



Xerosis Cutis – An Integrative Review of Ayurvedic and Modern Perspectives.

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Abstract: Xerosis cutis, or pathological dryness of skin, is a common dermatological complaint, especially in elderly individuals. It leads to considerable discomfort, itching, and skin barrier damage. In Ayurveda, this condition resembles Tvak Rukshata, often caused by Vata dosha prakopa. Panchakarma chikitsa, a set of five detoxification therapies, offers a systemic and local approach through both Shamana and Shodhana procedures. This review explores the condition of xerosis cutis in depth, from both modern and Ayurvedic viewpoints, and analyzes the efficacy of traditional Panchakarma formulations and practices like Sneha, Swedana, Parisheka, and internal oleation using medicated ghee and oils.

Index Terms -. Xerosis cutis, Tvak Rukshata, Panchakarma, Taila, Ghrita, Vata Vyadhi, Dry skin Ayurveda

I. INTRODUCTION

Xerosis cutis, also called xeroderma or asteatosis, is the medical term for unusually severe dry skin. The word “xero” comes from Greek and means dry. This condition happens when the skin lacks hydrolipids—a combination of water and natural oils that keep the skin moist and healthy. It is a very common problem, especially among adults, because the skin naturally loses moisture and oils as people age. With increasing age, the sweat glands and sebaceous glands produce less fluid, so people over the age of 65 are especially likely to have dry skin. The problem becomes even worse during cold winter months.

Many factors can cause or worsen xerosis, such as washing the skin too often or scrubbing it roughly, bathing in very hot water, or frequent bathing. Other common triggers include rubbing the skin too hard with a towel, living in places with dry air, cold weather, heating systems in homes or offices, not drinking enough water, and spending too much time in the sun.

This condition is also often seen in people who have diabetes, hypothyroidism, or malnutrition. The skin in xerosis usually looks dull, rough, and is covered with fine, dry flakes that come off easily. In more serious cases, the skin may develop deep cracks, looking like a dry lakebed, and the flakes may appear white or gray. When the skin is inflamed, the affected areas may turn pink or red.

In Ayurveda, xerosis cutis is very similar to a condition known as Tvak Rukshata, which happens mainly due to an imbalance of Vata dosha. Vata is responsible for dryness and movement in the body. When Vata becomes aggravated or excessive, it causes the skin to become dry, rough, and scaly.

II. AIMS AND OBJECTIVES

- To analyze xerosis cutis and its symptoms from a modern and Ayurvedic lens.
- To highlight Panchakarma and external therapies as management tools.
- To explore classical Taila, Ghrita and Parisheka preparations effective in Tvak Rukshata.
- To propose a structured treatment protocol for dry skin based on Ayurvedic principles.

II. MODERN PERSPECTIVE OF XEROSIS CUTIS

Etiology:

1. Aging (Jara Avastha)- With age, the skin naturally becomes drier due to decreased function of sweat (sudoriferous) and sebaceous (oil) glands. In Ayurveda, aging is considered a Vata-dominant stage of life. Vata dosha is inherently dry (ruksha), rough (khara), and cold (sheeta) in nature. As Vata increases with age, it causes the skin to lose moisture and suppleness, leading to Tvak Rukshata (dryness of skin).
2. Cold & Dry Climates (Sheetoshna Vata Prakopaka Hetu)- Exposure to cold, dry weather increases Vata dosha in the body. Vata is aggravated by sheeta (cold) and ruksha (dry) environmental conditions. In such climates, the external environment mirrors the qualities of Vata, promoting its vitiation (prakopa), which manifests as dryness, roughness, and cracking of the skin.
3. Hot Water Baths, Harsh Soaps (Snana & Mardana Atiyoga)- Frequent use of very hot water and alkaline or harsh soaps strips the skin of its natural oils (snehana). In Ayurvedic terms, excessive snana (bathing), especially with hot water, and rough cleaning actions aggravate Vata and reduce Kapha, which maintains skin moisture. This disrupts the balance of skin sneha (unctuousness) and leads to rukshata (dryness).

