

Karappan: A Scoping Review of Clinical Understanding of Balavisarpam through Kerala Ayurvedic Literature

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ABSTRACT

Background

Karappan, also referred to as *Balavisarpam* in Kerala Ayurvedic pediatric tradition, is a childhood disease construct characterised by varied cutaneous and systemic manifestations. Kerala texts, particularly *Arogyaraksha Kalpadrumam* and *Vaidyatharakam*, provide detailed descriptions of clinical patterns, etiological factors, and management approaches. Unlike a single modern dermatological diagnosis, Karappan appears to represent a broad pediatric clinical spectrum involving skin lesions together with constitutional, gastrointestinal, and respiratory features.

Objective

To critically review the clinical features and management principles of *Karappan/Balavisarpam* described in *Arogyaraksha Kalpadrumam* and *Vaidyatharakam*, and to explore their relevance to contemporary pediatric dermatology.

Materials and Methods

A narrative textual review was conducted using *Arogyaraksha Kalpadrumam* and *Vaidyatharakamas* the principal sources. Classical Ayurvedic literature on Visarpa and contemporary literature on pediatric atopic dermatitis, atopic march, epidermal barrier dysfunction, itch–scratch cycle, and topical coconut oil were reviewed for clinical comparison. Modern correlations were interpreted at the level of clinical phenotype and not as direct disease equivalence.

Discussion

Karappan encompasses diverse clinical manifestations, including pruritus, dryness, scaling, oozing, vesicles, pigmentation, ulceration, and chronic thickening of skin. The texts emphasize age at onset, breastfeeding and weaning history, feeding pattern, digestive status, bowel features, fever, lesion morphology, physical strength, and associated respiratory symptoms. This supports a whole-child assessment rather than an isolated cutaneous approach. *Vaidyatharakam* describes eighteen varieties of Karappan, while *Arogyaraksha Kalpadrumam* gives detailed importance to Visarpa in pediatric care. Akakarappan, with skin manifestations accompanied by altered bowel habits and respiratory features, offers a useful framework for discussing gut–skin–lung involvement and atopic multimorbidity. However, this correlation should be interpreted cautiously and not as an identity with atopic dermatitis or asthma. Kerala-specific yogas and pharmaceutical methods, including *Makkipuvadi Kashya*, *Gopicandanadi Gulika*, *Karikku Kashya*, and *Vattu Kashaya* and *Nalikera*-based external applications, highlight individualised pediatric therapeutics. Contemporary evidence supporting the barrier-improving effect of virgin coconut oil provides a possible rationale for discussing Nalikera-based external care in eczema-like phenotypes.

Conclusion

Karappan/Bālavisarpam is best understood as a heterogeneous Kerala pediatric clinical spectrum rather than a single skin disease. Textual assessment of age, feeding, *Agni*, bowel function, *Bala*, skin morphology, and respiratory manifestations can enrich contemporary clinical observation. Future studies should standardise *Karappan* phenotypes, document lesion morphology using dermatological terminology, evaluate Kerala formulations pharmaceutically, and establish pediatric safety and clinical effectiveness through well-designed studies.

Keywords: *Karappan; Balavisarpam, Vaidyatharakam, Arogyaraksha Kalpadrumam, Atopic dermatitis; Kerala Ayurveda.*

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INTRODUCTION

Childhood skin disorders are common clinical problems and may significantly affect sleep, feeding, growth, schooling, psychosocial well-being, and family quality of life. Among these disorders, chronic pruritic dermatoses are particularly challenging because itching, scratching, dryness, inflammation, sleep disturbance, and secondary infection may perpetuate one another. Contemporary pediatric dermatology recognises atopic dermatitis as a common chronic inflammatory dermatosis characterised by pruritus, xerosis, relapsing course, age-related lesion distribution, impaired epidermal barrier function, and frequent association with other atopic disorders such as food allergy, allergic rhinitis, and asthma.^{1,2,3}

Kerala Ayurvedic pediatric literature contains detailed descriptions of childhood illnesses that extend beyond the framework of major classical Sanskrit compendia. *Karappan*, also termed *Balavisarpam* in Kerala practice, is one such clinically significant disease entity. It is described with varied skin manifestations and, in several subtypes, with associated fever, digestive disturbance, abnormal bowel habits, oedema, respiratory complaints, and constitutional changes. Therefore, *Karappan* cannot be interpreted merely as a localised dermatological condition.

