



CONCEPTUAL UNDERSTANDING OF DIFFERENT LAYERS OF TWAK

¹Swathi.M.V, ²Likhita. D.N., ³Mahalakshmi.M.S.

1. 1st M.D. (Ayu) Scholar, Department of P. G. Studies in Samhita and Siddhanta, Sri Dharmasthala Manjunatheshwara College of Ayurveda, Kuthpady, Udupi – 574118
2. Assistant Professor, Department of P. G. Studies in Samhita and Siddhanta, Sri Dharmasthala Manjunatheshwara College of Ayurveda, Kuthpady, Udupi – 574118
3. Assistant Professor, Department of P.G. Studies in Samhita and Siddhantha, Sri Dharmasthala Manjunatheshwara College of Ayurveda, Kuthpady, Udupi - 574118

Corresponding Author: swathimv44@gmail.com

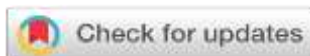
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ABSTRACT

Twak is the seat of *Sparshanendriya*, it protects & covers the whole body. The formation of *Twak* is correlated to a simile of the formation of casein over milk. The layers of *Twak* have been mentioned as 6-7 by different Acharya. There is a need to understand differentiating the layers of *Twak*, structurally & functionally for easy diagnosis & treatment. **AIM & OBJECTIVE:** To analyze different layers of *Twak*, their characteristics, and thickness by reviewing the diseases of each layer. **MATERIAL& METHOD:** Ayurvedic classical texts & related commentaries, journals, and published articles related to *Twak*. **RESULT:** Each layer is differentiated based on its structure & function. The functional aspect of *Twak*- is based on layers that express *Varna*& texture, layers which have a role in sensation, and layer that helps in proliferation. **CONCLUSION:** The Diseases developed in the first four layers will have *Vikruti* related to *Varna*, *Chaya*, and *Prabha*. The remaining layers have *Vikruti* related to abnormal growth & healing.

Keywords: *Twak*, *Sapta Twacha*, *Twak Utpatti*, Skin, etc.

INTRODUCTION

Twak is *Upadhatu* of *Mamsa Dhatu* which forms the outer covering of the body & protects it. Ayurveda mentions the *Twak* is the seat of *Sparshanendriya*. The layers of *Twak* have been mentioned as 6 or 7 by different Acharya.

Sushruta described the process of formation of *Twak* in the developing foetus and correlated it to the formation of cream when milk is boiled which gradually increases in thickness which is similar to seven skin layers formed over the surface of the foetus.

During the formation of *Garbha*, differentiation of the layers of the skin takes place and it is affected by all three *Dosha*, particularly by the *Pitta Dosha*. Charaka described *Twak* as the *Matruja Bhava* which is one of the six *Bhava* essential in the development of the foetus, Vagbhata opines that the *Twak* is derived from the *Rakta* by the action of *Rakta Dhatwagni*, forming the skin like the deposition of cream on the surface of boiling milk.

LITERARY REVIEW

Twak being the seat of *Sparshanendriya*, is in *Sama-vayi Sambandha* with *Manas* and it facilitates the other four *Indriya* to perceive the knowledge of their respective *Artha/Vishaya* (object of perception). The

disease manifestation occurs through *Indriya*, *Shareera*, and *Manas*. As *Twak* is enveloping all these factors together, it can be considered a mirror of internal health.

Twak Samvarane means the one which protects and covers the whole body. It develops in the sixth month of intrauterine life. Apart from *Twak* being *Sparshanendriya Adhishtana* it is also *Vayu Dosha Sthana*, *Adhishtana* of *Brajaka Pitta*, *Upadhatu* of *Mamsa Dhatu*, *Rasa Dhatu Sara* (*Twak sara*), *Rakta Prasadatwa* also can be examined through *Twak*. Due to various *Nidana*, vitiation of *Tridosha*, *Raktha*, *Mamsa*, and *Medha*, etc. will manifest in the form of *Lakshana* of various diseases on *Twak* like loss of sensation, excessive or absence of perspiration, discolouration, horripilation, itching, burning sensation, numbness, etc. on *Twak*.

LAYERS OF TWAK ACCORDING TO DIFFERENT ACHARYAS

Acharya Sushruta, Vagbhata, Bhavprakash & Sharangdhara have mentioned seven layers of *Twak*. Whereas in Charaka, Bhela & Astanga Sangraha mentioned six layers of *Twak*.

