16-07-2026

Accepted: 14-08-2026

Published: 10-09-2026

KEYWORDS:

Dagdhavrana,
Burns, Fish skin
graft, Stem cell
therapy.

ABSTRACT

Severe burn injuries remain a significant global health burden, necessitating complex and highly specialized wound management to mitigate high rates of morbidity, mortality, and long-term disability. While most of the burn wound is managed effectively by medications, complications like contractures, deformities and functional impairment always remains a great challenge. This Article reviews the recent and impactful advancements revolutionizing the current landscape of burn wound care. The core of modern innovation lies in sophisticated regenerative medicine approaches. These inclusion of skin substitutes such as grafts like fish skin grafts, human amnion helps to minimize donor site morbidity. Parallel progress is seen in cell-based therapies, including autologous cell suspension sprays like ReCell which allow for rapid *in situ* re-epithelialization. Additionally, nanotechnology, mesenchymal stem cell therapy, temporary and permanent wound coverage is actively being incorporated into for targeted antimicrobial delivery and moisture optimization. Burn injuries, which cause profound thermal damage and systemic inflammation, have been documented and treated in classical Ayurvedic texts like Sushruta Samhita, suggesting robust traditional management protocols. Integrating these traditional concepts with contemporary challenges helps to achieve a better outcome in the wound care. Collectively, these breakthroughs represent a major shift toward personalized and regenerative burn treatment. By integrating smart biomaterials, and targeted cell delivery, the field is moving towards achieving scarless, functional tissue regeneration, ultimately promising a future with drastically improved functional and aesthetic outcomes for burn survivors.

INTRODUCTION

Burns are tissue injuries caused by the transfer of energy from a source to the body. It can be of thermal, chemical, electrical and radiation. These injuries are highly variable as is their severity. According to WHO, an estimated 180000 deaths are caused due to burns every year. The cost of burn care is about 12 billion US dollar annually and is expected to reach 35 billion US dollar by the year of 2023.

The landscape of burn management in 2026 is defined by a sophisticated duality: the rapid integration of high-tech regenerative medicine and a resurging

clinical interest in the holistic, multi-target approach of Ayurvedic medicine. Modern advancements have moved beyond simple wound coverage toward "active" therapeutics, utilizing bioengineered skin substitutes, 3D bioprinting of autologous stem cells, and AI-driven diagnostic platforms like Deep View AI to predict healing trajectories with unprecedented accuracy.

In 2026, the clinical paradigm for burn care has transitioned from mere wound coverage to an era of biomimetic regeneration. Modern advancements are now dominated by "smart" technologies, such as 3D *in situ* bioprinting, which allows surgeons to "print" a patient's own stem cells directly into a burn wound to create a custom-fitted biological graft. This is often paired with nanotechnology-based hydrogels that act as intelligent drug-delivery systems; these gels can sense shifts in the wound's pH- a common precursor to infection- and automatically release silver nanoparticles or antimicrobial peptides to neutralize

Access this article online

Quick Response Code



<https://doi.org/10.47070/ayushdhara.v13i4.2887>

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bacteria before a systemic infection (sepsis) can take hold. Furthermore, AI-driven diagnostic platforms now utilize multi-spectral imaging to provide a "depth-map" of burn injuries, allowing for precision debridement that saves viable tissue while removing only what is truly necrotic.

Simultaneously, the scope of Ayurvedic burn care- traditionally categorized under *Dagdha Vrana*- is expanding as an evidence-based complementary system. While conventional medicine excels in acute stabilization and fluid resuscitation (using protocols like the Parkland formula), Ayurveda offers potent solutions for the proliferation and maturation phases of healing. By employing formulations such as *Jatyadi Taila* (medicated oil) and *Shatadhauta Ghrita*, practitioners are successfully addressing issues that often plague modern recovery, including hypertrophic scarring, chronic inflammation, and the high cost of synthetic dressings. This integrative paradigm, combining the surgical precision of the 21st century with the phytochemical complexity of traditional "*Vranaropaka*" (wound-healing) agents, marks a new era in patient-centric, accessible burn rehabilitation.

Literature Survey

Advancements in burn care – Non surgical

It includes topical formulations & wound dressings.

