



## A Review Article on Skin (Twacha) W.S.R Ayurvedic and Modern Texts

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### Abstract

In Samhitas Twak/Twacha is described as outermost protective layer of body as well as largest sensory organ of body. Acharya Sushrut and Acharya Charak very minutely described its layers according to their functions and also diseases which are related to those layers. Modern health science described skin in detail according to division of cell. In this literary study of Twacha/skin is done as per Ayurveda and Modern texts.

**Key Word-** Twak, Twacha, Skin layers.

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### INTRODUCTION

The skin, also known as the coetaneous membrane is the largest organ of the body, with a total area of about 20 square feet and weighs 4.5-5kg, about 16% of total body weight. Skin is known as “The First Line of Defence” as it protects us from microbes and other invading elements. It is a part of integumentary system that contributes to homeostasis by protecting the body and helping regulate body temperature. It also allows us to

sense pleasurable, painful and other stimuli in the external environment.<sup>1</sup>

*Acharya Charaka* defines skin as the structure covering the whole body.<sup>2</sup> *Acharya Sushruta* has stated that the thickness of *Twacha* is different in different sites of body as in

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*Mamsalsthaana* and *Lalaat* the *Twacha pramaan* varies.<sup>3</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>4</sup> We know well about the skin but the details of *Twacha* mentioned in various *Ayurvedic* Texts are yet to be explained.

### AIM

To study the concept of skin (*Twacha*) according to *Ayurvedic* and modern Texts.

### OBJECTIVE

1. To study the concept of skin (*Twacha*) as per *Ayurvedic* and Modern texts.
2. To study the correlation between layer of skin and *Twacha*.

### Definition

The part of the body which completely covers *Meda*, *Shonita* and other *Dhatu* and gets spreading over is called *Twacha*.

### Origin of the Skin

In the *Garbhavastha*, *Twacha* is the organ, which is derived from *Matrujabhava* and hence it is *Mrudu* in nature<sup>5</sup>. According to *Sushruta*, the product obtained from *Dhatvagnipaka* of *Shukra* and *Shonita* is *Twacha* and seven layers of the skin are formed just like layer of cream after cooling of boiled milk<sup>6</sup>. But *Acharya Vagabhata* had difference in opinion that *Twacha* is formed by *Paka* of *Rakta Dhatu* by its *Dhatushma*<sup>7</sup>. It is also said that, *Twacha* is *Upadhatu* of *Mamsa*

so it's fundamentally developed from *Mamsa Dhatu*<sup>8</sup>.

*Acharya Vagabhata* mentioned that in 6th month of pregnancy *Rupa* and *Varna* are manifested. While describing the properties of the *Mahabhutas* he opined that the role of *Agni* in the formation of *Shabdha*, *Sparsha* and *Rupa*<sup>9</sup>. While discussing the organic constitution of different organ, he said that *Vata* caused *Sparsha* & *Twacha* and *Agni* causes *Twacha*, *Pitta* and *Varna*<sup>10</sup>. At the same place he further added that the seven layers of the skin are formed from *Rakta*.

### Layers of the skin according to various Acharyas

SU.S. <sup>1</sup>	Cha.S. <sup>12</sup>	Arund atta <sup>13</sup>	Sha.S. <sup>14</sup> /B.P. <sup>15</sup>
Avabh asini	Udakad hara	Bhasin i	Avabhas ini
Lohita	Asrugda hra	Lohini	Lohita
Sweta	Trutiya	Sweta	Sweta
Tamra	Chaturt ha	Tamra	Tamra
Vedini	Pancha mi	Vedini	Vedini
Rohini	Shashthi	Rohini	Rohini
Mams adhar a	-	Mamsa dhaa	Sthula

### Comparison of Skin layers according to Ancient and Modern term

Ancient terms	Modern terms	Types of skin
<i>Avabhasini</i>	Stratum Corneum	Epidermis
<i>Lohita</i>	Stratum Lucidum	Epidermis
<i>Sweta</i>	Stratum Granulosum	Epidermis
<i>Tamra</i>	Malpighian layer	Epidermis
<i>Vedini</i>	Papillary layer	Dermis
<i>Rohini</i>	Reticular layer	Dermis
<i>Mamsadhara</i>	Subcutaneous tissue and Muscular layer	Dermis

### Panchabhautiktva of Skin

In this universe all *Chetana* and *Achetana Dravya* are constituted from *Panchamahabhuta*. So, human body and its organ are *Panchabhautika*<sup>16</sup>. *Acharya Charaka* has described *Panchabhautikatva* of *Twacha* as follows<sup>17</sup>.

- ❖ *Pruthy: Twacha* is *Parthiva Avayava*.
- ❖ *Jala: Mruduta* and *Snigdghata* of *Twacha* are due to *Jala Mahabhuta*.
- ❖ *Teja: Abha* and *Varna* of skin is due to *Teja Mahabhuta*.
- ❖ *Vay: Twacha* is *Sparshanendriya Adhithana* which is *Vatadhithana*.

❖ *Akasha: Svedavahi Srotasa* is indicative of *Akashamahabhuta*.

