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MODE OF ACTION OF ABHYANGA IN RELATION TO SKIN ANATOMY

A CONCEPTUAL REVIEW

¹Arun B. Jainer, ^{2*}Prathibha. M

1. Associate Professor, Department of Panchakarma, SDM Institute of Ayurveda and Hospital, Bengaluru
2. Assistant Professor, Department of Panchakarma, SDM Institute of Ayurveda and Hospital, Bengaluru

* **Corresponding Author's email id:**prathibhagbhat.7482@gmail.com

ABSTRACT

Ayurveda system of medicine has holistic approaches in curative, preventive and promotive approach in the field of medicine. This system advocates certain treatment modalities and day to day rites which could be considered as part of health and wellbeing. Irrespective of system of medicine, every procedure has a rationale behind each and every procedure or treatment modality. Being the medical fraternity it is necessary to understand the science behind before prescribing the treatment. Abyanga is a process by which the body surface i.e the integument undergoes manual pressure by various techniques and various substances to provide not only relaxation of the body but also the pacification of several types of diseases. Though this therapy is popularly practised throughout the world, very little is known about the mechanism of this therapy. To achieve a better understanding, a rough idea about the anatomy of the integument i.e skin is necessary. Here in this article an attempt has been done to understand the action and efficacy in relation to anatomy of skin is made.

Key words: Integument, Abhynga, Ayurveda, Anatomy

INTRODUCTION

Ayurveda system of medicine has strong scientific baseline explanation not only of medicine but also enriched with explanation of anatomy, physiology. This has given equal importance holistic approach of treatment. A physicians' knowledge is incomplete without the knowledge of the anatomy and physiology. The simplest procedure of Abhyanga has great effect when prescribed in a right context, both preventive and curative. Ayurveda prescribe Abyanga as part of Dinacharya¹ (daily regimen). This not only provides the relaxation of the body but also the pacification of several diseases. In both therapeutic as well as preventive purpose this has been used with great results. Abhyanga is process by which the body surface i.e integument under goes manual pressure by various techniques and various substances to provide not only relaxation of the body but also the pacification of several types of diseases². Abhyanga has been considered as important part of the external Snehana. Though this therapy is popularly practiced throughout the world very little is known about the mechanism of this therapy. To achieve a better understanding, a rough idea about the anatomy of the integument i.e skin is necessary. According to modern physiology the skin functions as an enormous sense organ. Its millions of nerve endings serve as receivers for the body, keeping it informed of changes in environment. Specialized receptors make it possible for the body to detect sensations of light, touch (Meissners corpuscles) and Pressure (Pacinian corpuscles) as well as pain, heat, cold. Any treatment procedure has its own rationality before it get prescribed. To understand the mode of action of each treatment, the science behind the procedure, anatomy and physiology of organ system which is involved in the treatment has to be understood from the perview of medical science. By which we fraternity of ayurveda can explain the world of modern medicine the rationale behind each treatment in regard to target the disease.

MATERIALS AND METHODS

SEARCH STRATEGY AND INCLUSION CRITERIA

The search was conducted in light of contemporary scientific supporting data available in electronic and internet media for possible justification and validation of these Ayurvedic principles. Needed information is also collected from text books of anatomy and physiology also. Publications in Pubmed, Scopemed, from original

articles, review works are collected. Searches were not limited by date or place of publications but to publications in English language.

DISCUSSION:

Brief Anatomy of Skin³

Abhyanga is process by which the body surface i.e, integument undergoes manual pressure by various, techniques and various substances to provide not only relaxation of the body but also the pacification of several type of diseases. Though this therapy is popularly practiced throughout the world, very little is known about the mechanism of the therapy. To achieve a better understanding, the bird view about the anatomy of the integument i.e skin is necessary.

Skin broadly as all we know is the outer most covering of the body responds to different sensory stimulation and touch. This layer is subdivided into many layers. The discussion of anatomy starts with the explanation of Integument. Skin is one of the largest organs of the body in surface area and weight. In adults, the skin covers an area of about 2 square meters and weighs 4.5 to 5 kg. The thickness of which ranges from 0.5 to 4.0mm, depending on location,

Integument: It is a multi-layered coat which covers the body. It consists of skin and tela subcutanea. Again skin cutis may be subdivided into epidermis and dermis whereas the tela subcutanea is known as hypodermis. Thus anatomically the layers of skin are principally divided into three, enumerated as epidermis, dermis and hypodermis from external to internal.

The epidermis: The most external layer which is cornified layer comprising of stratified epithelium cell. This layer plays an effective role as effective role as moisture barrier and prevents the evaporation of body water. This layer has important to role to play in absorption in oil, or any medicament which are used for treatment. This layer of epidermis is in connection with immune response. The skin associated with lymphoid tissue (SALT) , a structural complex of epidermis formed by epidermotrophic T cells, keratinocytes and draining lymph nodes, often plays an important role to maintain immune surveillance. Markell cells, another important cell of epidermis contain various neurotransmitter materials and are involved in secretary function. This group of cells also acts as mechano receptor of the skin.