Topical formulations

Topical agents are medicines which is used for preventing infections caused by normal skin flora. They are Used in the form of creams, ointments & lotions. Most commonly used one is– Silver sulfadiazine (SSD) which is effective against staphylococcus and streptococcus. SSD acts by slowly releasing Ag ions which damage bacterial DNA and sulfadiazine part prevent folic acid production of bacteria. An RCT conducted in patients with 2nd degree burns occupying less than 40% TBSA concluded that SSD gives promising results against gram positive bacteria^[1]. Another study by Amin et al concludes that Centiderm an Ointment made of Ethanolic extract of *Centella asiatica* concludes that indexes of the burning wound healing with Centiderm after 3 days of treatment healed better than routine treatment of 1% silver sulfadiazine^[2]. Since Centiderm is a plant derivative which shows better result comparing with standard SSD, so here comes the importance of drug research in Ayurveda. We can see a lot of drugs having the property of burn wound healing explained in our classic and traditional textbooks. So, there is a wide range of possibilities in Ayurveda in the field of topical burn care.

Wound Dressings

Dressings are materials which protects the damaged epithelium and minimizes bacterial and

fungal colonization. It maintains the desired position of the skin and provide comfort to the painful wound. Dressings can be done with natural polymers and synthetic polymers. Some of the natural polymers include:

1. Chitosan: A basic polysaccharide which is having antimicrobial, antifungal and antioxidant properties.^[3] Chitosan enhances wound healing by facilitating rapid blood clotting, utilizing its ability to bind red blood cells to achieve haemostasis^[4].
2. Elastin: Helps for prevention of contractures, dermal regeneration, angiogenesis and cell migration^[5].
3. Fibrin: Fibrin creates a dense, cross-linked mesh that stops bleeding and prevents the loss of plasma-a critical factor in managing burn-induced fluid loss. Also releases growth actors and helps in angiogenesis^[6].
4. Cellulose: offer high water retention and mimic the natural extracellular matrix for faster re-epithelialization.^[7]

Some examples for synthetic polymers include: polyvinyl alcohol, polyethylene glycol, polycaprolactone. These substances are impregnated in dressings which offer better burn wound healing.

Dressings Made of Nanomaterials

The inherent versatility of gold and silver nanoparticles-driven by adjustable sizes and surface coatings-makes them exceptional candidates for the precise delivery of therapeutic agents. Most commonly used nanoparticle in burn care is silver nanoparticle due to its strong and broad-spectrum antimicrobial activity^[8].

The integration of nanotechnology into the realm of herbal medicine represents a sophisticated, frontier approach to burn management, bridging ancient botanical wisdom with modern material science. By leveraging nanocarriers, we can significantly overcome the traditional limitations of herbal extracts-such as poor solubility and rapid degradation-thereby enhancing the bioavailability and ensuring the controlled, sustained release of bioactive phytoconstituents at the injury site ^[9].

This synergy heralds a transformative era for Ayurvedic burn care. Empirical evidence suggests that nano-formulations incorporating potent botanicals-specifically *Curcuma longa*, *Mangifera indica*, and *Azadirachta indica* (*Neem*)- play a pivotal role in accelerating re-epithelialization and modulating the inflammatory response essential for wound closure^[10,11,12].

By systematically embedding these Ayurvedic principles within nanotechnological frameworks, we can engineer high-efficacy, next-generation

therapeutics that redefine the standards of care in burn wound recovery.

Advancements in burn care – Surgical

This includes: Excision, Escharotomy, Debridement, Skin substitutes (Temporary and Permanent wound coverage)

Excision: Back in the 1970s, a major shift occurred in burn care when doctors started prioritizing early excision and skin grafting as the standard treatment^[13]. This quick intervention proved to be a game-changer, significantly boosting patient survival rates, cutting down on infections, and getting people out of the hospital much faster. On top of that, removing the damaged tissue right away seems to play a key role in preventing thick, raised hypertrophic scars^[14,15]. Surgical burn removal generally relies on two methods: tangential and fascial excision. Tangential excision shaves away thin layers of dead tissue until healthy, bleeding tissue is found. While it preserves more structure, clearing large areas can cause heavy bleeding and make it tough to see if the underlying wound is truly viable. Conversely, fascial excision cuts deeper, removing everything down to the muscle fascia. This approach controls bleeding much better, but it sacrifices fat, nerves, and vessels, which can lead to permanent contour deformities and chronic swelling (lymphoedema). If a burn penetrates the muscle itself, surgeons must cut back until they see active bleeding and muscle contraction to ensure only healthy tissue remains.