Arogyarakṣa Kalpadrumam is an important Kerala text of *Kaumarabhrtya* that provides practical guidance for pediatric care and includes detailed discussion of *Visarpa*, its varieties, and therapeutic *yogas*.⁴ *Vaidyatharakam*, another notable Kerala clinical text, describes eighteen varieties of *Karappan* with characteristic clinical features and subtype-specific treatment approaches.⁵ These sources preserve observations that may be valuable for present-day clinical interpretation, particularly when evaluated alongside current pediatric dermatology. In modern Ayurvedic literature, *Karappan* is often correlated with eczema or atopic dermatitis. However, such a single-label correlation is inadequate for the complete textual spectrum. Some varieties resemble chronic itchy eczematous dermatoses, while others include fever, vesicles, oozing, extensive inflammation, oedema, ulceration, or respiratory and gastrointestinal manifestations. A phenotype-based approach is therefore more appropriate: modern entities may be used as clinical comparators, while the uniqueness and diversity of the textual descriptions are retained.

The present narrative review critically examines *Balavisarpam* through *Arogyarakṣa Kalpadrumam* and *Vaidyatharakam*, with a focus on clinical assessment, etiological framework, representative varieties, contemporary dermatological correlation, and Kerala-specific therapeutic practices.

OBJECTIVE

To critically review the clinical features and management principles of *Karappan* (*Balavisarpam*) described in *Arogyarakṣa Kalpadrumam* and *Vaidyatharakam*, and to explore their relevance to contemporary pediatric dermatology.

Materials and Methods

Study design

This article is a narrative textual and literature review. Primary textual sources

1. *Arogyarakṣa Kalpadrumam*-particularly sections related to pediatric diseases, *Bālavisarpam* and relevant therapeutic *yogas*.
2. *Vaidyatharakam*-particularly the *Karappan Adhikara*, descriptions of the eighteen *Karappan* varieties, their clinical features, and management.
3. *Caraka Saṁhita Cikitsasthana*, *Visarpa Chikitsa*.
4. *Aṣṭāṅga Hṛdaya*, relevant sections on *Balaroga*, *Kuṣṭha* and *Visarpa*.
5. *Susruta Saṁhita*, relevant sections on *Visarpa* and *Kusta*.
6. *Sarṅgadhara Saṁhita*, for general pharmaceutical principles of *Kaṣhaya* preparations.

Contemporary literature review

Electronic literature was searched through PubMed, Google Scholar, and relevant Ayurveda databases using terms including: *Karappan*, *Balavisarpam*, *Vaidyatharakam*, *Arogyarakṣa Kalpadrumam*, atopic dermatitis, eczema, atopic march, itch-scratch cycle, skin barrier, trans epidermal water loss, pediatric eczema and virgin coconut oil.

Relevant review articles, clinical trials, guidelines, and articles cited in retrieved publications were examined. The purpose of the modern review was not

to establish direct equivalence between traditional and biomedical diagnoses but to identify possible phenotype-based clinical parallels.

Methodological approach to correlation

Textual terms were interpreted using the complete clinical context, including age, lesion morphology, distribution, constitutional symptoms, digestive symptoms, respiratory manifestations, and disease course. Direct word-to-word translation of Ayurvedic lesion terms into biomedical morphology was avoided where the context was uncertain. Contemporary dermatological conditions were considered only as cautious clinical correlations.

Karappan(Balavisarpam) in Kerala Pediatric Tradition

Karappan is a pediatric disease construct recognised in Kerala Ayurvedic practice and is commonly referred to as *Balavisarpam*. Kerala pediatric literature acknowledges *Karappan* as a clinically diverse condition affecting children and associated with a range of cutaneous as well as systemic presentations.⁶

