

A REVIEW ARTICLE ON FUNDAMENTAL ASPECT OF TWACHA

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ABSTRACT

In *Ayurveda*, the "Science of Life", *Acharya Sushruta* mentions 5 sense organs, called *Gyanendriyas*. *Sparshanendriya* is one of them, with *Twacha* as its *Adhishthana* (skin). As we know, skin is the most important sensory organ. Skin is the largest sense organ of our body and we sense touch, pain, pressure, temperature and more. It is also called "The First Line of Defence". *Acharya Sushrut* and *Acharya Charak* have described in detail that different layers of skin have different functions and different diseases are associated with these layers. Modern health science has described the skin in detail according to different cell types. This article explores etymology, synonyms, *Utpatti*, *Rachana* of layers of *Twacha*. *Twacha* is described as *Rogamarga* in *Ayurvedic* as well as in modern perspective. *Twacha* (Skin) is a topic of profound research because there are mysterious and varied disorders that are rising in relation to *Twacha* these days. Therefore, *Twacha* is useful for diagnostic, prognosis and therapeutic purposes.

KEYWORDS: *Adhishthana*, *Gyanendriyas*, *Sparshanendriya*.

INTRODUCTION

Skin, or the cutaneous membrane, is the largest and most complex organ of the body. It has a surface area of 20 square feet and weighs 4.5-5 kg, about 7% of the total weight of the body. It also serves as the body's first line of defense by defending us from microbes and other invaders. This part of the body is responsible for maintaining homeostasis by protecting the body and regulating temperature. Senses also enable us to detect pleasurable, painful, and other external stimuli.^[1]

Acharya Charaka defines skin as a structure covering the entire body.^[2] *Acharya Sushruta* states that the thickness of skin varies in different places of the body; for example, the thickness of skin is different in *Mamsalsthana* and *lalat*.^[3] Similarly, modern science affirms that the skin is thickest on the palms and soles of the feet while the skin is thinnest on the eyelids and in the post-auricular region. We are well aware of our skin, but the details of *Twacha* mentioned in various *Ayurvedic* texts have yet to be explained. *Twacha* is the seat of various *Rogas*, so knowledge of its *Rachnatmaka* aspect is very important.

LITERATURE REVIEW

Etymology (*Nirukti*) of *Twacha*: The *Ayurvedic* term for skin is *Twak* or *Twacha*. It falls under the "*Panch Gyanendriya Adhishthana*." It has a great capacity for stretching and expanding. "*Pranadi Panch Vayu*" is where *Twacha* resides and carries out the functions of *Vayu*. *Twacha* is a special sense organ that can perceive pain, touch, pressure, heat, and cold.^[4&5]

Synonyms for *Twacha*

There are many names for skin including *Derma*, *Dermis*, *Twacha*, *Charma*, *Sparshan*, *Chavi*, *Chadani*, *Asrugdhara*, *Romabhumi*, *Ajin*, *Kruti*,^[6] and many others.

Twacha Utpatti

Twacha (skin) develops during *Tritiya masa* (third month) of intrauterine life, according to *Ayurvedic* texts.^[7] *Twacha* is seen differently by different *Acharyas*.

Acharya Sushruta explained the development of *Twacha* in *Sharir sthana* using the example of *Ksheer* and *Santanika*. After heating, *Twacha* develops like a layer of *Santanika* (cream) on top of *Ksheer* (milk). The

formation of *Twacha* occurs when *Shukra* and *Shonita* unite during the *Garbhanirmaana Kala*.

Acharya Charaka says the *Shukra shonita sanyoga*^[8] and formation of all *Dhatu*s results in the development of the *Twacha*.