4. Systemic Disorders (Vyadhi Samanya Nidana)- Diabetes Mellitus (Madhumeha): In Ayurveda, Madhumeha is a type of Prameha, often associated with Kapha and Vata vitiation. The presence of excess sugar and disturbed metabolic function leads to dhatu kshaya (tissue depletion), especially of rasa and rakta dhatu, leading to tvak rukshata (dry skin).
5. Hypothyroidism (Agnimandya and Kapha Vriddhi)- Hypothyroidism can be compared to Agnimandya (low digestive/metabolic fire) and Kapha dominance. However, it also causes a secondary increase in Vata, leading to features like dryness, coldness, and lethargy, all reflected in the skin.
6. Renal Disease (Mutravaha Srotodushti)- Impaired kidney function leads to fluid imbalance in the body. In Ayurveda, this involves mutravaha srotas (urinary channels) and results in rasa dhatu kshaya, decreasing the natural moisture and nourishment of the skin.
7. Nutritional Deficiencies (Ahara Rasa Kshaya)- Inadequate intake of essential nutrients weakens the rasa dhatu (primary nutrient fluid) and meda dhatu (lipid tissue), which are crucial for maintaining skin softness and integrity. In Ayurveda, poor dietary habits disturb agni (digestive fire), leading to ama (toxic metabolic by-products) formation and malnourishment of skin tissues, manifesting as dryness, scaling, and cracking.

Clinical features:

1. Dry, Scaly Skin- In modern dermatology, this is the hallmark feature of xerosis—skin feels rough, dry, and covered with fine to thick scales. This condition is directly referred to as Tvak Rukshata in Ayurveda. The dominant Vata dosha, characterized by ruksha (dry) and khara (rough) qualities, when aggravated, disturbs twacha (skin) and leads to dryness and scaling. The rasa dhatu, which nourishes the skin, becomes deficient due to Vata vriddhi, resulting in reduced moisture and elasticity of the skin.
2. Itching and Redness (Kandu and Raga)- The dryness of the skin often triggers pruritus (itching), and repeated scratching leads to erythema (redness) and sometimes excoriation. Kandu (itching) is often a result of Vata-Kapha vitiation. When dryness from Vata combines with Kapha's stickiness and blockage of srotas (microchannels), it leads to irritation and itching. Raga (redness) is indicative of Pitta involvement, especially when scratching causes inflammation and localized heat. Thus, Tridoshic involvement may occur in later or more aggravated stages.
3. Fissures, Especially in Feet (Plantar Xerosis / Padadari)- Cracked heels or fissured skin, particularly over the soles, is a common manifestation, often painful and prone to secondary infection. This condition aligns with Padadari, a type of Kshudra Kushtha (minor skin disease). It is considered a Vata-dominant disorder, where excess dryness causes the skin to lose its natural elasticity, resulting in parched, cracked surfaces. The site of manifestation—the soles—is also a seat of Vata, further predisposing it to darana (cracking) when aggravated.
4. Dullness and White Flakiness- The skin loses its natural luster, appearing lifeless, rough, and flaky, often with fine or coarse white scales. Loss of skin glow (varnya bhava) indicates disturbance in rasa and rakta dhatu, both essential for skin health and complexion. Aggravated Vata dries up the snigdha (unctuous) and shlakshna (smooth) qualities of the skin. White flakiness (svetavabhasata) is a classic sign of ruksha Vata, and may even resemble twak vikara seen in early stages of Kustha.
5. Worsening in Winters (Sheetakala Prakopa)- Symptoms typically worsen during the winter due to environmental dryness and cold temperatures. Ayurvedic Correlation: Winter is a season that naturally aggravates Vata dosha, as its qualities—sheeta (cold) and ruksha (dry)—predominate in the environment. If Vata is already elevated or the individual is Vata-prakriti, symptoms like dryness, cracks, and flaking become more pronounced in Hemanta and Shishira ritu (late and deep winter seasons), as per Ritucharya principles.