Arogyaraksa Kalpadrumam is notable for its detailed account of *Balavisarpa* and describes fifty-one varieties.⁴ The large number of varieties may reflect close clinical observation of disease phenotypes prevalent during the period in which the text was compiled. It is not necessary to assume that all fifty-one types are encountered today as separate and clearly distinguishable entities. Variations in environment, hygiene, nutrition, infectious-disease patterns, diagnostic classification, and access to health care may influence the current expression of childhood dermatoses. Thus, these descriptions may be interpreted as a clinically rich historical spectrum. *Vaidyatharakam* provides a more focused description of *Karappan* and enumerates eighteen types: *Akakarappan*, *Plkarappan*, *Nirkarappan*, *Pannikkarappan*, *Sonitakarappan*, *Karinkarappan*, *Kuppikkarappan*, *Vranakarappan*, *Chilannikkarappan*, *Muzhankalkarappan*, *Kañṭamalakkarappan*, *Kuzhikkarappan*, *Toṇṭatamarakkarappan*, *Nilakarappan*, *Pitakarappan*, *Tikkarappan*, *Ceṇkarappan*, and *Paruṅgikkarappan*.⁵ The names and transliterations may differ according to Malayalam editions and local pronunciation.

The multiplicity of these types emphasises that *Karappan* should not be constrained to one contemporary disease label. Instead, it may be approached as a disease spectrum requiring subtype recognition and individual clinical assessment.

Etiological Framework of Karappan in Children

The general *nidana* of *Balavisarpam* can be understood at four levels: *Stanyadusti*, *Bijadosa*, *Rtu* /environmental influences, and *Garbhaja* factors.

Stanyadushti

In infancy, breast milk is the primary source of nourishment. Ayurvedic literature describes that maternal diet, lifestyle, disease state, and *doṣa* imbalance may influence the quality of *stanya* and contribute to disease manifestations in the child.⁷ From a clinical standpoint, assessment of a breastfed child with recurrent skin disease should include maternal dietary history, maternal illness, medications, breastfeeding pattern, feeding difficulties, and temporal association between maternal factors and infant symptoms.⁸

Stanyadushti should not be interpreted as blame directed toward the mother. It is a traditional model emphasising maternal–infant interdependence and the importance of maternal health in pediatric assessment.

Bijadosa

Bijadosa may be interpreted as inherited susceptibility or familial predisposition. In contemporary practice, this can be cautiously correlated with the importance of family history of atopic dermatitis, asthma, allergic rhinitis, food allergy, recurrent skin disorders, and other allergic conditions. *Bijadoṣa* should be understood as a predisposition rather than deterministic genetic causation.

Rtu and environmental influences

Seasonal and environmental factors may trigger or aggravate cutaneous symptoms. Heat, sweating, humidity, cold weather, xerosis, dust, soap, detergents, clothing, irritants, infections, and altered dietary patterns may influence the disease course. Environmental assessment is particularly important in recurrent or seasonal dermatoses.

Garbhaja factors

Garbhaja factors refer to antenatal and intrauterine influences. Maternal diet, illness, lifestyle, *doṣa* aggravation, emotional well-being, and obstetric conditions may contribute to constitutional susceptibility in the child. Contemporary interpretation may consider these as antenatal and developmental influences rather than direct causative proof.

Clinical Assessment of Karappan

Karappan should be evaluated as a whole-child disorder. The clinical assessment should include age, onset, feeding history, constitutional status, lesion morphology, associated systemic manifestations, and red-flag features.

Age and developmental context

Age at onset should be recorded as congenital, neonatal, infancy, toddlerhood, preschool age, or later childhood. The relationship between disease onset and breastfeeding, weaning, introduction of complementary foods, infections, seasonal changes,

and family history should be explored. Children are physiologically vulnerable during the transition from exclusive breast milk to complementary feeding because dietary changes may alter digestion, bowel habits, and exposure to food allergens or irritants.

Constitutional assessment

Constitutional features include fever, irritability, excessive crying, sleep disturbance, appetite, thirst, weight gain or loss, physical activity, oedema, pallor, and nutritional status. Ayurveda emphasises Bala, Agni, and vyadhikṣamatva, clinically, these may be assessed through growth parameters, appetite, digestion, frequency of illness, recovery, and the child's general condition.

