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THE STUDY OF TWACHA IN RACHANA SHARIR OF AYURVEDA: A REVIEW ARTICLE

Dr. Pooja Babanrao Borde*, Dr. Shrikant B. Darokar

Pmt's Ayurveda College Shevgaon.

***Corresponding Author: Dr. Pooja Babanrao Borde**

Pmt's Ayurveda College Shevgaon.

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INTRODUCTION

The skin is the outermost and most visible part of the human body, making it easy to observe and examine. Because it is constantly exposed to sunlight, microorganisms, pollutants, and potential injuries, the skin plays a vital protective role. It acts as a natural defense barrier and has a strong ability to heal itself after damage. The skin also reflects a person's emotions, neurological responses, behavior, and overall health; reactions such as sweating and flushing are commonly visible on the skin. Changes in skin color are especially important in clinical assessment and diagnosis. For example, pallor causes the skin to appear pale, jaundice results in a yellowish discoloration, and bluish skin indicates reduced oxygen supply. Skin rashes are characteristic of diseases such as chickenpox, measles, food allergies, and drug reactions. Other conditions, including moles, hyperpigmentation, age spots, and acne, arise due to various skin pathologies. Because of its importance to appearance, people invest significant time and money in maintaining healthy and attractive skin. Everyone desires an energetic and youthful appearance of the skin. *Dosha*, *dhatu*, and *mala* are the fundamental components of the body (*sharira*). *Twacha* is considered the *upadhatu* of *mamsa dhatu* and also serves as its *moolasthana*, as it covers and protects the *mamsa dhatu*. Various aspects of *twacha*, including its origin (*utpatti*), layers, and related disorders, have been described by Acharya Charaka and Acharya Sushruta in different ways. The skin plays a vital role in maintaining normal physiological functions. Acharya Yogaratnakara has included *twak pariksha* in the *ashtavidha pariksha*. Therefore, understanding the structure (*rachana*) and function (*kriya*) of the skin is essential for managing diseases and their treatment. *Twacha* is the seat of various *twak rogas*, and almost every disease presents with one or more symptoms manifested on the skin. It is also the seat of *sparshanendriya*. To understand pathological changes (*vikriti*), one must first understand the normal state (*prakriti*). The skin is an indispensable body part as well as an important sensory organ. In modern times, physicians face numerous challenging and emerging diseases, along with new presentations of classical disorders, making clinical practice both demanding and intellectually engaging.

MATERIAL AND METHOD

LITERATURE REVIEW

In the Ayurvedic *Samhitas*, *Twacha* is described in detail with respect to its layers, types, and associated disorders. It is explained as the outer protective covering of the body as well as an important sensory organ. Acharya Sushruta and Acharya Charaka have described distinct layers of the skin, specifying their thickness, functions, and diseases related to each layer. Ayurveda elaborates seven layers of the skin in detail, wherein each layer supports the others, collectively contributing to the proper functioning of the skin as a whole. In Ayurveda, the skin is considered an indicator of internal health. The location of *Twacha* is of great significance, as it serves as the site of *Vyana Vayu*, *Bhrajak Pitta*, *Rasa Dhatu*, and *Manas*. It acts as a medium of interaction between the body and the mind and should not be regarded merely as a physical covering. Rather, it is a true reflection of the internal state of the body, manifesting both health and disease.

UTPATTI OF TWAK

Development of Twak (Utpatti) As indicated by Sushruta and Vaghbhata, after Shukra, Shonita sanyoga, pachyamanawastha happens and seven layers of Twak are shaped like cream over milk. Twak is matruja organnevertheless it is produced as the sparshanendriya from Atmaja bhava. According to charaka, Twak is

likewiseproduced during third month as it is Dnyanendriya. Twak is considered as an updhatu of mamsa dhatu alongside vasa that are delivered by matrija bhava itself. Acharya Vagbhata says that Twak is inferred by the activity of rakta dhatvagni from rakta.

SYNONYM: Twak, Twacha, Charma, Sparshan, Sparshanendriya etc.