Management:

1. Emollients (e.g., Petroleum Jelly, Ceramide-Based Creams)- Emollients are the first-line treatment for xerosis. These substances soften and soothe the skin by filling the spaces between skin cells with lipids, restoring a smooth surface.

Petroleum Jelly (White Soft Paraffin)- Acts as an occlusive agent, creating a barrier that prevents transepidermal water loss (TEWL). It is particularly effective in severe or cracked skin.

Ceramide-Based Creams- Ceramides are natural lipids found in healthy skin. In xerosis, their levels are decreased. Topical ceramide formulations help repair the skin barrier, improve hydration, and reduce inflammation. They are especially useful for long-term daily use and for sensitive or atopic skin.

2. Hydration (Oral Fluids & Humidifiers)- Maintaining internal and environmental hydration is a critical component of managing dry skin.

Oral Fluid Intake- Adequate water consumption helps maintain the hydration of all tissues, including the skin. Systemic hydration supports healthy rasa dhatu production in Ayurvedic terms and is vital for overall skin nourishment.

Humidifiers- Used particularly in cold or dry climates, humidifiers add moisture to indoor air, thereby reducing environmental dryness that contributes to skin dehydration. They help maintain a more favorable microclimate for skin healing, especially in winter.

3. Topical Steroids (e.g., Hydrocortisone in Severe Itching)- In cases where xerosis leads to intense itching, redness, or inflammation, a short course of low-potency topical corticosteroids may be used.

Hydrocortisone 1% cream is often prescribed to reduce inflammation, control pruritus, and restore comfort.

It should be used sparingly, typically once or twice a day for a short duration, and always in combination with moisturizers. Overuse may lead to skin thinning or tachyphylaxis (diminished effect over time).

4. AHA/Urea-Based Moisturizers These are keratolytic agents that help exfoliate dead, flaky skin cells and allow better penetration of moisturizers. They are often used in moderate to severe xerosis.

Alpha Hydroxy Acids (AHAs) like lactic acid and glycolic acid help gently remove scaling, improve skin texture, and stimulate collagen renewal.

Urea (5–10% concentration): Acts as both a humectant (draws moisture into the skin) and a keratolytic agent. It improves hydration, softens hyperkeratotic skin, and enhances barrier function. Higher concentrations (20–40%) are used for thickened plaques or fissured heels.

III. AYURVEDIC PERSPECTIVE

Nidana:

1. Vata-Vardhaka Ahara-Vihara (Diet and Lifestyle That Aggravate Vata)- Dry, cold, light foods like crackers, raw vegetables, salads, and dried fruits have ruksha (dry) and sheeta (cold) gunas, which directly aggravate Vata dosha. Excessive fasting (Ativrata / Upavasa) depletes rasa dhatu and reduces bodily unctuousness (snehana), leading to increased dryness and internal depletion. In Ayurvedic terms, prolonged fasting reduces the nourishing effect of food and strengthens Vata, which thrives in an empty, light, and dry state. Such ahara and vihara cause rukshata (dryness), laghuta (lightness), and srotorodha (obstruction of channels), impairing the supply of snehana (lubrication) to the skin.
2. Excessive Exposure to Vata-Prakopaka Environment- Cold winds, dry weather, dehydration, and frequent exposure to air-conditioned environments or cold climates increase Vata externally. These environmental factors exhibit Vata-like properties—sheeta (cold), chala (mobile), and ruksha (dry)—that enter the body through bahya (external) srotas such as skin and respiratory tract, aggravating Vata dosha. Dehydration due to inadequate water intake or excessive physical activity causes kleda kshaya (loss of moisture) and rasa dhatu kshaya, leading to Twak Rukshata. Cold air also constricts srotas, preventing proper nutrient and moisture distribution to the skin.
3. Overuse of Shodhana Procedures Without Proper Sansarjana Karma- Shodhana therapies such as Vamana, Virechana, Basti, etc., are powerful detoxification tools meant to eliminate aggravated doshas. However, if these are performed frequently, without proper indications, or without following Sansarjana Karma (post-purification dietary protocol), it leads to excessive depletion of dhatus, particularly rasa and meda dhatu, which are essential for maintaining skin health. Sansarjana Karma gradually restores agni (digestive fire) and rebuilds strength. Skipping or shortening this step weakens agni and dhatu production, allowing Vata to increase unchecked. This results in internal sneha hani (loss of unctuousness), causing dryness, roughness, and cracking of skin, the typical presentation of Tvak Rukshata.