Escharotomy: To restore normal blood flow and tissue function, surgeons perform an escharotomy - a procedure designed to release the suffocating pressure caused by tough, burnt skin (eschar). Because a single cut is rarely enough to ease this constriction, surgeons typically make incisions on both sides of the torso, or along both the inner and outer sides of an affected limb. While the World Health Organization suggests performing an escharotomy within the first 48 hours of early burn management, many frontline clinicians argue for a much tighter window. The consensus among experts is that operating early, ideally within 6 hours of symptom onset yields the best results, whereas dragging your feet on the procedure significantly spikes the risk of severe septic complications^[16].

Debridement: Surgical debridement involves the removal of healthy tissue and the deformation of the wound contour. Standard surgical debridement comes with distinct challenges. It frequently claims healthy tissue alongside the dead matter, warping the wound's shape and expanding its overall surface area. On top of that, the procedure demands highly specialized clinical expertise and requires intravenous pain medication to

keep the patient comfortable. Today, medical teams have access to several excellent alternatives for clearing away dead skin without standard surgery. These include hydrosurgery, maggot debridement therapy, lasers, and specialized cauterization tools^[17]. Another fascinating non-surgical option involves minimally invasive enzymatic debridement, which uses targeted proteolytic enzymes to gently dissolve damaged tissue^[18].

Skin substitutes: Two types– temporary and permanent skin substitutes

Temporary wound coverages

- Allografts
- Xenografts
- Human amnion
- Fish skin graft
- Artificial skin

Allograft and Xenograft: When it comes to biological skin substitutes, doctors generally categorize them by their source: xenografts come from different species, while allografts are harvested from humans. These human grafts can come from either living donors or cadavers. For patients who have suffered massive burns covering a high percentage of their total body surface area (TBSA), using their own skin an autograft just isn't an option initially. Instead, surgeons temporarily cover the exposed wounds with allografts. While these are widely seen as excellent, short-term biological dressings that typically last only a week or two before being rejected or removed due to infection, there are unique exceptions. A few studies have shown that when an allograft is perfectly HLA-matched, it might actually escape rejection and stay on permanently. To keep up with the demand for these vital tissues, many countries have set up specialized skin banks capable of preserving allografts in liquid nitrogen for up to five years^[19,20,21,22,23].

Standard burn care heavily relies on traditional biological dressings, specifically xenografts and allografts. For instance, fresh or frozen cadaveric split-thickness skin is frequently used because, when managed correctly, it stays viable and actively encourages new blood vessels to form across a healthy wound bed. The catch is that the body typically rejects it within a week or two. Other options, like pig skin (porcine) or freeze-dried cadaver skin, behave differently and don't always achieve that same level of revascularization or healing support. That said, human allografts have performed incredibly well in clinical trials, even beating out traditional silver sulfadiazine treatments for partial-thickness burns. Meanwhile, animal-derived xenografts are excellent for sticking directly to partial-thickness wounds, where they help naturally clear away dead eschar tissue^[24].

Human amnion: When autografts aren't an option especially in low-resource medical environments the placenta can serve as a highly effective temporary cover for partial-thickness and excised burns. It functions as a protective biological shield that minimizes pain, allows clinicians to visually monitor the wound through its translucent surface, and is straightforward to apply or remove. However, managing it comes with distinct hurdles. Collecting, prepping, and storing placental tissue requires strict quality control, and the dressing itself is prone to breaking down, demanding fresh changes every two days. There are also financial burdens and the ever-present threat of cross-infection to consider. Alternatively, medical teams can use just the inner layer of the placenta: the amniotic membrane. Throughout pregnancy, this membrane naturally releases a powerful cocktail of factors that drive tissue renewal, curb inflammation, modulate immune responses, and even block cancer or excessive blood vessel growth. It also boasts built-in antiviral and bacteria-fighting properties. Utilizing these traits isn't entirely new; surgeons actually began auto transplanting amniotic and chorionic tissues to treat complex wounds back in the 20th century [24,25].