CLASSIFICATION OF TWACHA ACCORDING TO DIFFERENT ACHARYAS

Acharya Sushruta has described seven distinct layers of *Twacha* in the *Samhita*, assigning specific names to each layer. He has also clearly mentioned the thickness of every layer of the skin; however, this thickness cannot be considered uniform throughout the body. The thickness of *Twacha* shows significant regional variations—for example, it is comparatively thicker over the chest and abdomen, and thinner over the forehead and fingers. Therefore, the thickness of the abdominal region should be taken as a standard reference, as Acharya Sushruta has stated that during surgical procedures, the depth of incision in the abdominal region should be equal to the width of the thumb.

SR No.	Charaka	Vagbhata	Sushruta	Arundatta	Sharangdhara	Bhavaprakasha	Modern Correlation
1	Udakdhara	Udakdhara	Avabhasini	Bhashini	Avabhasini	Avabhasini	Stratum basale
2	Asrugdhara	Asrugdhara	Lohita	Lohita	Lohita	Lohita	Stratum spinosum
3	Sidhma, Kilasa Sambhava Adhishthana	3rd	Shweta	Shweta	Shweta	Shweta	Stratum granulosum
4	Alaji, Vidradhi Sambhava Adhishthana	4th	Tamra	Tamra	Tamra	Tamra	Stratum lucidum
5	Dadru, Kushta Sambhava Adhishthana	5th	Vedini	Vedini	Vedini	Vedini	Stratum corneum
6	Injury leads to Andhatwa & Tamapravesha	Same as Charaka	Rohini	Rohini	Rohini	Rohini	Dermis (papillary & reticular layer)
7	Mamsadhara	Mamsadhara	Sthula	Sthula	Sthula	Sthula	Hypodermis (subcutaneous tissue)

ACCORDING TO MODERN

The skin is a peripheral cutaneous layer that covers the entire external surface of the body. It is the largest organ of the body in terms of both weight and surface area. In adults, the total skin surface area is approximately 2 square meters (22 square feet), and its weight is about 4.5 kg (10–11 pounds), accounting for nearly 16% of the total body weight. The thickness of the skin varies from 0.5 mm (0.02 inches) to 4.0 mm (0.16 inches), with an average thickness of about 1 mm (0.04–0.08 inches) over most parts of the body.

Structurally, the skin consists of two main layers. The **epidermis** is the outer, thin, and delicate layer composed of epithelial tissue, while the **dermis** is the deeper, thicker layer made up of connective tissue. Beneath the dermis lies the **subcutaneous layer**, which is not considered an integral part of the skin. This layer is composed of areolar and adipose tissue and is also known as the **hypodermis**. Fibrous strands extending from the dermis anchor the skin to the subcutaneous layer, which in turn connects it to the underlying organs and tissues. The subcutaneous layer functions as a storage site for fat, contains large blood vessels that supply the skin, and houses specialized sensory receptors known as lamellated corpuscles, which are sensitive to pressure.

LAYERS OF EPIDERMIS

1. Stratum basale (stratum germinativum): This is the deepest layer of the epidermis. It is separated from the dermis by the basement membrane and is attached to it through hemidesmosomes. This layer contains melanocytes, and the cells are cuboidal to columnar in shape. It is mitotically active and continuously produces keratinocytes.

2. Stratum spinosum (prickle cell layer): This layer is composed of approximately 8–10 layers of cells and contains dendritic cells. The cells are polygonal with cytoplasmic processes that extend outward and connect with neighboring cells through desmosomes.

3. Stratum granulosum: This layer consists of 3–5 layers of flattened, diamond-shaped cells containing keratohyalin granules, which include precursor proteins essential for keratin formation. Lamellar granules containing glycolipids act as a cementing substance, helping to hold the cells together and maintain the skin barrier.

4. Stratum lucidum: This thin, translucent layer is made up of 2–3 layers of cells and is present only in thick skin, such as the palms and soles. It contains eleidin, a clear substance derived from keratohyalin.

5. Stratum corneum: This is the most superficial layer of the epidermis and consists of approximately 20–30 layers of flattened, keratin-filled cells known as corneocytes, which are the remnants of dead keratinocytes. The thickness of this layer varies across

different body regions. In addition to providing mechanical protection, keratinocytes play an active role in the immune response of the skin.

DERMIS

The dermis is connected to the epidermis at the level of the basement membrane. It is composed of two distinct layers. The papillary layer is the superficial layer; it is thin and made up of loose connective tissue, forming close contact with the epidermis. The reticular layer is the deeper layer and is thicker, with fewer cells. It consists of dense connective tissue rich in collagen fibers. The dermis contains hair and hair follicles, arrector pili muscles, sensory nerve endings, sweat glands, and blood vessels.