### Modern Aspect of Skin

The skin or coetaneous membrane covers the external surface of the body and the largest organ of the body in both surface area and weight. In adults, the skin covers an area of about 22 square feet and weighs 4.5-5 kg., about 16% of total body weight. It ranges in thickness from 0.5mm on the eyelid to 4.0mm on the heels. However, over most of the body it is 1-2 mm thick. Structurally, the skin consists of two main parts<sup>18</sup>

A. **Epidermis:** Superficial, thinner portion composed of epithelial tissue.

B. **Dermis:** Deeper, thicker connective tissue part.

#### A. Epidermis:

Consists of two types of cells, Keratinocytes and non keratinocytes, including melanocytes, dendritic cells of legerhance and cells of Merkel.

**Keratinocytes** - are predominant cells of epidermis, forms from stem cells present in basal layer. By further mitosis intermediate stem cells undergoes. Then after no further cell division.

**Melanocytes** – Derived from melenoblast that arises from neural crest and are responsible for melanin synthesis. Color of skin is influenced by melanin presence.

**Dendritic cells of Langerhans** – Originate in bone marrow and playing important role in protection of skin against viral and other infections and controlling the rate of cell division in epidermis.

Increases in chronic skin diseases are due to allergy. Present in oral mucosa, vagina and thymus and belong to mononuclear phagocyte system.

**Cell of Merkel** – Sensory nerve ending are present in these cells in basal layer of epidermis.

In most region of the body the epidermis has four strata or layers but some parts like fingertips, palms, and soles which more exposing to friction contain five layers are as follow-

**1. Stratum Basal (basal – base):** It is the deepest layer of the epidermis, composed of a single row of cuboidal or columnar keratinocytes. Some cells in this layer are stem cells that undergo cell division to continually produce new keratinocytes. The stratum basale is also known as the stratum germinativum (germ = sprout) to indicate its role in forming new cells.

**2. Stratum Spinosum (spinos-thornlike):** It is superficial to stratum basale, where 8 to 10 layers of many sided keratinocytes fit closely together. Bundles of tonofilaments are inserting into a desmosome and tightly joining the cells to one another. This

arrangement provides both strength and flexibility to the skin.

**3. Stratum Granulosum (granulos-little grains):** It middle layer of the epidermis and consists of three to five layers of flattened keratinocytes. Darkly staining granules of a protein called keratohyalin are present in this layer which converts the tonofilament into keratin.

**4. Stratum Lucidum (lucid-clear):** It is present only in the thick skin of the fingertips, palms and soles. It consists of three to five layers of flattened clear, dead keratinocytes that contain large amounts of keratin and thickened plasma membranes.

**5. Stratum Corneum (corne-horn or horny):** It consists of 25 to 30 layers of flattened dead keratinocytes. These cells are continuously shed and replaced by cells from the deeper strata.

## **B. Dermis:**

On the Basic of its tissue structure, the dermis can be divided into a papillary region and a reticular region.

**Papillary layer** – Forms superficial layer of dermis and includes the dense connective tissue of dermal papillae which are best develop in thick skin of palm and sole. Contains blood vessels lymphatic's, and nerve fibers and chromate ores (pigments).

**Reticular layer** – This layer is made up of Reticular and elastic fibers. Fibers are

found around the hair bulbs, sweat glands, and sebaceous gland. Immediately below the dermis, sub cutaneous tissue in prunes.

### **Functions of the Skin<sup>19</sup>:**

**1. Thermoregulation:** The skin contributes to thermoregulation, the homeostatic regulation of body temperature, in two ways: by liberating sweat at its surface and by adjusting the flow of blood in the dermis.

**2. Blood reservoir:** In resting adult, the dermis is an extensive network of blood vessels that carry 8 – 10% of total blood flow and in such a way the skin acts as a blood reservoir.

**3. Protection:** The skin provides protection to the body in various ways.

**4. Cutaneous Sensation:** There is a wide variety of nerve endings and receptors distributed throughout the skin, including the tactile discs of the epidermis, the corpuscles of the touch in the dermis, and hair root plexuses around each hair follicle and so sensations arise in the skin, including tactile sensations – touch, pressure, vibration, and tickling as well as thermal sensations such as warmth and coolness.

**5. Excretion:** Sweat is the vehicle for excretion of small amount of salts, carbon dioxide, ammonia and urea.

**6. Synthesis of Vitamin D:** Synthesis of Vitamin D is take place in the skin, by

activating precursor molecules with the help of UV rays in sunlight.

**7. Esthetic function:** Smooth, soft, and glowing skin is esthetically valued.

### **DISCUSSION**

Classical texts and modern texts have different opinion about skin. But they both describe the layers, pigments, and thickness of skin and Comparison of Skin layers according to Ancient and Modern term.

### **CONCLUSION**

Skin is most presentable part of body having definite role in personality. This detailed study of *Twacha Shareer* in both *Ayurvedic* and Modern sciences provided well established concept of *Twacha* (skin) in medical science. Hence to know abnormalities of skin one must have knowledge about normal state of its structure and function of skin must to be studied in detail. for better diagnosis, detailed study of *Twacha* as per *Ayurveda* as well as Modern concepts are necessary.

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