According to *Acharya Vagbhata*, the development of *Twacha* is caused by the *paka* of *Rakta Dhatu* by *Dhatvagni*.^[9]

According to Modern texts, skin development begins around the fourth week after fertilization. At the beginning of the seventh week, the basal layer divides and forms a superficial layer of flattened cells called periderm. In the fifth month, the vernix caseosa, a fatty layer, appears. In the eleventh week, the epidermis and dermis are formed and hair follicles begin to grow. The epidermis is formed by ectoderm, while the dermis is formed by mesoderm, which lies deep in the ectoderm.^[10]

Rachnatmaka aspect of Twacha

Twacha is the *Adhishthana* of *Sparshanendriya* because it incorporates the feeling of contact due to *Vayu Mahabhuta*. It covers the outside part of frame inclusive of all organs. *Acharya Sushruta* stated *Twacha* in *Shareer Sthana* (*Sushruta-shareere-shreshtha*).

Twacha has seven layers

1. *Avabhasini* - The initial layer of *Twacha* that gives the skin colour. When the sun shines on this layer, it reflects five different hues and shadows, which is known as *Prabha*. This layer is about 1/18th the size of *vrihi* (rice grain). It is *Adhishthana* of *Sidhma* (psoriasis) and *Padmakantaka Twakroga* (Pemphigus mollaceous).
2. *Lohita* - The second layer of *Twacha*, measuring approximately 1/16th of *vrihi*. It is *Adhishthana* of *Tila kalaka* (non-elevated moles), *Nyachchha* (birthmark) and *Vyanga* (freckle).
3. *Shveta* - The third layer of *Twacha*, measuring approximately 1/12th of *vrihi*. *Charmadala* (atopic dermatitis), *Ajagalli*, and *Mashaka Twakroga* occur here (elevated mole).
4. *Tamra* - The fourth layer of *Twacha*, measuring approximately 1/8th of *vrihi*. It is *Adhishthana* of *Vividha Kilasa* (lepromatous) *twakroga*.
5. *Vedini* - The fifth layer of *Twacha* which measures around 1/5th portion of *vrihi*. It is *Adhishthana* of *Kushtha* (leprosy) and *Visarpa* (erysipelas).
6. *Rohini* - The 6th layer of *Twacha* which measures almost a *vrihi*. It is *Adhishthana* of *Granthi* (cyst), *Apachi* (scrofula), *Arbuda* (tumor), *Shlipada* (filariasis), *Galaganda* (goiter).
7. *Mamsadhara* - The seventh layer of *Twacha* which measures around two *vrihi*. It is *Adhishthana* of *Bhagandara* (fistula-in-ano), *Vidradhi* (Abscess), *Arshas* (piles).

Acharya Charaka described six layers of Twacha

1. *Udakadhara* - The peripheral layer of *twacha*.
2. *Asrikdhara* - This is second layer of skin which holding *Rakta*.
3. *Tritiya twacha* - The third layer of *Twacha* is *Rogaadhishthana* of *Sidhma, kilasa*.
4. *Chaturthi twacha* - The fourth layer of *twacha* is *Rogaadhishthana* of *Dadru, kushtha*.
5. *Panchami twacha* - The fifth layer of *twacha* is *Rogaadhishthana* of *Alaji, vidradhi*.
6. *Shashthi twacha* - When there's any harm to the 6th layer of *Twacha*, then the clinical symptom include *Tamahpravisyati*. It is *Rogaadhishthana* of *Arunshika*.^[11]

Twacha as Rogamarga

Acharya Charaka depicts *Bahya, Madhyam* and *Abhyantara* three *Rogamarga*. *Twacha* is included in *Bahya Rogamarga* because it is peripheral layer and to begin with line of guard and each component in outside environment will come in contact with *Twacha* to begin with.

Advanced viewpoint of Skin: Of all the body's organs, none is more effortlessly reviewed or more uncovered to contamination, illness and harm than the skin. Since of its perceivability, skin reflects our feelings and a few perspectives of ordinary physiology. Changes in skin color may also indicate homeostatic disturbances within the body.

Layers of skin: the skin has been classified into two fundamental parts:

1. The shallow, more slender parcel, which is composed of epithelial tissue, is the Epidermis.
2. The more profound, thicker connective tissue parcel is the Dermis.