TABLE NO: 1

Layers of *Twak* according to different Acharyas

LAYER	CHARAKA	SUSHRUTHA	VAGBHATA	SHARANDARA	BHELA
1	<i>Udakadhara</i>	<i>Avabhasini</i>	<i>Bhasini</i>	<i>Avabhasini</i>	<i>Udakadhara</i>
2	<i>Asrugdhara</i>	<i>Lohita</i>	<i>Lohita</i>	<i>Lohita</i>	<i>Asrugdhara</i>
3	<i>Tritiya</i>	<i>Shweta</i>	<i>Shweta</i>	<i>Shweta</i>	<i>Tritiya</i>
4	<i>Chaturtha</i>	<i>Tamra</i>	<i>Tamra</i>	<i>Tamra</i>	<i>Chaturtha</i>
5	<i>Panchami</i>	<i>Vedini</i>	<i>Vedini</i>	<i>Vedini</i>	<i>Panchami</i>
6	<i>Shashthi</i>	<i>Rohini</i>	<i>Rohini</i>	<i>Rohini</i>	<i>Shashthi</i>
7		<i>Mamsadhara</i>	<i>Mamsadhara</i>	<i>Mamsadhara</i>	<i>Sthula</i>

1] Prathama Avabhasini

Acharya Sushruta is called the outermost *Twak* as *Avabhasini* and it is *Adhishtana* for *Sidhma* and *Padminikantaka*.

Sidma is a variety of *Kushta* with *Lakshanas* of white & copper discolouration, it resembles the *Alabu* flower externally. (Flower of bottle gourd)

Padminikantaka is a variety of *kshudra roga* with *Lakshanas* of white circular patches & furuncles that resemble *Padminikantaka*. (Thorns of lotus flower)

Dalhana mentioned that the first layer is responsible for the exhibition of *Gaura*, *Shyamadi Varna* (complexion), and five types of *Prabha* (glory) and *Chaya* (shades) of the body with help of *Bhrajaka Pitta* present. Acharya Charaka & Vriddha Vagbhata named the first and outermost layer of *Twak Udakadhara*. As the name itself suggests it holds the *Udakadhatu*. Indu depicts that this layer carries *Udaka dhatu* and prevents outflow of moisture content and maintains the moisture content of the *Twak*. Vagbhata stated the first layer as *Bhasini* which is a similar feature as explained by Astanga Sangraha & Charaka.

2]Dwitiya Lohita

Sushruta is named after the second layer of *Twak Lohita* and it is *Adhishthana* of *Tilakalaka*, *Nyaccha* & *Vyanga*. *Tilakalaka* manifests with *Lakshana* of black discoloration in *Tila Pramana*, *Nyaccha* has *Lakshana* of painless blackish blue patches, and *Vyanga* displays painless blackish patches on the face. All three are mentioned under *Kshudra roga*.

Charaka & Vriddha Vagbhata called the second layer of *Twak Asrugdhara*. Indu explains this layer as *Rudhantva Asram* i.e., it holds the blood and prevents outflow of *Rakta dhatu* from the body. Hemadri describes this layer as *Lohini*.

3]Tritiya Shweta

Sushruta called the third *Twak as Shweta*, and it is *Adhishthana* for *Charmadala*, *Ajagalika* & *Mashaka*. *Charmadala* is a type of *Kshudra Kushta* associated with reddish patches covered with small skin eruption & sucking pain. *Mashaka* is a type of *Kshudra Kushta* associated with black discoloration without pain. *Ajagalika* looks similar to *Mudga* and has no discoloration & pain. Charaka & Vriddha Vagbhata mentioned the third layer of *Twak* as a prime location of *Sidhma* & *Kilasa*. Astanga Hrudaya describes the third layer of *Twak* as the site of *Sidhma*, *Shwitra*.

4]Chaturthi Tamra

Sushruta mentions the fourth layer of *Twak as Tamra*. It lies beneath the *Shweta*. It is *Adhishthana* for *Kushta* and *Kilasa*.

Kilasa will be devoid of discharge and associated with white, black & red discoloration having rough or unctuous texture. *Kushta* is associated with exces-

sive sweat, loss of sensation, and itching and may lead to the development of maggot. Etc

Charaka mentioned the fourth layer of *Twak* as *Dadru kushta Adhishthana*. *Dadru kushta* is associated with copper discoloration & pimples, it resembles *Atasi pushpa*, which is also called *Anushangini* (stay for a long time). Astanga Sangraha and Hrudaya stated the fourth layer as *Adhishthana* of *Sarva kushta*. Sharangadhara and Bhavprakasha stated *Tamra* as a site for *Kilasa Shwitra*.