HYPODERMIS

Hypodermis otherwise called subcutaneous belt is profoundly arranged to dermis. This profound layer comprises of hair follicles, tactile neurons, veins and fat lobules.

S. No.	Ayurvedic Layer	Width (Vrihi)	Rogadhisthan (Diseases)	Modern Correlation	Skin Layer
1	Avabhasini	1/18	Sidhma, Padmakantak	Stratum corneum	Epidermis
2	Lohita	1/16	Tilkalak, Nyachchha, Vyang	Stratum lucidum	Epidermis
3	Shweta	1/12	Ajagallika, Charmadala	Stratum granulosum	Epidermis
4	Tamra	1/8	Kilas, Kushta	Stratum spinosum (Malpighian layer)	Epidermis
5	Vedini	1/5	Kushta, Visarp	Stratum basale (germinative layer)	Epidermis
6	Rohini	1	Apachi, Arbud, Shlipad, Galganda	Papillary & reticular layers (merged)	Dermis
7	Mamsadhara	2	Bhagandar, Vidradhi, Arsh	Subcutaneous fascia	Hypodermis

PANCHABHAUTIKTWAM OF TWACHA

Pruthvi: Shape of twak and loma, Aap: Ras and Lymh, Tej: skin colour and glow, Vayu: Touch Sensation (skin is sense organ having dominance of Vayu), Aakash: Lomkupas (hair pits) and opening of sweat glands.

RELATION WITH TRIDOSHA & MALA: - Vata governs the sense of touch (*sparsha*) and its circulation is associated with *Vyana Vayu*. An excess of Vata is reflected by dryness and roughness of the skin. **Pitta**, particularly *Bhrajak Pitta*, is responsible for the natural glow and color of the skin, and its excess manifests as yellowish discoloration. **Kapha** is linked with moisture (*snigdhata*) in the skin, and an overabundance of Kapha is expressed through paleness or whiteness of the skin.

When we consider the *panchendriyas*, the *sparshanendriya* resides in the *twak* (skin). Vata is the primary dosha responsible for all tactile sensations. Specifically, *Vyana Vata* is located in the skin and transmits sensory information from the skin to the *mana* (mind), which is further communicated to the soul (*atman*) via *Prana Vata*. From a modern medicine perspective, the skin contains various sensory receptors, such as free nerve endings for pain, Ruffini endings and Krause end bulbs for heat and cold, Meissner's corpuscles and Merkel discs for touch, and Pacinian corpuscles for pressure. Essentially, these receptors act as transducers, converting different forms of stimuli into electrical signals within nerve fibers. These tactile signals are then transmitted through successive layers of neurons—from the sensory receptors to the spinal cord, from the spinal cord to the thalamus, and finally from the thalamus to the cerebral cortex.

The *Twak* (skin) is considered the seat of *Pitta dosha*, particularly *Bhrajak Pitta*. *Bhrajak Pitta* is responsible for the metabolism and assimilation of substances applied during therapies such as *Abhyanga* (oil massage), *Parisheka* (washing), *Avagaha* (bathing), and *Lepana* (poulticing). It also governs the natural glow and tone of the skin. Acharya Charaka has explicitly stated that skin temperature and color are regulated by *Pitta dosha*, and variations in temperature and pigmentation indicate the balance or aggravation of Pitta. Further, commentator Chakrapani Datta explained that the regulation of warmth and the subtle variations in skin tone are functions of *Bhrajak Pitta*. From a modern physiological perspective, skin color is determined by pigments such as melanin, carotene, and hemoglobin.

Beneath the skin (*Twak*) lies a prominent layer of adipose tissue, which corresponds to *Meda Dhatu* in Ayurveda. *Meda Dhatu* is considered one of the primary sites where *Kapha* resides. The skin itself is regarded as the *Upadhatu* of *Vasa* (fat tissue), indicating that both *Kapha* and *Meda* are present beneath the skin. *Sweda* (sweat) is considered a *Mala* of *Meda Dhatu* and is excreted from the body through the *Romasandhi* (sweat glands). Sweat, through evaporation, not only eliminates excess salts and other metabolic wastes but also helps regulate body temperature, for example, during exercise or fever. In conditions of *Kapha Kshaya*, the skin becomes dry, reflecting a deficiency of *Jala Mahabhuta*. Secretions from sebaceous glands may also be attributed to the function of *Meda Dhatu* within the skin.