Fish skin graft: When treating severe burn wounds, the demand for cellular and tissue-based therapies is skyrocketing especially when a patient is so badly burned that there simply isn't enough healthy, intact skin left to harvest for traditional autografts. To address this challenge, a study by Stone R. et al. evaluated alternative solutions. The researchers discovered that acellular fish skin grafts (FSG) actually outperformed foetal bovine dermis, showing significantly better results in accelerating and improving the overall wound-healing process. The fish skin grafts demonstrated superior clinical outcomes, characterized by accelerated tissue integration and more rapid re-epithelialization, notably without causing increased wound contraction[26]. These fish skin grafts are typically sourced from species like Nile tilapia (*Oreochromis niloticus*) or wild North Atlantic cod (*Gadus morhua*). The FDA first greenlit these dressings back in 2013, and today, Kerecis® Omega3 produced by Kerecis in Isafjordur, Iceland stands as the only certified product of its kind commercially available. Building on this technology, a research team led by Wallner et al. stepped in to investigate how burn wounds respond to these fish skin grafts over the long term[27,28,29]. Acellular fish skin is showing real promise as an affordable, budget-friendly option for treating both superficial and deep partial-thickness burns. That said, we still need larger, more comprehensive clinical studies to fully map out its true potential, benefits, and any hidden limitations this approach might have[30].

Artificial skin: They have become a go-to option because they really step up the healing process cutting down on pain, minimizing scars, and mimicking the natural properties of human skin. Generally, these dressings stay on until the injury heals completely, which usually takes about 10 to 14 days. That said, they aren't a one-size-fits-all solution. While prospective trials show they work incredibly well for superficial and mid-dermal burns after cleaning out dead tissue, using them incorrectly on deep partial-thickness burns can actually spike infection rates. They are highly effective, but managing deeper wounds requires extra caution to keep infections at bay[31,32].

Ayurvedic Perspectives

Ayurveda explains two types of *Dagdha* or burns;

1. *Pramada dagdha* – Accidental burns
2. *Ithara dagdha* – Therapeutic burns

Accidental burns include; प्लुष्ट, दुर्दग्ध, सम्यक्दग्ध and अतिदग्ध

- प्लुष्ट- Discoloration of the skin of affected part along with burning sensation.
- दुर्दग्ध- Burns presenting with blisters and different types of pain, burning, redness, inflammation.
- सम्यक्दग्ध- Burns which are not deeply seated nor superficial. Having the colour of *Tala Phala*.
- अतिदग्ध- The patient presents with a deep, full-thickness tissue injury extending through the epidermis, dermis, subcutaneous layer, musculature, vasculature, tendons, and ligaments, resulting in the exposure of underlying anatomical structures. Concomitant systemic symptoms include high-grade pyrexia, severe causalgia (burning pain), polydipsia, and clinical signs of dehydration. The wound demonstrates delayed healing accompanied by localized tissue discoloration.

Management

प्लुष्ट – Use of *Usna dravya*

दुर्दग्ध - Use of both warm and cold medication, external application– *Ghrita*, *Lepa* and *Seka* having *Sheeta* properties.

सम्यक्दग्ध – *Lepa* formulated from a synergistic blend of *Tugakshiri* (*Bambusa arundinacea*), *Plaksha* (*Ficus lacor*), *Chandana* (*Santalum album*), *Amrita* (*Tinospora cordifolia*), and *Gairika* (Red Ochre), processed with *Ghrita* (clarified butter), is indicated for local application.

अतिदग्ध - The physician must first excise or debride the sloughed, necrotic muscle tissues and immediately initiate *Sheetala Kriya*. The wound should be managed with a *Pralepa* of *Shali-tandula* (rice flour) or a mixture of *Tinduki-twak* and *Ghrita*, and subsequently covered

with *Guduchi* leaves or aquatic plants to preserve moisture. Finally, the clinician must execute the entire systemic treatment protocol matching that of *Pitta-Visarpa*.

In case of therapeutic burn– after *Agnikarma* Acharya Susrutha advises to apply *Ghritha* and *Madhu*. A *Gritha yoga* containing *Madhūcchiṣṭa* (*Cera alba*), *Madhūka* (*Glycyrriza glabra* Linn), *Lodhra* (*Symplocos racemosa* Roxb), *Sarjarasa* (*Vateria indica* Linn.), *Mañjiṣṭha* (*Rubia cordifolia* Linn), *Candana* (*Santalum album* Linn), *Mūrvā* (*Marsdenia tenacissima* Roxb) is also explained in context of *Agnikarma vidhi*.

