

DERMATOSCOPIC AND CADAVERIC CORRELATION OF TWAK SHARIR WITH SPECIAL REFERENCE TO EKA-KUSHTHA (PSORIASIS) AND VICHARCHIKA (ECZEMA): AN INTEGRATIVE ANATOMICAL AND CLINICAL STUDY

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ABSTRACT

Twak (skin) is considered one of the most significant structures in Ayurveda, serving protective, sensory, metabolic, and aesthetic functions. Classical Ayurvedic literature, particularly the Samhitas of Sushruta, describes Twacha as consisting of seven distinct layers with functional and pathological relevance. Modern dermatology recognises skin as a multilayered organ composed of epidermis, dermis, and subcutaneous tissue. The present study was undertaken to correlate Ayurvedic concepts of Twak Sharir with modern anatomical and dermatoscopic findings, with special reference to Eka-Kushtha (Psoriasis) and Vicharchika (Eczema). The study was conducted in two phases: a cadaveric anatomical study and a dermatoscopic clinical study. Cadaveric observations included regional variations in skin thickness, dermal density, vascularity, adnexal structures, and subcutaneous attachments. Dermatoscopic evaluation was

performed in clinically diagnosed cases of psoriasis and eczema to identify characteristic vascular and scaling patterns and correlate them with histopathological changes. The cadaveric study demonstrated that the seven layers described in Ayurveda can be functionally correlated with modern epidermal and dermal subdivisions. Dermatoscopy revealed regular dotted vessels, diffuse micaceous scales, and uniform erythema in psoriasis, while eczema

demonstrated yellow serocrusts, irregular vascular patterns, excoriations, and patchy scaling. These findings support the Ayurvedic concept that disease severity and prognosis depend upon the depth of tissue involvement. The study establishes an integrative bridge between Ayurvedic Twak Sharir and contemporary dermatological science and highlights the diagnostic value of dermatoscopy in differentiating chronic inflammatory dermatoses.

KEYWORDS: Twak Sharir, Ayurveda, Dermatoscopy, Psoriasis, Eczema, Eka-Kushtha, Vicharchika, Cadaveric Study, Histopathology.

INTRODUCTION

Skin is the largest organ of the human body and forms the primary interface between the internal and external environments. It performs multiple functions, including protection, thermoregulation, sensation, immune surveillance, and metabolic activity. In Ayurveda, Twacha is considered an Upadhatu of Mamsa and is said to originate from the essence of Rasa Dhatu during embryological development.

Sushruta described seven layers of Twacha, namely Avabhasini, Lohita, Shveta, Tamra, Vedini, Rohini, and Mamsadhara. Each layer possesses distinct structural and pathological significance and is associated with specific skin disorders. Modern anatomy recognises skin as comprising the epidermis, dermis, and hypodermis, with numerous appendages and neurovascular structures.

Psoriasis and eczema are among the most prevalent inflammatory dermatoses encountered in clinical practice. Psoriasis corresponds closely with Eka-Kushtha, described in Ayurveda, characterised by Aswedana, Mahavastu, and Matsyashakalopama lesions. Vicharchika resembles chronic eczematous dermatitis with Kandu, Srava, Vaivarnya, and Pidika.

Although histopathology remains the gold standard for diagnosis, dermatoscopy has emerged as an important non-invasive tool for evaluating inflammatory dermatoses. It allows visualisation of vascular morphology, scaling patterns, follicular changes, and background colouration, thereby improving diagnostic accuracy.

The present study attempts to correlate classical Ayurvedic concepts of Twak Sharir with modern cadaveric anatomy and dermatoscopic findings in psoriasis and eczema.

AIMS AND OBJECTIVES

Aim

To study Twak Sharir mentioned in Ayurveda and contemporary science with special reference to histopathological and dermatoscopic changes in Vicharchika (Eczema) and Eka-Kushtha (Psoriasis).