Lakshana:

1. Rukshatā (Dryness)- Due to aggravated Vata dosha, the skin loses its natural unctuousness, leading to dryness and a stretched feeling.
2. Kharatā (Roughness)- The rough texture of the skin results from loss of smoothness and snehana, a classic effect of ruksha guna of Vata.
3. Sphutāna (Cracking of Skin)- Extreme dryness and reduced elasticity cause the skin to crack, especially in weight-bearing or exposed areas.
4. Kandu (Itching)- Vata and Kapha aggravation cause obstruction and dryness in skin channels, leading to irritation and the urge to scratch.
5. Vaivarnya (Discoloration)- Vitiation of rasa and rakta dhatus along with doshic imbalance leads to dullness or uneven skin tone, often appearing grayish or reddish.

Roga samprapti:

The development of Tvak Rukshatā is primarily initiated by the vitiation of Vata dosha, which is inherently ruksha, laghu, sheeta, and chala in nature. Certain nidanas —such as excessive exposure to cold and dry climates, Vata-aggravating diet and lifestyle, or overuse of Shodhana therapies—lead to an increase in Vata dosha both systemically and locally in the skin.

This aggravated Vata causes Rasa dhatu kshaya, impairing the proper formation and circulation of rasa, which is responsible for nourishing all body tissues including tvak. The Rasa dhatu is closely associated with Twak as per Ayurvedic dhatu-tantra, and its deficiency leads to loss of natural moisture, softness, and elasticity of the skin.

As a result, the skin becomes ruksha, khara, and prone to sphutana, with additional symptoms like kandu and vaivarnya. These manifestations indicate the involvement of the bahya rogamarga, specifically affecting the tvak and srotas related to rasa and rakta dhatus.

Over time, if Vata is not pacified, the condition may become chronic, involving deeper dhatu levels, or may lead to secondary complications such as fissures, infections, or eczema-like changes, showing samyoga of other doshas like Pitta or Kapha.

IV. SAMPRAPTI GHATAKA

Doshas: Vata > Pitta

Dushyas: Twaka, Rakta, Mamsa, Lasika

Srotasa: Rasavaha, Raktavaha, Svedavaha

Srotodushṭi: Sanga, Vimargagamana

Rogamarga: Bahya

Adhithana: Twak

V. USEFUL FORMULATIONS

S.No.	FORMULATIONS	CONTENTS	KEY CHEMICAL COMPONENTS	MODE OF ACTION
1.	Tiktaka Ghrita ¹	Neem, Patola, Amalaki	Flavonoids, tannins, vitamin C (from amalaki), azadirachtin (from neem)	Pitta–Vata pacifying, detoxifies skin, antimicrobial and soothing Eladi Taila
2.	Eladi Taila ²	Ela, Kushta, Manjishta	Essential oils (e.g. eugenol), anthraquinones, polyphenols	Anti-inflammatory, improves complexion, promotes wound healing
3.	Dhanwantaram Taila ³	Bala, Ashwagandha	Withanolides, steroidal lactones (e.g. withaferin A), polysaccharides	Vata-nashaka, rejuvenating, strengthens tissues
4.	Ksheerabala Taila ⁴	Bala, cow's milk, sesame oil	Fatty acids (linoleic, oleic), lauric acid; proteins from milk	Excellent for Vata disorders, deeply nourishing, restores sneha
5.	Kumkumadi Taila ⁵	Saffron, Manjishta	Crocin, crocetin (saffron); polyphenols	Repairs damaged skin, enhances complexion, antioxidant
6.	Nalpamaradi Taila ⁶	Ficus bark, citrus peels	Flavonoids, furanocoumarins	Brightens and nourishes skin, mild exfoliation
7.	Shatadhauta Ghrita ^{7,8}	100× washed cow ghee + water	Conjugated linoleic acid, omega-3/6/9, vitamins A, D, E, K; free fatty acids, glycerol	Deeply moisturizing, anti-inflammatory, cools, improves collagen, light texture

