



### A Review on Conceptual Study of *Twacha Sharir* (Skin)

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#### ABSTRACT:

*Ayurveda* is science of life and its main aim is to maintain healthy status of healthy living being, i.e., prevention of disease and treatment of disease. As per *Ayurvedic* science, *Sharir* is made up of *Dosha*, *Dhatu*, *Updhatu* and *Mala*. *Twacha* is considered as *Updhatu* of *Mamsa Dhatu*<sup>2</sup>. *Twacha* is one among the five *Dnyanendriyas* having its perception as mentioned with their respective diseases<sup>2</sup>.

**KEYWORDS:** *Twacha*, *Updhatu*, *Mamsa*, *Dhatu*, *Dnyanendriya*

#### INTRODUCTION:

*Acharya Sushruta* has stated that the thickness of *Twacha* is different in different sites of body as in *Mamsalsthaana* and *Lalaat* the *Twacha Pramaan*<sup>2</sup>. Modern science also stated the same concept that skin is thickest on palms and soles of feet while thinnest on eyelids and in post auricular region<sup>1</sup>. We know well about the skin but the details of *Twacha* mentioned in various *Ayurvedic* Texts are yet to be explained. The knowledge of *Rachnatmaka*

and *Kriyatmaka* aspect of *Twacha* is of great importance as *Twacha* is the origin for various *Rogas*<sup>3</sup>.

In *Ayurveda*, skin is stated as *Twak* or *Twacha*<sup>2</sup>. It is included under “*Panch Dyanendriya Adhithana*.” It has a great capacity of expansion and stretching<sup>2</sup>. *Twacha* is the *Adhithana* of “*Pranadi Panch Vayu*” where *Vayu* resides and bring out its functions. *Twacha* is specialized sense organ which acquires special sensory perception of pain, touch, pressure, heat and cold<sup>3</sup>.

Skin is known by various names like *Derma*, *Dermis*, *Twacha*, *Charma*, *Sparshan*, *Chavi*, *Chadani*, *Asrugdhara*, *Romabhumi*, *Ajin*, *Kruti* and many more.

In *Ayurvedic* texts, it is stated that the development of *Twacha* (skin) occurs in *Tritiya masa* (third month) of intrauterine life. Different *Acharyas* have different views regarding the development of *Twacha*. *Acharya Sushruta* described the development of *Twacha* in *Sharirsthana* by taking the example of *Kshir* and *Santanika*<sup>2</sup>. *Twacha* develops like a layer of *Santanika* (cream) developed on *Kshir* (Milk) after

heating. The formation of *Twacha* results from heat generated in the process of union of *Shukra* and *Shonita* during the *Garbhanirmaana Kala*<sup>3</sup>.

In Modern texts, it is stated that the development of skin starts at about fourth week after the *fertilization*<sup>1</sup>. At the beginning of seventh week, the single layer known as the basal layer, divides and forms a superficial protected layer of flattened cells called *periderm*<sup>1</sup>. By the fifth month, appearance of fatty layer called the *vernix caseosa* can be seen. By about eleventh week, epidermis and dermis are formed and hair follicles start to grow. The epidermis is derived from ectoderm while the dermis arises from mesoderm located deep to the surface *ectoderm*<sup>4</sup>

*Rachnatmaka* aspect of *Twacha*: *Twacha* is the *Adhishthana* of *Sparshanendriya* as it carries the sensation of touch because of *Vayu Mahabhuta*<sup>2</sup>. It covers the external part of body including the sense organs. *Acharya Sushruta* mentioned the concept of *Twacha* in *Sharir Sthana* as *Twacha* has seven layers:

1. *Avabhasini* – The first layer of *Twacha* which provides colour to the skin. When the sunlight falls on this layer, five types of colours and shadows gets reflected i.e., *Prabha*. This layer measures about 1/18<sup>th</sup> part of *Vrihi* (rice grain). It is *Twakroga Adhishthana* of *Sidhma* (small ulcers) and *Padmakantaka* (*Pemphigus mollaceous*)
2. *Lohita*– The second layer of *Twacha* which measures about 1/16<sup>th</sup> part of *Vrihi*. It is *Twakroga Adhishthana* of *Tila Kalaka* (moles), *Nyachchha*

(pimples) and *Vyanga* (acne vulgaris).