Character of skin lesions

Lesions should be described in standard dermatological terms. Important features include:

- Primary lesion: macule, patch, papule, plaque, vesicle, pustule, erosion, ulcer, or nodule.
- Secondary change: scaling, crusting, oozing, excoriation, fissuring, bleeding, lichenification, scarring, hyperpigmentation, or hypopigmentation.
- Colour: erythematous, pink, brown, violaceous, greyish, coppery, or blackish.
- Surface: dry, rough, moist, scaly, crusted, thickened, tender, warm, or indurated.
- Distribution: face, scalp, trunk, extensor surfaces, flexural regions, elbows, knees, hands, feet, palms, soles, periorificial regions, and anogenital area.
- Symptoms: itching, burning, pain, local warmth, discharge, nocturnal worsening, and sleep disturbance.

The same textual term may not always correspond to a single modern lesion type. For example, *sphoṭa* may indicate vesicular or blistering lesions, while *pidaka* may refer to papular, pustular, or inflammatory lesions according to clinical context.

Associated manifestations

Associated symptoms should be actively assessed:

Gastrointestinal: poor feeding, vomiting, abdominal distension, diarrhoea, constipation, mucus stools, or food-related worsening.

Respiratory: cough, wheeze, dyspnoea, allergic rhinitis, recurrent respiratory illness, or nocturnal respiratory symptoms.

Ocular/oral: eye redness, discharge, oral lesions, whitish oral plaques, or feeding difficulty.

Urinary: decreased urine output, dysuria, crying while passing urine, or genital involvement.

Infection: fever, pain, warmth, pustules, honey-coloured crusting, rapid spread, lymphadenopathy, or toxic appearance.

Growth and development: poor weight gain, developmental concerns, school absence, and sleep-related quality-of-life impairment.

Clinical Spectrum of Karappan

The eighteen varieties in *Vaidyathārakam* represent diverse clinical phenotypes. Rather than providing forced one-to-one correlations, selected types can be discussed in relation to present-day dermatological differentials.

Akakarappan

Akakarappan is particularly important because it is described with systemic features in addition to skin manifestations. These include fever, altered bowel features, abdominal distension, mucus or frothy stools, diarrhoea or constipation, thirst, irritability, and respiratory symptoms such as dyspnoea.⁵

The combination of skin disease, gastrointestinal disturbance, and respiratory manifestations offers a useful framework for discussing the gut–skin–lung relationship. In contemporary paediatrics, atopic dermatitis may coexist with food allergy, gastrointestinal symptoms, allergic rhinitis, and asthma in some children. However, Akakarappan should not be equated directly with atopic dermatitis or asthma. It may instead be considered a textual phenotype that encourages multisystem assessment.

Chilannikkarappan and Muzhankalkarappan

Chilannikkarappan is described with itching, inflammatory skin manifestations, and lower-limb or knee-region involvement in some accounts. *Muzhankalkarappan* emphasises lesions around the knee joint, intense itching, fissuring, bleeding, discharge, and recurrent course.⁵ Such descriptions may resemble chronic flexural or lower-limb eczema-like phenotypes. Differential diagnoses may include atopic dermatitis, contact dermatitis, scabies, impetiginized eczema, psoriasis, fungal infection, and other chronic dermatoses.

Tikkarappan

Tikkarappan is characterised by burning, local heat, blistering, discolouration, fever, and systemic involvement.⁵ This pattern should not be simplistically labelled eczema. Acute inflammatory dermatoses, bacterial infections, viral eruptions, erysipelas/cellulitis-like conditions, drug reactions, and blistering disorders require consideration.

Centkarappan and Parungikkarappan

Descriptions of Cenkarappan and Parungikkarappan include severe inflammatory features, extensive lesions, discolouration, early onset, ulceration, or constitutional associations.⁵ These severe phenotypes may require evaluation for congenital dermatoses, genodermatoses, immunodeficiency, nutritional deficiency, severe inflammatory skin disease, or infection. No direct modern equivalence should be proposed without clinical documentation.

Akakarappan and the Gut–Skin–Lung Axis

The gut–skin–lung axis refers to the interrelationship between gastrointestinal health, epithelial barrier function, immune responses, cutaneous inflammation, and respiratory allergy. In children with atopic disease, barrier disruption and immune dysregulation may manifest through skin, gut, and respiratory systems.