VIII. DIETARY & LIFESTYLE RECOMMENDATIONS

1. Warm, unctuous diet (Snigdha Ahara): Foods such as ghee, warm milk, and urad dal help balance Vata by restoring internal lubrication and nourishing rasa dhatu. These promote moisture retention in the body and improve skin texture.
2. Avoid dry, cold, and fermented foods: Such items aggravate Vata and disturb digestive fire (Agni), leading to poor dhatu formation and increased dryness of the skin.
3. Daily Abhyanga (self-oil massage): Regular application of warm oil nourishes the skin, strengthens superficial dhatus, enhances circulation, and directly counteracts Vata-induced dryness and roughness.
4. Lukewarm water baths: Bathing with lukewarm water helps maintain skin moisture, avoids stripping natural oils, and prevents Vata aggravation that cold water might induce.
5. Hydration with warm fluids: Drinking warm water or herbal teas supports internal snehana and helps maintain hydration, aiding in better tissue nourishment and Vata pacification.
6. Avoid excessive fasting and cold wind exposure: Both practices aggravate Vata, deplete rasa dhatu, and worsen dryness. Maintaining warmth and regular nourishment helps preserve skin integrity and prevent xerosis.

IX. DISCUSSION

Xerosis cutis is not merely a cosmetic issue but a dermatological condition that reflects deeper physiological and environmental imbalances. From a modern perspective, it results from a deficiency in the skin's hydrolipid layer, commonly aggravated by aging, environmental stressors, lifestyle factors, and systemic diseases such as diabetes or hypothyroidism. These factors collectively impair the skin's barrier function, leading to increased transepidermal water loss and reduced ability to retain moisture.

Ayurveda offers a unique and holistic lens to understand xerosis as Tvak Rukshata, a manifestation of Vata dosha vitiation. Vata, being inherently dry (ruksha) and cold (sheeta), when aggravated, disrupts the balance of rasa dhatu (primary body fluid) and leads to sneha kshaya (loss of lubrication) in the skin. This results in the classical symptoms described in both systems: dryness, roughness, scaling, and fissuring.

Ayurvedic management does not limit itself to symptomatic relief but focuses on root-cause correction through dietary, lifestyle, and therapeutic interventions. Snigdha ahara (unctuous diet), daily abhyanga (oil massage), warm hydration, and use of Vata-pacifying medicated oils and ghees like Ksheerabala Taila or Shatadhauta Ghrita are all aimed at restoring the lost moisture and strengthening the skin from within. In chronic or severe cases, Panchakarma therapies may be indicated to eliminate doshic accumulation and prevent recurrence. Thus, while emollients and moisturizers in modern dermatology offer external support, Ayurveda provides both preventive and curative solutions, emphasizing internal balance and long-term skin health.

X. CONCLUSION

Xerosis cutis, or dry skin, is a multifactorial condition influenced by age, climate, lifestyle habits, and systemic health. While conventional dermatology addresses it through topical treatments, Ayurveda identifies it as Tvak Rukshata caused by aggravated Vata dosha, offering a broader and deeper understanding of the condition. Ayurvedic principles advocate for nourishing the skin both externally and internally—through diet, daily rituals, and therapeutic formulations—to restore natural lubrication and vitality. An integrative approach combining modern emollients with Ayurvedic practices such as abhyanga, snigdha ahara, and appropriate herbal formulations can result in more sustainable and holistic management of xerosis. This not only improves skin texture but also enhances overall skin resilience and immunity (twak bala), highlighting Ayurveda's strength in addressing chronic dermatological concerns.

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