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Clinical Trial

Title of Article

Unveiling Dermatological Delight: A Comparative Exploration of Clinical Findings between Twacha Stara and Kustha Interventions

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ABSTRACT

In *Ayurveda*, the traditional system of medicine originating in ancient India, the skin is considered the outermost protective covering of the body and is referred to as "Twak" or "Twacha." It is one of the "Pancha Gyanendriyas," which are the five sensory organs responsible for perception and sensation. The skin specifically serves as the "Sparshanendriya," which means the organ of touch or tactile perception. Skin problems account for a large component of the global illness burden, affecting millions of individuals globally. Humanity has been aware of skin ailments since their inception. Ayurvedic literatures has described "Twacha Sharir" as well as various type of *Kustha* (skin disorders). *Acharya Sushruta* and *Acharya Charak* both are renowned figures in Ayurvedic medicine, and their contributions to understanding skin layers and disorders have had a significant impact on the field. Aim and objectives- The author is describing a comprehensive approach to clinical examination that combines principles from *Ayurveda* and modern science, specifically focused on understanding skin layers with skin diseases by comparing the descriptions from ancient Ayurvedic texts (*Samhitas*) with contemporary scientific knowledge. This integrative approach aims to resolve any conflicts or discrepancies between traditional and modern understandings of the skin layers involved in these conditions through skin biopsy report. Observation and result- the anatomical changes are seen from *Avabhasini* to *Vedini* layer of skin.

Keywords: *Ayurveda*, *Twak*, *Kustha*, Plaque psoriasis, Epidermis, Papillary layer.

INTRODUCTION

Twak (skin) is the main site of *vata dosha*. According to their functions and diseases site, *Acharya Sushruta* and *Acharya Charak* detailed its strata in great detail. According to *Acharya Charak* and *Acharya Sushrut* the layers of *Twak* are six and seven respectively. The total number of *kustha* are eighteen. Out of which seven are *Maha Kustha* and eleven are *Kshudra Kushta*. From an Ayurvedic perspective, *Kustha* (skin disorders) are believed to result from imbalances in the doshas (*Vata*, *Pitta*, and *Kapha*), improper diet, lifestyle factors, and accumulation of toxins (*ama*) in the body. *Ayurvedic* treatments for skin conditions typically involve a combination of herbal remedies, dietary modifications, lifestyle adjustments, detoxification therapies (*Panchakarma*), and stress management techniques. In modern medicine, skin disorders like psoriasis are often attributed to immune system dysfunction, genetic predisposition, environmental factors, and inflammatory processes. Treatment approaches may include topical

medications, systemic medications, phototherapy (light therapy), and lifestyle modifications. Aim and Objectives are to study the *Twacha sharir* and *Kustha* as it is described in *Ayurveda* and related modern science literature. To investigate the *Kustha*-related anatomical changes that occur in the layers of the skin. And pinpoint, the exact layers of skin involved in *Kustha* using case report, according to *Acharya Sushrut* and *Acharya Charak*

MATERIAL & METHOD

Ayurvedic Literatures as *Brihatrayee*, *Laghutrayee*., Modern textbooks, Previous research, published documents, articles, internet, Skin biopsy – Punching method are used.

Layers of skin According to Ayurveda-

According to different Acharyas there are differences in the number of layers of skin as –