The atopic march is a modern concept describing the common progression or co-occurrence of atopic dermatitis, food allergy, allergic rhinitis, and asthma during childhood.^{1,2} Not every child follows this sequence, and the term should not be used to imply inevitable disease progression. Nevertheless, it provides a useful clinical model when a child presents with eczema-like lesions together with food-related symptoms, altered bowel habits, wheeze, cough, or allergic rhinitis.

Akakarappan is relevant to this discussion because the classical clinical description includes cutaneous lesions, digestive disturbance, and respiratory features. This may be interpreted as a multisystem pediatric phenotype. In Ayurvedic language, a possible conceptual model includes *Agnimandya*, *Ama*, *Dosa Prakopa*, and involvement of *Annavaha*, *Rasavaha*, *Raktavaha*, and *Pranavaha Srotas*. This model should be presented as a conceptual framework rather than a proven biomedical mechanism.

The clinical value of this correlation lies in encouraging a comprehensive pediatric history. A child with recurrent pruritic dermatosis should be assessed not only for lesion morphology but also for food-related symptoms, bowel habit, growth, wheeze, sleep disturbance, allergic history, and family history of atopy.

Itch–Scratch Cycle and External Management

In eczema-like Karappan phenotypes, pruritus may initiate a self-perpetuating itch–scratch cycle. Impaired epidermal barrier function increases trans epidermal water loss, resulting in xerosis and skin roughness. Dry skin causes itching; repeated scratching further damages the epidermis, causes excoriation and lichenification, and increases the risk of secondary infection.^{9,10}

The sequence may be represented as:

Barrier impairment → increased TEWL → dryness/xerosis → pruritus → scratching →

excoriation and inflammation → further barrier impairment

Modern management of atopic dermatitis recognises regular emollient use as fundamental to reduce xerosis, maintain hydration, and support skin barrier function.¹⁰ *Nalikera ksheera* and *Nalikera taila*, when indicated in Kerala external management practices, may be interpreted as traditional measures intended to reduce dryness, friction, discomfort, and itching.

Coconut-derived products contain medium-chain fatty acids, predominantly lauric acid, along with caprylic acid, capric acid, myristic acid, and minor antioxidant constituents. Lauric acid is considered relevant for emollient and possible antimicrobial effects.¹¹ Experimental work on virgin coconut oil has reported anti-inflammatory and skin-protective effects, including changes in inflammatory markers and barrier-associated proteins.¹²

A randomized double-blind trial among 117 children with mild-to-moderate atopic dermatitis found that topical virgin coconut oil used for eight weeks improved SCORAD, reduced transepidermal water loss, and improved skin hydration compared with mineral oil.¹³ These findings provide a possible modern barrier-oriented rationale for discussing *Nalikera*-based topical care in eczema-like phenotypes. However, virgin coconut oil should not be considered identical to every *Nalikera*-based Ayurvedic formulation, and such evidence cannot be generalized to all forms of *Karappan*.

External applications should be used cautiously in the presence of extensive oozing, open erosions, suspected bacterial, fungal, or viral infection, and known contact sensitivity. Coconut-related irritant or allergic contact dermatitis has been reported rarely.¹⁴

Kerala-Specific Therapeutics and Pharmaceutical Practices

Kerala Kaumāra-bhṛtya is distinguished by the use of individualised yogas and regional pharmaceutical procedures. In Karappan/Bālavisarpam, the choice of therapy should depend on age, bala, agni, doṣa predominance, lesion morphology, disease stage, bowel features, fever, and associated respiratory symptoms.

Makkipuvadi Kashaya

Makkipuvadi Kashaya is mentioned in the context of *Akakarappan* chikitsa in *Vaidyatharakam*.⁵ It should be discussed as a subtype-specific internal formulation rather than as a universal remedy for all skin lesions. Its exact composition, preparation, dose, and anupana should be cited directly from the edition of *Vaidyatharakam* used.

Gopicandanadi Gulika

Gopicandanadi Gulika is a Kerala pediatric formulation traditionally used in selected childhood

conditions. Its composition includes drugs from *Pitta–Rakta*, *Deepana–Pachana*, *Grahi*, and *Shwasa–Kasa* oriented groups. The formulation should be discussed only with the exact textual indication and dosing schedule from the source edition. It should not be claimed as a proven standalone treatment for eczema or asthma.