OBJECTIVES

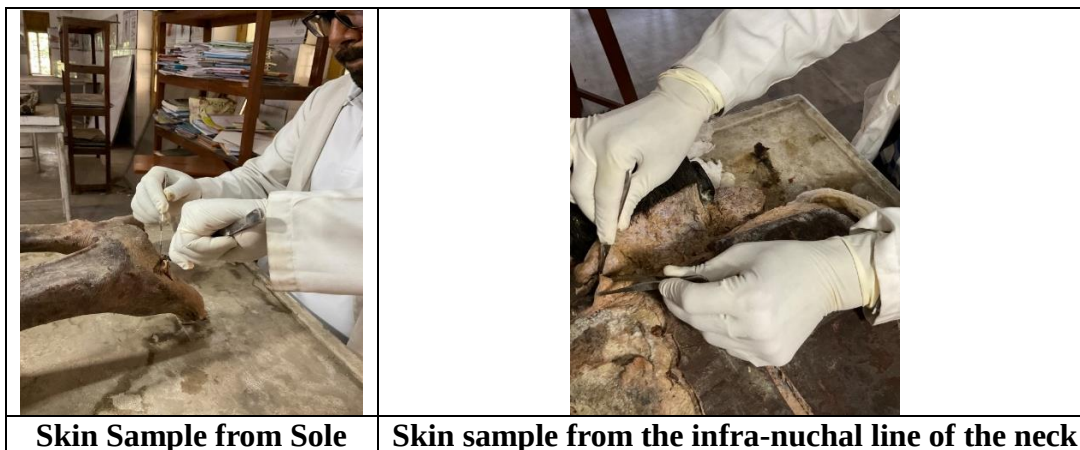
1. To study the gross anatomy of skin through cadaveric dissection.
2. To correlate the Ayurvedic seven layers of Twacha with modern anatomical structures.
3. To evaluate dermatoscopic features of psoriasis and eczema.
4. To correlate dermatoscopic findings with histopathological alterations.
5. To assess the diagnostic utility of dermatoscopy in inflammatory dermatoses.

MATERIALS AND METHODS

Study Design

An observational, integrative anatomical and clinical study.

Part I: Cadaveric Study



Study Setting

The cadaveric study was conducted in the dissection hall of the Department of Rachana Sharir/Anatomy using embalmed cadavers preserved with formalin-based techniques.

MATERIALS

- Scalpel (No. 10 and 15)
- Dissecting scissors
- Toothed and non-toothed forceps

- Blunt probes
- Vernier calliper
- Skin hooks

Cadaver Details

- Number of cadavers: 1
- Sex: Male
- Age range: 30–45 years
- Preservation status: Well embalmed

Inclusion Criteria

- Cadavers without major trauma
- Intact skin structures
- Adequately preserved bodies

Exclusion Criteria

- Burnt cadavers
- Infective dermatoses
- Decomposed or mutilated skin

Method of Dissection

A midline incision extending from the chin to the pubis was performed. Transverse incisions were placed at the clavicular and umbilical levels. Skin flaps were reflected carefully to study:

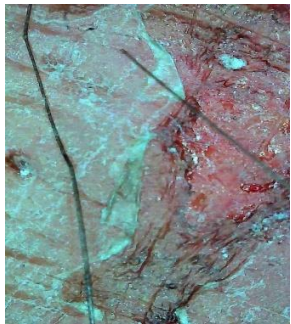
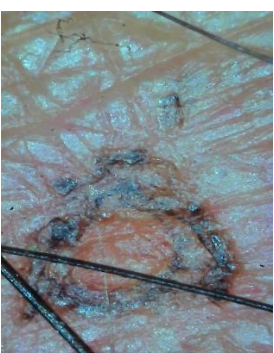
- Epidermal thickness
- Dermal density
- Subcutaneous tissue distribution
- Strength of attachment

Regions Examined

- Scalp
- Face
- Neck
- Trunk
- Back

- Abdomen
- Palms and soles
- Limbs

Part II: Dermatoscopic Study

			
diffuse erythema, thick micaceous white scaling, and linear excoriations with focal bleeding	deep fissuring along skin lines, thick yellowish-white hyperkeratotic scales	thick, dry, silvery-white micaceous scaling	spongiotic inflammation and secondary crust formation
Psoriasis.	Chronic Fissured Palmar Eczema	Scalp Psoriasis	Chronic Eczematous Dermatitis

Study Population

Clinically diagnosed cases of psoriasis and eczema attending the hospital OPD 10 & 16.

Instrument

Hand-held dermatoscope.

Procedure

1. Lesions were cleaned before examination.
2. Dermatoscopy was performed under adequate illumination.
3. Images were documented photographically.
4. Observations were correlated clinically and histopathologically.