- Acharya Sushruta*- 7
- Acharya Charak*- 6
- According to Modern science -7

Table 1: Description of layers of skin in Ayurveda

Layers	Praman/Thickness	Acharya Sushrut ^[1]	Acharya Charak ^[2]
1. Avabhasini	1/18 th of Vrihi (<i>Dhanya</i>).	The first layer. Gives <i>varn</i> (colour) to the skin and lighted five type of <i>Chaya</i> , having <i>Sidhma</i> and <i>Padmakantak</i>	Named as <i>udakdhara</i> , which is exposed to sunlight.
2. Lohita	1/16 th of Vrihi.	The second layer having <i>Tilkalak</i> , <i>Nyaccha</i> and <i>Vyang</i> .	Named as <i>Ashrigdhara</i> , which carries rakta and gives red colour of this layer.
3. Shweta	1/12 th of Vrihi.	The third layer having <i>Charmadala</i> , <i>Ajagalli</i> , and <i>Mashak</i> .	Named as <i>Tritiya</i> , having <i>Sidhma</i> and <i>Kilas</i> as <i>twakroga</i> .
4. Tamra	1/18 th of Vrihi.	The fourth layer having Various types of <i>Kilas</i> (<i>vitaligo</i>)and <i>Kustha</i> .	Named as <i>Chaturhi</i> , having <i>Dadru</i> and <i>Kushtha</i> as <i>twakroga</i> .
5. Vedini	1/5 th of Vrihi.	The fifth layer having <i>Kushtha</i> (skin disease) and <i>Visarpa</i>	Named as <i>Panchami</i> , having <i>Alaji</i> and <i>Vidhridhi</i> .
6. Rohini	1 Vrihi.	The sixth layer having <i>Granthi</i> (Cyst), <i>Apachi</i> , <i>Arbuda</i> (Tumor), <i>Shlipad</i> , <i>Galgand</i> .	Named as <i>Shashti</i> , having <i>Arunshika</i> and <i>Tamahapravesh</i> .
7. Mansadhara	2 Vrihi.	The seventh layer having <i>Bhagandar</i> (Fistula), <i>Vidradhi</i> (Abscess), <i>Arsha</i> (Piles).	This layer is not described by <i>Acharya Charak</i>

Layers of skin according to Modern Science ^{-[3]}

There are two layers present in the skin -

A) Epidermis-

Superficial layer consists of stratified squamous keratinized epithelium ^[4].

Layers-

Stratum basale - The deepest or basal layer. It is made up of a basal lamina and a single layer of columnar cells. Because it contains keratinocytes, the bottom layer is occasionally referred to as the germinal layer (stratum germinativum). **Stratum spinosum**- The layer above the basal layer, also called the Malpighian layer, is made up of several layers of polygonal keratinocytes. The cells of this layer are also referred to as prickly cells. **Stratum granulosum**- Overlying the stratum spinosum are a few (1 to 5) layers of flattened cells that are distinguished by the presence of highly stained granules in their cytoplasm. They contain keratohyalin, a protein found in the granules. **Stratum lucidum** - (lucid = clear). This layer is so called because it appears uniform and the stratum granulosum is superficial, where the cell borders are quite blurry. There are traces of flattened nuclei. **Stratum corneum** - This layer is acellular. the epidermis' topmost superficial layer. consists of scale-like, flattened components with protein-encased keratin filaments. This layer's thickness is the greatest. like the palms and soles.

B) Dermis-

Layer beneath the epidermis, made up of connective tissue.

Layers-

Papillary layer-The papillary layer, together with the thick dermal papillae connective tissue, makes up the dermis' superficial layer. Some of the capillary loops in thick skin, where they are best developed, include tactile corpuscles. **Reticular layer**- The reticular layer, which makes up the majority of the dermis' deep layer, is composed primarily of dense bundles of collagen fibers, a sizable number of elastic fibers, and adipose tissue. **Types of Kustha**- ^[5,6]There are Eighteen *Kustha* according to Ayurveda. Seven *Maha Kustha* as *Kapala*, *Udumber*, *Mandala*, *Rishyajivha*, *Pundarika*, *Sidhma*, *Kakanaka Kustha* along with its clinical features. And Eleven *Kshudra Kustha* as *Ek-kustha*, *Charma Kustha*, *Kitibha*, *Vipadika*, *Alasaka*, *Dadrumandala*, *Charmadala*, *Pama*, *Visphota*, *Shataru*, *Vicharchika*.

CASE REPORT-

A 27 years old female patient came with A/H/O Plaque psoriasis. Symptom- Reddish pinpoint to pea sized lesion initially over right knee. They were insidious in out and progressive in nature. Then these spread to involve both lower legs, thighs, back and eventually whole body. Aggravate on stress. Itching is all over the lesions, continuous in nature and mild to moderate in intensity. Past History- Patient was suffering from 14 years, taken several allopathic treatment. O/E- Diffuse Erythematous plaque, irregular in shape of size 3x8 cm to 12x18 cm present over bilateral upper limbs, extensor and flexor aspect of bilateral lower limb, over trunk with white loose scales present all over the plaques in right and left scapular area, lumbar area, bilateral mammary area, chest, and neck, flexor aspect of bilateral area, axillary area, palm and dorsum of bilateral hands, flexor medial aspect of bilateral thighs, dorsal and plantar aspect of bilateral foot. Scalp- Seborrhea present moderate Oral cavity, Genitals, Nails- Normal

