

### *Twacha Shareer and its Co-relation with Modern Science*

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#### **Abstract**

Twacha (skin) is a multilayered & multifunctional structure of the body. It might be the only structure of the body for which description & references are found in each & every text book of Ayurveda but only Sushruta described twacha in detail in Shareersthana of Sushrutsamhita. He has described not only each & every layer of twacha, but also thickness of these layers for the first time. It is the identity and uniqueness of Sushruta. As description of twacha & its thickness is present in both ancient & modern sciences, obviously as a research point of view, there will be curiosity to compare & co-relate this description. As a part of this curiosity, this is a simple & sincere attempt to co-relate layers of twacha & its thickness.

#### **Keywords**

*Twacha, Skin, Thickness, Vrihi*



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## INTRODUCTION

Ayurveda follows laws of nature & propounds a number of doctrines for the understanding of life, health & diseases. Many of these doctrines are valid in today's running life & may throw a new light on several undissolved issues regarding science of medicine & solve many uncertainties<sup>1</sup>. In Ayurvedic classics like Charaksamhita, Sushrutsamhita etc. a huge knowledge regarding Shareer, Nidan & Chikitsa is available. For an expert vaidya, to treat a disease, thorough knowledge about disease & shareer of its related part is mandatory<sup>2</sup>. For any successful vaidya or shalyachikitsa, thorough knowledge of Shareer is very essential for diagnosis & treatment or to perform surgical procedures<sup>3</sup>. So one who wants to have knowledge of Shalyatantra, he should go for dissection & study each & every macro & micro organ of the body. In Sushrutsamhita acharya Sushruta has described the structures of human body in detail. Acharya Sushruta was the first to dissect human body and describe twacha in a systematic manner. Very important part of description of twacha is its 'thickness' & layers.

## TWACHA

In 'Garbhavyakarana' adhyay of Shareersthana of Sushrutsamhita, a detailed description regarding twacha is seen. Acharya Sushruta has described all structures of human body by doing actual dissection. His method of dissection was very unique & much different from today's method. After stating how an ideal dead body, he tells to start dissection from outermost covering of the body i.e. 'twacha'. After full decomposition of the body Sushruta, tells to separate the outermost structure of the skin & its layers one by one go deep & visualize other structures underneath the skin<sup>6</sup>.

We all know that skin is the outermost covering of the body & all other structures reside under the shelter of it & get enveloped & protected by it. So skin is supposed to be the 'Get started point' of dissection.

### Number of layers of Twacha

In different texts of Ayurveda, there is little bit controversy regarding number of layers of twacha. The variation is as follows: -

- (1) Charaksamhita : 6
- (2) Sushrutsamhita : 7
- (3) Ashtanghriday : 7
- (4) Ashtangasangrah : 6
- (5) Sharangdharsamhita : 7

- (6) Bhavprakashsambhita : 7  
 (7) Kashyapsambhita : 6  
 (8) Modern Science : 7

## 2. Names of Twacha in difference Samhitas

Sr. No.	Charaksambhita	Sushrut	Ashtany Sangrab	Sharangdhar	Bhavprakash
1	Udakdhara	Avabhasini	Udakdhara	Avabhasini	Avabhasini
2	Asrukdhara	Lohita	Asrukdhara	Lohita	Lohita
3	Sidma kilas	Shweta	Sidhma , kilas	Shweta	Shweta
4	Dadru , kushtha sambhavadhishthan	Tamra	Sarv , kushtha sambhavadhishthan	Tamra	Tamra
5	Alaji , vidradhi , sambhavadhishthan	Vedini	Alaji , vidradhi sambhavadhishthan	Vedini	Vedini
6	On cutting one feels blindness	Rohini	Pranadhara	Rohini	Rohini
7	-----	Mansdhara	-----	Sthoola	Sthoola

## 3. Thickness of Twacha

Sushruta used 'VRIHI' a rice grain to measure thickness is divided into small & equal parts to compare with the thickness of layers of twacha . He described thickness of different layers of twacha as follows: -

- (1) Avabhasini : - 1/18 th part of rice grain  
 (2) Lohita : - 1/16 th part of rice grain  
 (3) Shweta : - 1/12 th part of rice grain  
 (4) Tamra : - 1/8 th part of rice grain  
 (5) Vedini : - 1/5 th part of rice grain

(6) Rohini : - Equal to thickness of 1 rice grain

(7) Mansdhara : - Equal to thickness of 2 rice grain .

## 4. Comparison of Skin Layers: -

Sushrut Samhita

Modern Science

- (1) Avabhasini - Stratum corneum  
 (2) Lohita - Stratum lucidum  
 (3) Shweta - Stratum granulosum  
 (4) Tamra - Stratum spinosum  
 (5) Vedini - Stratum basale  
 (6) Rohini - Papillary layer  
 (7) Mansdhara - Reticular layer

## 5. Layerwise Co-relation of Skin Layer

The no. of skin layers mentioned by Sushruta & Modern science is same but if

the sequence is considered then face to face co-relation i.e. Avabhasini - stratum corneum or like that will not be correct . So, after studying following description regarding structure, function & properties of each & every layer, final conclusion can be drawn.

- (1) Avabhasini: - A reflector layer which illuminates all shades of skin.
- (2) Lohita : - A layer having reddish coloured cells in it .
- (3) Shweta :- A transparent white or clear layer .
- (4) Tamra : - A layer having granular copper coloured cells.
- (5) Vedini : - A layer having touch sensitive cells.
- (6) Rohini : - A layer having cells helpful for wound healing.
- (7) Mansdhara: - A layer which gives support to underlying structures i.e. deep fascia & muscles.

A brief description of skin layer is as: <sup>-10</sup>

- (1) Stratum corneum: - Outermost layer of skin.
- (2) Stratum lucidum: - A transparent or clear layer.
- (3) Stratum granulosum: - A layer having granular copper coloured cells.

- (4) Stratum spinosum : - A layer having spiny projections .
- (5) Stratum basale : - A layer having germinating cells .
- (6) Papillary : - A layer having touch sensitive dermal papillae .
- (7) Reticular layer : - A layer having dense irregular connective tissue & blood vessels arranged by thick collagen fibres in a net like manner .

So after comparing above description we can correlate these structures approximately like below.

#### 6. Layers in Sushrut Samhita Modern Science

- (1) Avabhasini - Stratum corneum
- (2) Shweta - Stratum lucidum
- (3) Tamra - Stratum granulosum
- (4) Vedini - Papillary layer
- (5) Rohini - Reticular layer
- (6) Mansdhara - Hypodermis .

## DISCUSSION

There is lot of description of Twacha & allied aspects in different Samhitas of Ayurveda. The description is more or less same or at some point there is considerable contrary.

If description of twacha in ancient texts & description of skin in modern texts is read,

we come to know that there is a tremendous similarity between these two regarding number, layers, thickness etc. This is the reason why we attempted to co-relate this. But it is also true that this co-relation is based on fact that it should be realistic & reference oriented. No forceful co-relation is attempted & hence this literary research has become unbiased & unchallenged. After all research is continuously upgoing process & so this is not end for this topic for me & for other research workers also. There is much more wide area in this topic still to be covered & in future there is a scope to extend this work.

## CONCLUSION

- According to Sushruta there are 7 layers of twacha & in modern science also the no. is same.
- The layers of twacha described by Sushruta & their names match with layers of skin structurally & functionally as well.
- Sushruta is one step ahead when description of twacha is considered because he has described thickness of each & every layer of twacha which is exactly lacking in modern science.

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