Sweda: Sweat (Sweda) among trimala discharged by skin which assists with keeping up with internal heat level.

TWAK SARA (RASA SARA): - Acharya Kashyapa has explicitly stated that since *Rasa Dhatu* nourishes the skin (*Twak*), the characteristics (*Sara Lakshanas*) of the skin reflect those of *Rasa Sara*. The skin of a *Twak Sara* individual is described as soft, smooth, delicate, clear, fine-textured, less variable in color, well-formed, and covered with fine, soft hairs. Such individuals are endowed with happiness, vitality, strength, contentment, intellect, knowledge, good health, enthusiasm, and longevity. Acharya Kashyapa also highlighted two important qualities: *Sadyakshat Prarohartva* (skin that heals quickly) and *Twakrograhitva* (resilient, disease-resistant skin).

DISCUSSION

Although the skin is an independent organ, it remains closely connected with all the organs and systems of the human body, interacting with the organism through the nervous, circulatory, and endocrine systems. While differences in assessment exist between Ayurvedic and modern texts, both perspectives offer valuable insights. Both Ayurveda and modern science describe the types, functions, thickness, and diseases of the skin, with Ayurvedic *Samhitas* providing detailed descriptions of disorders across various layers. A comprehensive review of these perspectives has been presented in this project, highlighting the structural and functional aspects of the skin according to both traditional and modern viewpoints.

Skin characteristics also vary according to *Prakriti*.

1. **Vata Prakriti:** Individuals typically have dark (*Krishna*) or reddish (*Aruna*) skin tones. Their skin is rough and dry due to the *Ruksha*, *Laghu*, and *Khar* properties of Vata dosha.
2. **Pitta Prakriti:** These individuals generally have a fair or light complexion. They are prone to pimples, moles, spots, and pustules due to the predominance of Pitta.
3. **Kapha Prakriti:** Individuals exhibit a whitish tone, comparable to *Arishtaka*, *Kanaka*, or *Kamal*. Their skin is naturally soft, smooth, and unblemished owing to the *Snigdh* and *Sthira* qualities of Kapha.

   Aging is the natural process of degeneration that occurs in all living organisms over time. It involves various changes, including a decline in functional capacity, immunity, and complexion. Although aging is a normal phenomenon, its progression is influenced by multiple factors. The skin undergoes specific age-related changes such as dryness, wrinkling, scaling, pigmentation changes, and loss of elasticity. These changes can result from genetic predisposition, environmental influences, disease, and cellular apoptosis.

In Ayurveda, aging is referred to as *Jara*, which denotes the process of senescence. According to Charaka and Sushruta, *Jara* begins at approximately 60 and 70 years of age, respectively, at which time characteristic changes in body tissues, sensory organs, and strength are observed. Healthy and radiant skin depends on multiple factors, including the balance of *Doshas*, an individual's *Prakriti*, age, diet, moisture, nutrition, metabolic activity, and proper blood circulation.

Ayurveda offers a comprehensive approach to maintaining healthy skin, including *Ojavardhana* (enhancement of vitality), *Vyadhishamana* (disease prevention), *Rasayana* therapy, yoga, balanced diet, proper lifestyle, seasonal routines (*Ritucharya*), and mental well-being. These factors collectively help regulate aging and support skin health.

CONCLUSION

The skin is one of the most valuable organs of the body, playing a pivotal role in an individual's overall appearance and identity. To maintain balance and preserve healthy skin, it is essential to understand its structural and physiological functions. Physiologically, *Dosha*, *Dhatu*, and *Mala* together form the foundation of the body, and all three *Doshas* are present in the skin, performing various roles such as tactile sensation, metabolic regulation, and sweat secretion. Skin characteristics also vary according to an individual's *Prakriti*. Aging of the skin is one of the earliest visible signs of senescence. Ayurveda provides detailed guidance for maintaining skin health and promoting healthy aging through a variety of modalities. In the present scholarly review, the structural, functional, and physiological aspects of the skin were examined according to both classical Ayurvedic texts and modern scientific literature.

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