These are the only information regarding burn care explained in our classics. Later on, many traditional textbooks like *Bhaiṣajyaratnāvali*, *Chikitsamanjari*, *Yogamrutam* etc. came which containing external remedies for burn care. But these text books are unexplored and not scientifically validated to use on patients.

Scientifically validated topical applications for burns in Ayurveda

1. Article by Anjana et al concluded that *Yashtimadhuadi ghrta* which is explained in *Agnikarma vidhi adyaya* by Susrutha has shown promising results in 1st and 2nd degree burns^[33].
2. Article by Mahes Sharma et al concluded that *Jatyadi taila* gives promising results in the treatment of partial thickness burns^[34].
3. Second degree burns managed with application of *Vikeshika* made of *Taila* prepared of *Patoladi gana* explained by Acharya Susrutha^[35].
4. A study by Pradeep et al introduced an integrative approach by the application of *Ropana grutha* and *Patradhana* along with conventional IV antibiotics on accidental burn concluded that *Patradhana* and *Ropana grutha* has a promising result in managing burn wound^[36].
5. A case study by Mahesh Kumar concluded that *Agnikarma* has a promising result in burn scar contracture management^[37].

CONCLUSION

The landscape of burn wound care is undergoing a profound and exciting transformation. Burn care is moving toward achieving functional and aesthetic recovery, not just survival. Focus on advanced skin substitutes, nanotechnology-enhanced dressings, and the potential of stem cell therapy and bioprinting. In the field of Ayurveda, apart from the classical texts ample formulations are available in textbooks like *Yogamrutam*, *Chikitsa Manjari*, *Bhaiṣajyaratnāvali* etc. Most of these *Yogas* are unexplored, lack of researches and knowledge from these textbooks narrows the path of clinical

implications in the management of burn wounds. It is only by continuous research and multidisciplinary collaborations that paves way for betterment of science in the field of burn wound care.

REFERENCES

1. Walia SS, Prasad DN, Silver Sulfadiazine: Action on Burn Wound Sepsis and Infections, *Journal of Drug Delivery and Therapeutics*. 2022; 12(4): 154-161
2. Saeidinia, Amin & Keihanian, Faeze & Pasdaran, Ardalan & Lahiji, Hossein & Mobayen, Mohammadreza & Heidarzade, Abtin & Golchai, Javad. (2017). Partial-thickness burn wounds healing by topical treatment: A randomized controlled comparison between silver sulfadiazine and centiderm. *Medicine*. 96. e6168. 10.1097/MD.00000000000006168.
3. Moreno, J.A.S.; Mendes, A.C.; Stephansen, K.; Engwer, C.; Goycoolea, F.M.; Boisen, A.; Nielsen, L.H.; Chronakis, I.S. Development of electrosprayed mucoadhesive chitosan microparticles. *Carbohydr. Polym.* 2018, 190, 240–247.
4. Valachova, K.; Svik, K.; Biro, C.; Soltes, L. Skin wound healing with composite biomembranes loaded by tiopronin or captopril. *J. Biotechnol.* 2020, 310, 49–53
5. Almine JF, Bax DV, Mithieux SM, Sivard L, Bhavé M, Viari A, et al. Elastin-based materials as substitutes for skin and tissue engineering. *Trends Biotechnol.* 2012; 30(8): 431-9.
6. Laurens N, Koolwijk P, de Maat MP. Fibrin structure and wound healing. *J Thromb Haemost.* 2006; 4(5): 932-9.
7. Zhong SP, Zhang YZ, Lim CT. Tissue engineering and biocompatibility of regenerative scaffolds for dermal wound healing. *Nanomedicine (Lond)*. 2010; 5(3): 457-77.
8. Vijayakumar, V.; Samal, S.K.; Mohanty, S.; Nayak, S.K. Recent advancements in biopolymer and metal nanoparticle-based materials in diabetic wound healing management. *Int. J. Biol. Macromol.* 2019, 122, 137–148.
9. Qadir, A.; Jahan, S.; Aqil, M.; Warsi, M.H.; Alhakamy, N.A.; Alfaleh, M.A.; Khan, N.; Ali, A. Phytochemical-Based Nano Pharmacotherapeutics for Management of Burn Wound Healing. *Gels* 2021, 7, 209.
10. Huang, S.; Fu, X. Naturally derived materials-based cell and drug delivery systems in skin regeneration. *J. Control. Release* 2010, 142, 149–159.
11. Allaw, M.; Pleguezuelos-Villa, M.; Manca, M.L.; Caddeo, C.; Aroffu, M.; Nacher, A.; Diez-Sales, O;