5]Panchami Vedini

Sushruta mentions the fifth layer of *Twak* as *Vedini*. As the name suggests, it is concerned with the perception of touch, pain, heat, and cold. It is *Adhishthana* for *Kushta* and *Visarpa*.

Kushta is associated with cutting type of pain & hoarseness of voice in the *vataja* condition, redness of the eye, falling of fingers, and drooping of nose & ears in the *pittaja* condition. *Visarpa* is associated with myalgia, cutting type of pain, and blackish-red discoloration, along with the destruction of local *Mamsa* & *Sira*. *Visarpa* is of 3 types based on *Sthana* namely *Bahya*, *Abyantara* & *Ubhaya*. Its severity increases in progressive order.

Charaka & Vagbhata describes the fifth *Twak* layer as *Adhishthana* for *Alaji* & *Vidradhi*. Hemadri states this layer of *Twak* as *Twagvedini* as well as *Rogakarini*. (Which results in pain/disease) Sharangdhara and Bhavaprakasha describe this layer of *Twak* as a site for *Sarvakushta* & *Visarpa*.

6]Shashti Rohini

Sushruta states the sixth layer of *Twak* as *Rohini* and it is *Adhishthana* for *Granthi*, *Apachi*, *Galaganda*, *Arbuda*, & *Shleepada*. *Granthi* is a circular growth, elevated and consolidated swelling associated with cutting type of pain & discoloration. *Apachi* is the type of growth resembling amalaki fruit / *Matsyanda* (fish egg) *Arbuda* is growth associated with *Rakta* and *Mamsa Dushti* which is deep-seated and immobile. *Galaganda* is a growth specific to the neck region, where the rate of growth depends on *dosha* involvement. Charaka mentioned this layer of *Twak* as *Arunshi Adhishthana*. Chakrapani described that sudden injury to this layer leads to *Tamayati andha eva*.

i.e., feeling of darkness in front of eyes due to sudden loss of consciousness. Acharya Vagbhata stated the sixth layer of *Twak as Pranadhara*. Indu stated that any injury to this layer leads to a life-threatening condition *Tama Pravasha* i.e., a feeling of darkness for short period.

7]Saptami Mamsadhara

Acharya Sushruta mentions the seventh *Twak* layer as *Mamsadhara*. It does the *Daharana* (supporting/holding) of *Maamsa*, hence it is called *Maamsadhara*. It is the *Adhishthana* for *Bhagandara*, *Vidradhi* & *Arsha*.

In *Arsha*, growth is seen at different *Gudavali*. *Mamsa* (polyp) is associated with discolouration

(black, yellow & white) & produces pain and a burning sensation per rectum during defecation. *Bhagandara* is mainly caused by *Vata Dushti* which affects *Mamsa* & *Rakta* in the *Guda* region and is associated with hitting, splitting, and pricking type of pain. *Vidradi* is mainly caused when aggravated *Dosha* vitiates *Twak*, *Rakta*, *Mamsa*, and *Meda* and results in localized swelling which is deep-rooted & painful. It is also associated with discolouration and pain which depends on *Dosha* and *Sthana*. Sharangdhara and Bhavprakasha describe the seventh layer as *Sthula*, having a thickness of two *Vreehi*.

TABLE NO: 2

PRAMANA OF TWAK

LAYERS OF TWAK	PRAMANA IN VREEHI	DISEASES
<i>Avabhasini</i>	18/20	<i>Sidma, Padminikantaka</i>
<i>Lohita</i>	16/20	<i>Tilakalaka, Nyaccha, Vyanga</i>
<i>Shweta</i>	12/20	<i>Charmadala, Ajagalika, Mashaka.</i>
<i>Tamra</i>	8/20	<i>Kilasa, Kushta</i>
<i>Vedini</i>	5/20	<i>Kushta, Visarpa</i>
<i>Rohini</i>	1	<i>Granthi, Apachi, Arbuda, Slipada, Galaganda</i>
<i>Mamsadhara</i>	2	<i>Bhagandara, Vidradhi, Arsha.</i>