Karikku/Elaneer Kashaya

Karikku Kashaya is a distinctive Kerala pharmaceutical preparation where tender coconut or tender-coconut water is used as the processing medium according to the textual procedure. This differs from ordinary water-based kwatha preparation. The significance lies in its specialised pharmaceutical technique and pediatric suitability; the clinical indication, ingredients, and procedure must be quoted directly from the primary source.⁵

Vattu Kashaya

Vattu Kashaya is a specialised preparation method in which the prescribed herbal paste is applied over *Nagavalli* leaf, wrapped in *Kadali* leaf, tied, heated in charcoal or embers, then triturated and squeezed to obtain the medicated extract. It is traditionally described as concentrated, *laghu*, and comparatively quick-acting. Its use should remain text-specific and supported by pharmaceutico-analytical evaluation.

Nalikera Ksheera and Nalikera Taila

Nalikera-based external applications may be particularly relevant to dry, pruritic, eczema-like lesions where the text indicates their use. The possible modern correlation is emollient barrier support and reduction of the itch–scratch cycle. This should be complemented by clinical assessment for infection, allergy, and need for standard anti-inflammatory therapy.

Discussion

Research Gaps and Future Directions

Karappan (Balavisarpam) is a broad Kerala pediatric clinical construct that includes varied skin lesions and systemic associations. Its importance lies in its whole-child perspective: the texts consider feeding, digestion, bowel function, fever, lesion morphology, sleep disturbance, physical strength, and respiratory symptoms along with cutaneous manifestations.^{4,5}

The diversity of *Karappan* types suggests that a single modern label, such as eczema, cannot explain the complete textual spectrum. Eczema or atopic dermatitis may be an appropriate correlation for certain chronic, pruritic, dry, scaling, lichenified, or flexural phenotypes. However, rapidly spreading, painful, febrile, blistering, ulcerative, or systemically ill presentations should prompt differential diagnosis for infection, drug reaction, nutritional disease, immunodeficiency, congenital dermatosis, and other pediatric conditions.^{11,12}

Akakarappan is especially relevant for contemporary discussion because it brings skin, gut, and respiratory manifestations into a single clinical picture. This supports a cautious comparison with the atopic phenotype and gut–skin–lung axis. The benefit of this comparison is not to assert an identity between Ayurvedic and biomedical diagnoses but to encourage a clinically comprehensive assessment of children with recurrent skin disease.^{10,11}

The special *yogas* and pharmaceutical procedures described in Kerala tradition demonstrate individualised therapeutics. *Makkipuvadi Kashya*, *Gopicandanadi Gulika*, *Karikku Kashya*, and *Vattu Kashaya* should be evaluated not only as drug combinations but also as examples of localised pediatric pharmaceutical practice. Their exact textual formulations need documentation, standardisation, pharmacognostic validation, safety assessment, and clinical study.^{14,18}

Future research may include: (1) prospective documentation of *Karappan* phenotypes using standardized dermatological morphology (2) comparison of textual clinical patterns with pediatric dermatology diagnoses; (3) pharmaceutico-analytical study of *Vattu Kashaya* and *Karikku Kashaya*; (4) safety assessment of internal and external formulations; and (5) well-designed observational studies and clinical trials for selected eczema-like *Karappan* phenotypes.^{19,20}

Conclusion

Karappan/Balavisarpam is a heterogeneous Kerala pediatric clinical spectrum and should not be restricted to the concept of a single skin disease. The descriptions in *Arogyaraksha Kalpadrumam* and *Vaidyatharakam* emphasise assessment of the child as a whole, including age, feeding history, *Agni*, bowel function, *Bala*, lesion morphology, constitutional features, and respiratory manifestations.

Modern pediatric dermatology, particularly atopic dermatitis, itch–scratch cycle, skin-barrier dysfunction, and atopic multimorbidity, offers useful frameworks for interpreting selected *Karappan* phenotypes such as *Akakarappan*. However, these are phenotype-based clinical correlations and should not be interpreted as direct disease equivalence.

Kerala-specific *yogas* and pharmaceutical procedures provide valuable material for contemporary research. Integrating textual knowledge with standardised dermatological assessment, careful differential diagnosis, paediatric safety, and evidence-based clinical investigation may improve the relevance of *Karappan/Balavisarpam* in present-day pediatric practice.

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