- Saurí, A.R.; Ferrer, E.E.; Fadda, A.M.; et al. Innovative strategies to treat skin wounds with mangiferin: Fabrication of transfersomes modified with glycols and mucin. *Nanomedicine* 2020, 15, 1671–1685.
12. Manca, M.; Manconi, M.; Meloni, M.; Marongiu, F.; Allaw, M.; Usach, I.; Peris, J.; Escribano-Ferrer, E.; Tuberoso, C.; Gutierrez, G.; et al. Nanotechnology for Natural Medicine: Formulation of Neem Oil Loaded Phospholipid Vesicles Modified with Argan Oil as a Strategy to Protect the Skin from Oxidative Stress and Promote Wound Healing. *Antioxidants* 2021, 10, 670.
13. Burke, J.F.; Bondoc, C.C.; Quinby, W.C. Primary burn excision and immediate grafting: A method shortening illness. *J. Trauma* 1974, 14, 389–395. [CrossRef] [PubMed]
14. Rowan, M.P.; Cancio, L.C.; Elster, E.A.; Burmeister, D.M.; Rose, L.F.; Natesan, S.; Chan, R.K.; Christy, R.J.; Chung, K.K. Burn wound healing and treatment: Review and advancements. *Crit. Care* 2015, 19, 243. [CrossRef]
15. Thorne, C.H.; Chung, K.C.; Gosain, A.K.; Gurtner, G.C.; Mehrara, B.J.; Rubin, J.P.; Spear, S.L. *Grabb and Smith's Plastic Surgery*, 7th ed.; Wolters Kluwer Health Adis (ESP)/Lippincott Williams & Wilkins Health: Philadelphia, PA, USA, 2013.
16. Surowiecka, A.; Korzeniowski, T.; Strużyna, J. Early burn wound excision in mass casualty events. *Mil. Med. Res.* 2022, 9, 42. [CrossRef]
17. Griffin, B.; Bairagi, A.; Jones, L.; Dettrick, Z.; Holbert, M.; Kimble, R. Early non-excisional debridement of paediatric burns under general anaesthesia reduces time to re-epithelialisation and risk of skin graft. *Sci. Rep.* 2021, 11, 23753. [CrossRef]
18. Zacharevskij, E.; Baranauskas, G.; Varkalys, K.; Rimdeika, R.; Kubilius, D. Comparison of non-surgical methods for the treatment of deep partial thickness skin burns of the hand. *Burns* 2018, 44, 445–452. [CrossRef]
19. Halim, A.S.; Khoo, T.L.; Mohd Yusoff, S.J. Biologic and synthetic skin substitutes: An overview. *Indian J. Plast. Surg.* 2010, 43, S23–S28. [CrossRef]
20. Staud, C.J.; Resch, A.; Christ, A.; Borger, A.; Zaussinger, M.; Teufelsbauer, M.; Worel, N.; Radtke, C. Skin Bank Establishment in Treatment of Severe Burn Injuries: Overview and Experience with Skin Allografts at the Vienna Burn Center. *J. Clin. Med.* 2023, 12, 4717. [CrossRef]
21. Keswani, S.M.; Mishra, M.G.; Karnik, S.; Dutta, S.; Mishra, M.; Panda, S.; Varghese, R.; Virkar, T.; Upendran, V. Skin banking at a regional burns centre-The way forward. *Burns* 2018, 44, 870–876. [CrossRef]
22. Rezaei, E.; Beiraghi-Toosi, A.; Ahmadabadi, A.; Tavousi, S.H.; Tabrizi, A.A.; Fotuhi, K.; Nooghabi, M.J.; Manafi, A.; Moghadam, S.A. Can Skin Allograft Occasionally Act as a Permanent Coverage in Deep Burns? A Pilot Study. *World J. Plast. Surg.* 2017, 6, 94–99.
23. Rogers, A.D.; Allorto, N.L.; Adams, S.; Adams, K.G.; Hudson, D.A.; Rode, H. Isn't it time for a cadaver skin bank in South Africa? *Ann. Burn. Fire Disasters* 2013, 26, 142–146.
24. Johnson, R.M.; Richard, R. Partial-Thickness Burns: Identification and Management. *Adv. Skin Wound Care* 2003, 16, 178–187. [CrossRef] [PubMed]
25. Schmiedova, I.; Dembickaja, A.; Kiselakova, L.; Nowakova, B.; Slama, P. Using of Amniotic Membrane Derivatives for the Treatment of Chronic Wounds. *Membranes* 2021, 11, 941. [CrossRef]
26. Stone, R.; Saathoff, E.C.; Larson, D.A.; Wall, J.T.; Wienandt, N.A.; Magnusson, S.; Kjartansson, H.; Natesan, S.; Christy, R.J. Accelerated Wound Closure of Deep Partial Thickness Burns with Acellular Fish Skin Graft. *Int. J. Mol. Sci.* 2021, 22, 1590. [CrossRef]
27. Luze, H.; Nischwitz, S.P.; Smolle, C.; Zrim, R.; Kamolz, L.P. The Use of Acellular Fish Skin Grafts in Burn Wound Management- A Systematic Review. *Medicina* 2022, 58, 912. [CrossRef]
28. Yang, C.K.; Polanco, T.O.; Li, J.C.L. A Prospective, Postmarket, Compassionate Clinical Evaluation of a Novel Acellular Fish-skin Graft Which Contains Omega-3 Fatty Acids for the Closure of Hard-to-heal Lower Extremity Chronic Ulcers. *Wounds* 2016, 28, 112–118. [PubMed]
29. Wallner, C.; Holtermann, J.; Drysch, M.; Schmidt, S.; Reinkemeier, F.; Wagner, J.M.; Dadrass, M.; Sogorski, A.; Houschyar, K.S.; Becerikli, M.; et al. The Use of Intact Fish Skin as a Novel Treatment Method for Deep Dermal Burns Following Enzymatic Debridement: A Retrospective Case-Control Study. *Eur. Burn J.* 2022, 3, 43–55. [CrossRef]
30. Kotkot, A.; Ghabisha, S.; Ahmed, F.; Al-Wageeh, S.; Al-Shami, E.; Al-Hajri, A.; Aljbri, W.; Mohammed, F. Fish skin as a biological dressing for burn injuries. *J. Emerg. Med. Trauma Acute Care* 2022, 2022, 18. [CrossRef]
31. Song, D.H.; Neligan, P.C. *Plastic Surgery*, 4th ed.; Trunk and Lower Extremity; Elsevier: Amsterdam, The Netherlands, 2017.
32. Johnson, R.M.; Richard, R. Partial-Thickness Burns: Identification and Management. *Adv. Skin Wound Care* 2003, 16, 178–187. [CrossRef] [PubMed]