DISCUSSION

1. DIFFERENCE BETWEEN THE NUMBER OF TWAK LAYERS AS PER DIFFERENT ACHARYA

Acharya Charaka has mentioned six layers of *Twak* first layer does the *Dhaarana* of *Udaka* hence the name *Udakadhara* and the second layer does the *Dhaarana* of *Asruk* hence the name *Asrugdhara*. The remaining four layers are named based on the diseases developed in them. Acharya Sushruta, Sharangadhara, Bhavaprakasha, and Vagbhata has mentioned seven layers of *Twak* namely *Avabhasini*, *Lohita*, *Shweta*, and *Tamra*, as they exhibit symptoms related to colour & texture, they named the fourth layer *Vedini* as it exhibits symptoms related to pain sensation, sixth & seventh layer as *Rohini* and *Mamsadhara* as it exhibits symptoms related to

growth & proliferation. Acharya Bhela has mentioned seven layers of *Twak* and named the seventh layer as *Sthula*, as it has the maximum thickness among all layers i.e., two *Vreehi*.

2. EACH DISEASE AND ITS RELATIONSHIP WITH LAYER AND ITS MODERN CORRELATION.

In *Sidhma* and *Padminikantaka* aggravated *Dosha* i.e. *Vata* & *Kapha*, (suppress *Pitta* which is responsible for the expression of colour) along with *Dushya-Rasa* is carried by *Rasavaha Srotas* & take *Sthana Samshraya* at *Avabhasini* and it exhibits *Lakshana* related to colour & texture of *Twak*. In *Tilakalaka*, *Nyaccha* & *Vyanga* are aggravated by *Dosha* i.e. *Vata*, *pitta* & *kapha* along with *Dushya-Rasa*, *Rakta* is carried by *Rasavaha Srotas* & take *Sthana Samshraya* at *Lohita* and it exhibits *lakshana* related to colour & texture of *Twak*. *Charmadala*, *Ajagalika* & *Mashaka*

is aggravated by *Dosha* i.e *pitta - kapha, kapha- Vata & Vata* respectively along with *Dushya- Rasa & Lasika* is carried by *Rasavaha Srotas & take Sthana Samshraya* at *Shweta* and It exhibits *Lakshana* related to colour & texture of Twak. *Kushta and Kilasa*. Is aggravated by *Dosha* i.e *Vata, pitta & kapha* along with *Dushya- Rasa, Lasika & Rakta*, is carried by *Raktavaha Srotas & takes Sthana Samshraya* at *Tamra* and exhibits *Lakshana* related to colour & texture of Twak it only it and not associated it with it any kind of vedana. *Kushta and Visarpa* is aggravated by *Dosha* i.e *pitta* along with *Vata & kapha* with *Dushya- Rasa, Lasika, Rakta & mamsa* is carried by *Raktavaha Srotas & take Sthana Samshraya* at *Vedini*. As the name suggests, it exhibits *Lakshana* related to the perception of touch, pain, heat, and cold where *Sparshanendriya* is affected & varied symptoms related to it are observed and the severity of diseases is seen when it reaches a deeper layer. *Granthi, Apachi, Galaganda, Arbuda, & Shleepada* is aggravated by *Dosha* i.e *Vata, pitta & kapha* along with *Dushya- Rasa, Lasika, Rakta, Mamsa & Meda* is carried by *Mamsavaha Srotas & Medavaha Srotas*. It takes *Sthana Samshraya* at *Rohini* and exhibits *Lakshana* related to excessive growth due to *Atiyoga/Mitya yoga of Nidana, Dosha, and Dushya* while in their *Samayoga* they are responsible for the healthy repair of Twak. *Bhagandara, Vidradhi & Arsha* is aggravated by *Dosha* i.e *Vata, pitta & kapha* along with *Dushya- Rasa, Lasika, Rakta, Mamsa & Meda* is carried by *Mamsavaha Srotas & take Sthana Samshraya* at *Mamsadhara*, where *Mamsadhara* is superficial / more dominant. It exhibits *Lakshana* related to abnormal growth in *Mamsa dhathu* along with abnormal colour, texture & pain symptoms.

As the layers superficial to Malpighi are opaque, an exhibition of complexion is done by Stratum Corneum; hence *Avabhasini* may be correlated with Stratum Corneum. The corneum layer is made up of scale-like flattened epithelium which consists of keratin filaments that make it highly resistant to permeation by water. So as the result, it prevents water loss from the body, and due to this reason, Acharya opines it as the *Udakadhara* layer of Twak.