PSAI- 30%

Photograph 1: Before



Photograph 2: After



DIAGNOSTIC TEST-

Date	03/03/2023
HEMATOLOGY-	
Hb	12.8 gm/dl
TLC	8.4 10 ⁹ /L
Platelet count	332 10 ⁹ /L
FBS/PPBS	89/120 mg/dl
Urea	16 mg/dl
Creatine	0.54 mg/dl
Total bilirubin	0.3 mg/dl
Direct	0.10 mg/dl
Indirect	0.20 mg/dl
SGOT/AST	18 U/L
SGPT/ALT	19 U/L
Sr. Alk. Phos.	87 U/L
Sr. Proteins-Total	7.1 gm/dl
Albumin/Globulin	4.2/2.9 gm/dl
HIV	Non Reactive
HCV	Non Reactive
HBsAg	Non Reactive

Radiological Imaging Test-

Chest X-Ray P/A view	Findings	Impression
	<ul style="list-style-type: none"> • Trachea is central in position. • Soft tissue is normal • Bones in view are normal • Lungs fields are normal 	No obvious lung abnormality is seen.

Biopsy Report-

Histopathological report	Findings
Method preferred was skin punch biopsy over right lower limb.	<ul style="list-style-type: none"> • Hyperkeratosis of the epidermis • Psoriasiform hyperplasia • Regular elongation of rete ridges • Focal exocytosis of lymphocytes • The underlying papillary dermis shows mild superficial mononuclear cells infiltrate around capillaries.

Diagnosis- Extensive Plaque Psoriasis: Trunk, limbs, Scalp.

DISCUSSION-

Skin is the body's largest organ, serving as a protective barrier between the internal organs and the external environment, in Ayurveda it is referred to as "*Twak*" or "*Twacha*." According to Dr. Bhaskar Govind Ghanekar,^[7] the four Layers of Epidermis that are *Avabhasini*, *Lohita*, *Shweta*, *Tamra* are the outermost skin layers that does not have *raktavahiniya* (blood supply). They get their nourishment by the *lasika* (lymph nodes) and the nerve fibrils which are embedded in between the layer of skin^[13]. And the rest three layers of Dermis that are *Vedini*, *Rohini* and

Mansadhara have the blood supply that are necessary for the nourishment of skin.^[8] From an Ayurvedic perspective, imbalances in the *doshas*, lifestyle factors, improper diet, and accumulation of toxins in the body are believed to result in skin disorders like *Kustha*.

There are Eighteen *kustha* according to Ayurveda. Seven are considered as *Maha kustha*, and rest Eleven are under the heading of *Kshudra kustha*.^[9]

In the case study above, the female patient (27 years old) has been dealing with a reddish spherical lesion (pea-sized) with intense itching and burning for 14 years. Following a histological investigation, the patient was diagnosed with extensive plaque psoriasis.

When we compare the *twacha stara* with clinical findings and histopathological reports, we can see from the observation of the aforementioned case report that the disease affects the dermis from the Epidermis to the Papillary layer, which can be related to the *Avabhasini* layer to the *Vedini* layer of the *twacha*. According to *Acharya Sushruta* point of view the clinical signs of the aforementioned illness are similar to *Sidhma kustha* since the *Avabhasini* layer is implicated, and *kustha* is comparable because the *Tamra* layer and *Vedini* layer are also involved. *Acharya Charak* claims that, as the *Shweta* layer is engaged, it is similar to the *Sidhma kustha* and the *kustha* because the *Tamra* and *Vedini* layers are also engaged.

CONCLUSION-

Thoroughly reviewing the literature and case report it is concluded that it is *Sidhma Kustha* according to *Acharya Sushrut*, as *Avabhasini* and *Vedini twacha stara* are involved in it and both are co-related with Epidermis and Dermis layer of skin in modern view. When compared according to *Acharya Charak* there is no involvement of first layer and involvement start from third layer i.e. *Shweta*. In the field of medicine, a thorough study of *Twacha* and diseases from both an *Ayurvedic* and modern perspective is required for better diagnosis. Therefore, in order to understand skin anomalies, one must be thoroughly knowledgeable about the normal state of skin's structure and function. Through this case report the extensive plaque psoriasis can be co-related and treated as *Sidhma Kustha*.

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