OBSERVATIONS

Cadaveric Findings

Epidermis

- Thin pale superficial layer
- Difficult separation from the dermis in embalmed specimens
- Thick keratin layer in palms and soles

Dermis

- Dense fibrous tissue
- Rich collagen bundles
- Presence of sweat glands and hair follicles

Subcutaneous Tissue

- Fat lobules separated by fibrous septae
- Regional variability in thickness

Regional Variations**Scalp**

- Thick dermis
- Strong attachment to the galea aponeurotica
- Rich vascularity

Face

- Thin skin
- Minimal subcutaneous fat
- Muscles immediately beneath the skin

Palms and Soles

- Markedly thick epidermis
- Absence of hair follicles
- Rich sensory supply

Eyelids

- Thinnest skin
- Loose connective tissue

Back

- Thickest dermis
- Dense collagen arrangement

Correlation of Ayurvedic and Modern Layers

Ayurvedic Layer	Modern Correlation	Functional Interpretation
Avabhasini	Stratum corneum	Surface complexion and lustre
Lohita	Superficial vascular plexus	Erythema and vascularity
Shveta	Papillary dermis	Pale appearance and support
Tamra	Reticular dermis	Pigmentation and collagen
Vedini	Neural network	Sensory perception
Rohini	Fibroblastic healing zone	Regeneration and repair
Mamsadhara	Subcutaneous anchoring	Structural attachment

Dermatoscopic Findings

Psoriasis (Eka-Kushtha)

Characteristic Features

1. Regular dotted vessels
2. Bright white micaceous scales
3. Uniform erythematous background
4. Well-demarcated plaques

Histopathological Correlation

- Dilated dermal papillary capillaries
- Regular acanthosis
- Parakeratosis
- Munro microabscesses
- Suprapapillary thinning

Regional Findings

- Scalp psoriasis showed diffuse silvery scales and glomerular vessels.
- Palmar psoriasis demonstrated yellow-white keratotic scaling.
- Trunk lesions showed homogeneous erythema with diffuse scaling.

Eczema (Vicharchika)

Characteristic Features

1. Yellow serocrusts
2. Irregular vascular patterns
3. Ill-defined lesion margins
4. Excoriations and fissuring
5. Patchy scaling

Histopathological Correlation

- Spongiosis
- Serum exudation
- Intraepidermal vesiculation
- Irregular acanthosis
- Perivascular lymphocytic infiltrate

Regional Findings

- Chronic lesions showed lichenification and fissures.
- Acute lesions showed moist erythema and crusting.
- Palmar eczema showed diffuse hyperkeratosis with deep fissures.

Comparative Dermatoscopic Features

Feature	Psoriasis	Eczema
Scale colour	Bright white/silvery	Yellowish-white
Scale distribution	Diffuse and uniform	Patchy and irregular
Vascular pattern	Regular dotted vessels	Polymorphous irregular vessels
Background colour	Bright pink/red	Dull red-brown
Margins	Well defined	Ill defined
Crusting	Minimal	Common
Excoriation	Rare	Frequent
Histology	Psoriasiform hyperplasia	Spongiosis

DISCUSSION

The present study demonstrates significant anatomical and clinical correlations between Ayurvedic Twak Sharir and modern dermatological science.

Cadaveric dissection revealed clear regional variations in skin thickness, vascularity, sensory distribution, and attachment strength. These findings parallel classical Ayurvedic descriptions regarding functional specialisation of Twacha. The strong attachment observed in the scalp and soles correlates with deeper supportive layers described as Mamsadhara.

Dermatoscopy proved highly valuable in differentiating psoriasis from eczema. Psoriasis consistently demonstrated regular dotted vessels and diffuse micaceous scaling corresponding to elongated dermal papillae and capillary dilation. Eczema, in contrast, exhibited yellow serocrusts, spongiosis-related exudation, and irregular vascular arrangements.

The findings support the Ayurvedic principle that deeper tissue involvement results in more chronic and severe disease manifestations. The Vedini and Rohini layers correspond, in particular, to neural and reparative dermal components involved in inflammatory dermatoses. Dermatoscopy also reduced dependence on invasive biopsy by providing rapid bedside visualisation of disease-specific microstructures.

CONCLUSION

The study establishes a meaningful integrative correlation between Ayurvedic Twak Sharir and modern dermatological anatomy. Cadaveric observations demonstrate that the seven layers described in Ayurveda correspond functionally with epidermal, dermal, and subcutaneous structures.

Dermatoscopy is a highly effective non-invasive modality for differentiating psoriasis and eczema. Psoriasis characteristically demonstrates regular dotted vessels, uniform erythema, and diffuse micaceous scaling, whereas eczema reveals yellow serocrust, irregular vascularity, excoriations, and patchy scaling.

The integration of Ayurvedic concepts with modern dermatoscopic and histopathological understanding enhances diagnostic precision and broadens the scientific interpretation of classical dermatological knowledge.

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