The stratum lucidum layer consists of homogeneously distributed cell layers with indistinct cell boundaries which give it a clear/lucid appearance. The change in the amount of Hb% and bilirubin is reflected through this layer as the pallor or icteric look of the skin. So, the Acharya has opined this Twak layer as *Lohita &/or Asrigdhara*. Underneath the Stratum lucidum is the stratum granulosum; it is made up of two to five layers of flattened cells containing the granules in their cytoplasm. The keratohyalin granules are numerous in this layer which binds the keratin filaments in a thick layer. For the Chaturthi layer, we can take both stratum spinosum and stratum basale because below the *Shweta* (S. granulosum) is Stratum spinosum if we observe the *Kushta Roga Ashraya* (as etiopathogenesis *Kilasa* (leucoderma) is mentioned in Tamra) in this layer then the Stratum basal is *Tamra*. Melanin pigment released by melanocytes which lie in Stratum basal layer determines the complexion of an individual. So, the Acharya opines the fifth layer as *Tamra* which is Stratum Malpighi & Stratum basal in contemporary science. This Layer is responsible for the perception of exteroceptive information since it is incorporated with many extero-receptors such as meissner's corpuscles, Pacinian corpuscles, Ruffinis corpuscles, free nerve ending, etc.

Kushta and Visarpa affecting this layer also produce the organization of the papillary layer of the dermis. So, the Acharya opines this layer as *Vedina* which corresponds to the Papillary layer of the dermis.

Rohini's name suggests that is responsible for the wound healing process i.e., *Vrana Ropana Karma*, this layer plays a major role in the formation of granulation tissue, and fibrous tissue during wound healing. Due to this Acharya opines this Twak layer as *Rohini* corresponds to the Reticular layer of the dermis in contemporary science.

Mamsadhara explained by Sushruta can be correlated with subcutaneous i.e., hypodermis as it comprises blood vessels, and lymphatic and adipose tissue. It is the superficial fascia that envelopes the underlying muscle and does the *Dharana* of the muscle so-called *Mamsadhara*.

3 PRAMANA OF TWAK

Pramana of *Avabhaasini* is 18/20 *vreehi*, *Lohitha* is 16/18 *vreehi*, *Shwetha* is 12/20 *vreehi*, *Taamra* is 8/20 *vreehi*, *Vedini* is 5/20 *vreehi*, *Rohini* is 1 *vreehi* and *Maamsadhara* is 2 *vreehi*. The thickness of these 7 layers together is 1 *Angushtodara* or 6 *vreehi* minus 1/20 th *vreehi*. If we consider their *pramaana* as 1/18, 1/16, 1/12, 1/8, 1/5, 1, and 2 *vreehi* as told by a few scholars then its total thickness becomes only 3.5 *vreehi*.

CONCLUSION

As the first layer is responsible for *Varna* it is called *Avabhaasini*. Second layer *Lohita*, the third layer *Shwetha*, fourth layer *Tamra* are named based on their color. Diseases developed in these layers will have *Vikruti* related to *Varna*, *Chaya*, *Prabha*, etc. Example: *Tilakalaka*, *Vyanga*, etc. The fifth layer is *Vedini* as this layer is responsible for *Vedana*, diseases produced in this layer have *Vedana*-related *Lakshana*. As we observe some growth-related *Lakshana* in the diseases of the sixth layer, it is called *Rohini*. The seventh layer does the *Dhaarana* of *Maamsa*, hence it is called the *Maamsadhara* layer namely *Tamra*, *Vedini*, *Rohini*, and *Maamsadhara* exhibit disease which can be appreciated by sensation, *Indriya Atiyoga*, *Ayoga*, *Mithya yoga*, etc. Examples: *Granthi*, *Apache*, *Arbuda*, etc. The *Rohini* layer of *Twak* is called "*Pranadhara*".it doesn't mean that if this layer is damaged then it may lead to death; but can be understood as a layer that helps in growth and healing. Example: In *Arumshika*, *Tama Pravesha* is observed. As this layer involves growth and healing any abnormality in this layer may lead to abnormal growth and healing. Hence diseases like *Arbuda*, *Granthi*, etc. are seen in this layer. As per the opinion of Charaka Achaarya, the first layer does the *Dhaarana* of *Udaka* and the second layer does the *Dhaarana* of *Asruk*. The remaining four layers are named based on the diseases developed in them.

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