33. Anjana S, Arun S. Role of Yashtimadhuadi Ghrita for the Management of Agnidagdha Wound [Internet]. Vol. 8, World journal of pharmaceuticals and life sciences, Certified Journal. 2015. Available from: www.wjpls.org
34. Sharma M, Dushad L. Healing burns naturally: ayurvedic management of superficial partial-thickness burn with jatyadi taila. International Journal of AYUSH. 2025 Jul 13; 14(07): 10–5. doi:10.22159/PRLIJAYUSH.V14I07.1421
35. Shetty AJ, Sweta KM, Ramesh PB. A case series of second-degree burn patients managed with Patoladi vikeshika, an Ayurvedic contact layer dressing. J Ayurveda Integr Med. 2021 Jul 1; 12(3): 544–8. doi:10.1016/j.jaim.2021.03.011
36. Shindhe PS, K P, Killedar RS, Prasannan D, A K. An integrated management (Ayurveda and Modern medicine) of accidental burn injury: A case study. J Ayurveda Integr Med. 2023 Mar 1; 14(2). doi:10.1016/j.jaim.2023.100691
37. Kumar M. Treatment of burn scar contracture with agnikarma: a case report. An International Journal of Research in AYUSH and Allied Systems AYUSHDHARA [Internet].

Cite this article as:

Ajith Narayanan AM, Dr Sunitha PV. Bridging Horizons in Burn Care: Contemporary Biomedical Advancements and the Evolving Scope of Ayurvedic Therapeutics. AYUSHDHARA, 2026;13(4):607-613.

<https://doi.org/10.47070/ayushdhara.v13i4.2887>

Source of support: Nil, Conflict of interest: None Declared

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