The Epidermis is avascular and the Dermis is vascular, that's why, by cutting the layer of epidermis there's no dying, but in the event when we cut the dermis, there's dying. The Hypodermis is a subcutaneous layer that lies beneath the dermis but is not part of the skin. Areolar and adipose tissues make up this stratum.

The epidermis is divided into five layers, as follows^[12]

1. Stratum Corneum, often known as the Horny Layer
2. Stratum Lucidum
3. Stratum Granulosum
4. Stratum Spinosum or Malpighian Layer
5. Stratum Basale or Germinative Layer

The dermis is separated into two regions^[13]

- I. The Papillary zone
- II. The Reticular zone.

Skin's functions include

1. **Thermoregulation:** It is the process of regulating the body's temperature. The skin helps regulate temperature in two ways: by releasing sweat at the

surface and changing blood flow in the dermis. Sweat production from eccrine sweat glands increases in reaction to high temperatures, and sweat evaporation from the skin's surface helps to lower body temperature.

- Blood Reservoir:** In a resting adult, the dermis houses a large network of blood capillaries that carry 8-10% of total blood flow. As a result, the skin serves as a blood reserve.
- Defense:** The skin defends the body in a variety of ways. Microbes, abrasion, heat, and chemicals are all protected by keratin. Lipids secreted by lamellar granules prevent water from evaporating from the skin's surface. The sebaceous glands' oily sebum prevents hair and skin from drying out and contains antibacterial compounds.
- Cutaneous sensations:** Touch, pain, pressure, vibration, tickling, and thermal sensations such as warmth and coolness are examples of cutaneous sensations.
- Excretion and absorption:** Despite the stratum corneum's waterproof characteristics, roughly 400mL of water evaporates everyday through the skin. Certain medications, fat-soluble vitamins (A, D, E, K) and a few gases do enter and exit the skin.
- Vitamin D Synthesis:** UV rays in sunshine activate precursor molecules in the skin, allowing vitamin D to be synthesised. The activated molecule is modified by enzymes in the liver and kidney, resulting in calciferol, the most active form of Vitamin D.^[14]

Clinical condition: Skin illnesses are referenced in *Ayurvedic* literature as "*Kushtha Roga*."

These are divided into two categories:

- Maha Kushtha*
- Kshudra Kushtha*

Similarly a variety of skin ailments have been discussed in modern literature. Here are few examples: Vesicles, plaques, scales, nodules, papules, and patches are examples of skin lesions and eruptions seen in many dermatological conditions.

DISCUSSION

Classical and modern text have some different opinions about skin but both of them explain the layers, pigments, different skin thickness at different areas of body.

Pigmentation and colour: Following variations in skin tone, there are a few underlying causes:

- Pallor: Anemia, haemorrhage, and shock are the causes of pallor.
- Pale: Hypopituitarism, Hypogonadism
- Albinism is a condition in which the pigment haemosiderin is missing from birth.
- Cyanosis: Oxygen deficiency in blood vessels.

Twacha Layers Correlation: The intricacies of the layers of skin according to *Ayurveda* and modern science are still a mystery. But the correlation of *Ayurvedokta Twacha Stara* with modern science as per described by Ghanekar,^[15] the commentator of *Sushruta Samhita Shareersthana*, which is as follows:

Avabhasini- Stratum corneum
Lohita- Stratum Lucidum
Shveta- Stratum Granulosum
Tamra- Malpighian Layer
Vedini- Papillary Layer
Rohini- Reticular Layer
Mamsadhara- Subcutaneous tissue

CONCLUSION

The skin is the most representative part of the body that plays a specific role in the personality. Detailed study of *Twacha Sharir* in both *Ayurveda* and modern science established concept of *Twacha* (skin) in medicine.^[16] To understand *Twacha's* *Vikriti*, one must first understand *Twacha's* normal anatomy and physiology. A better diagnosis requires a detailed study of *Twacha* and the latest concepts by *Ayurveda*.

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