3. *Shveta*– The third layer of *Twacha* which measures about 1/12<sup>th</sup> part of *Vrihi*. It is *Twakroga Adhishthana* of *Charamdala*, *Ajagalli* and *Mashaka* (taenia infection of skin and candidiasis).
4. *Tamra* – The fourth layer of *Twacha* which measures about 1/8<sup>th</sup> part of *Vrihi*. It is *Twakroga Adhishthana* of *Vividha Kilasa* (*lepromatous*) and *Kustha* (*tuberculoid leprosy*).
5. *Vedini* – The fifth layer of *Twacha* which measures about 1/5<sup>th</sup> part of *Vrihi*. It is *Twakroga Adhishthana* of *Kushtha* (leprosy) and *Visarpa* (erysipelas).
6. *Rohini* – The sixth layer of *Twacha* which measures about a *Vrihi*. It is *Twakroga Adhishthana* of *Granthi* (varicose veins), *Apachi* (benign tumors), *Arbuda* (tumors), *Shlipada* (*filariasis*), *Galaganda* (*goiter*).
7. *Mamsadhara* – The seventh layer of *Twacha* which measures about two *Vrihi*. It is *Twakroga Adhishthana* of *Bhagandara* (fistula-in-ano), *Vidradhi* (abscess), *Arshas* (piles).

### Modern Aspect of Skin:

Of all the body's organs, none is more easily inspected or more exposed to infection, disease and injury than the skin. Because of its visibility, skin reflects our emotions and some aspects of normal physiology. Changes in skin colour may also indicate homeostatic imbalances in the body<sup>4</sup>.

**Layers of Skin:** Modern texts have classified the skin into two main parts<sup>1</sup>:

1. The superficial, thinner portion, which is composed of epithelial tissue, is the Epidermis.
2. The deeper, thicker connective tissue portion is the Dermis.

The Epidermis is *avascular* and the Dermis is vascular, that's why, by cutting the layer of epidermis there is no bleeding, but if we cut the dermis, there is bleeding. Deep to dermis, but not part of skin, is the subcutaneous layer, known as the Hypodermis. This layer consists of *areolar* and *adipose tissues*<sup>4</sup>.

The Epidermis is further grouped into five layers<sup>4</sup>:

1. *Stratum Corneum or Horny Layer*
2. *Stratum Lucidum*
3. *Stratum Granulosum*
4. *Stratum Spinosum or Malphigian Layer*
5. *Stratum Basale or Germinative Layer* the Dermis is further divided into two regions:

#### **I. Papillary region II. Reticular region**

#### **Functions of Skin:**

1. Thermoregulation: The skin contributes to regulation in two ways: by liberating sweat at its surface and by adjusting the flow of blood in the dermis. In response to high temperature, sweat production  
1. from eccrine sweat glands increases; the evaporation of sweat from the surface of skin helps to lower the body temperature<sup>1</sup>.
2. Blood Reservoir: The dermis houses an extensive network of blood

vessels that carry 8-10% of the total blood flow in a resting adult. For this reason, the skin acts as a blood reservoir.

3. Protection: The skin protects the body in various ways. Keratin protects underlying tissues from microbes, abrasion, heat and chemicals. Lipids released from the lamellar granules inhibit evaporation of water from skin surface. The oily sebum from the sebaceous glands keeps hair and skin from drying out and contains bactericidal chemicals<sup>1</sup>.
4. Cutaneous sensations: These sensations arise in the skin such as touch, pain, pressure, vibration, tickling and thermal sensations like warmth and coolness.
5. Excretion and absorption: Despite the waterproof nature stratum corneum, about 400 mL of water evaporates through skin daily. Fat soluble vitamins (A, D, E, K), certain drugs and few gases do enter and exit the skin.
6. Synthesis of Vitamin D: Synthesis of vitamin D requires activation of precursor molecules in the skin by U. V rays in sunlight. Enzymes in the liver and kidney modify the activated molecule, producing *calcitriol*, the most active form of Vitamin D<sup>4</sup>.

#### **Correlation of Layers of Twacha:**

The details regarding the layers of skin according to *Ayurveda* and Modern science is still confusing. But the correlation of *Ayurvedokta Twacha Stara* with modern sciences as per mentioned by *Ghanekar*, the

commentator of *Sushruta Samhita Sharirsthana*,<sup>2</sup> 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

### DISCUSSION and CONCLUSION:

This detailed study of *Twacha Sharir* in both *Ayurvedic* and Modern sciences provided well established concept of *Twacha* (skin)<sup>2</sup>. Thus, in medical science, for better diagnosis, detailed study of *Twacha* as per *Ayurveda* in *Rachnatmaka* and *Kriyatmaka* aspect as well as Modern concepts are necessary<sup>2</sup>

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