The dermis: It contains connective tissue fibres, amorphous ground substance, blood vessels, nerves, lymphatic and muscles. Important cells of this layer are leucocytes, fibroblasts and mast cells.

The hypodermis: This is the innermost layer of the skin, the third layer lies under dermis. The superficial portion of this layer is known as panniculus adiposus. The deeper layer is known as stratum fibrosum. The division of this panniculus adiposus, by the fatty retinacula cutis, establishes a system of hydraulic pressure chambers, filled with semi-liquid fat which act as pressure absorber of the body

Artery supply: The arteries supplying the skin form a network in subcutaneous tissue and from this network branches are distributed to the sweat gland, the hair follicle and the fat.

Lymphatic drainage of the skin: To explain the absorption of oil, or medicament used for Abhyanga this part of the anatomy has to be understood from base line. According to Handley, the lymph vessels of the skin are divided into small chambers (having diameter of 8-12mm) throughout the body. Each of these chambers is drained into lymphatic plexus of deep fascia by an independent vertical trunk. Manual drainage of lymph could be done by external manual technique. The different strokes and pressure applied during Abhyanga favors the change in the manual drainage of lymph.

Anatomy of Skin through the per view of Ayurveda:

Acharyas have explained the anatomy of the skin with scientific baseline. Shareera Sthana in Sushruta samhitha⁴ explains the anatomy of skin with its structural specifications more aptly with the disease affected, structural affirmations which synchronizes with modern anatomy significantly. Even Acharya Charaka's⁵ explanations symbolize the structural components of skin where one can correlate with lymphatic circulation beneath the skin more precisely. Shareera sthana of Sushruta samhitha enumerates layers of skin with its anatomical specifications as follows

Table No 1- layers of the skin according to Sushruta samhitha with approximate measurement in millimeter⁶

Name of skin layer	Thickness
1.Avabhasini	1/18 of Vreehi (0.05 to 0.06mm)
2.Lohitha	1/16 of Vreehi (0.06 to0.07mm)
3. Shwetha	1/12 of vreehi (0.08 to0.09 mm)
4.Tamra	1/8 of Vreehi (0.12 to 0.15mm)
5.Vedini	1/5 of Vreehi (0.2 to 0.3 mm)
6.Rohini	1 Vreehi (1 to1.1mm)
7.Mamsadhara	2 Vreehi (2 to 2.1mm)

Table No 2- Layers of the skin according to Charaka⁷:

Name of skin layer	Thickness
1.Prathama	It is Udhakadhara (Which contains water)
2.Dvitiya	It is Asrigdhara(Which contains blood)
3. Tritiya	It is the abode of sdhma and kilasa
4.Chaturtha	It is the abode of dadru and kushta
5. Pachama	This layer is prone of vidhradhi and alaji
6. Shashtha	It contains mainly the major nerves which if injured cause trembling and feeling of entering into darkness

This descriptions are noteworthy and the considerations are more scientific. From above anatomical description we can understand as the skin layer goes deeper and

deeper the thickness increases the inner most layer of the skin was mentioned by Acharya sushrutha is the mamsadhara, which is correlated with the hypodermis and its components including fascia and muscular layer. These classifications are important and noteworthy in present context as because skin is the gateway of the body through which Abhyanga may act on different systems of human body. Cahraka has mentioned six layers of skin, of which first two are named as udhakadhara and asrigdhara respectively⁸. By nomenclature it is clear that the udhakadhara layer is associated with moisture retention, evaporation, etc. The lymphatic exchange is also an important function of this area. The second layers contain blood vessels. So the systemic absorption of drug used in abhynga takes place in this layer, though the absorption through lymphatic route is also quite possible. The sixth layer contains mainly the major nerve fibres which by Abhyanga get nourishment to combat several diseases caused due to vata. Acharya Sushrutha narrated the time factor regarding absorption of reaching the target tissues levels. Even though our text books explains about this target tissue reach or end organ reach, research works has to be carried out for making guidelines for this statement.

Table No. 3 Co-relation of these Layers of skin with modern anatomy

Twacha	Layer of skin	}	Epidermis
Avabhasini	Stratum Corneum		
Lohita	Stratum lucidium		
Shveta	Stratum Granulosum		
Tamra	Malpigiium layer	}	Dermis
Vedini	Papillary layer		
Rohini	Reticular layer		
Mamsadhara	Subcutaneous tissue and Muscular layer		

Absorption of Medicine through skin in relation to anatomical considerations

There are many hypotheses regarding the absorption of the medicine used for Abhyanga through skin. Absorption through lymphatic circulations, mechanical reflux action, diffusion, absorption to osmotic gradient factor etc. Systemic absorption of the drug which is used for abhyanga takes place in this layer, though the absorption through lymphatic route is also quite possible. The absorption to mortar brick principle⁸ is quite scientific in this regard. The structural arrangement of epithelium resembles the arrangement of the bricks in construction of building wall. The oil applied during Abhyanga with the massage enters into these spaces between epithelial intercellular spaces and consequently goes deeper and deeper.

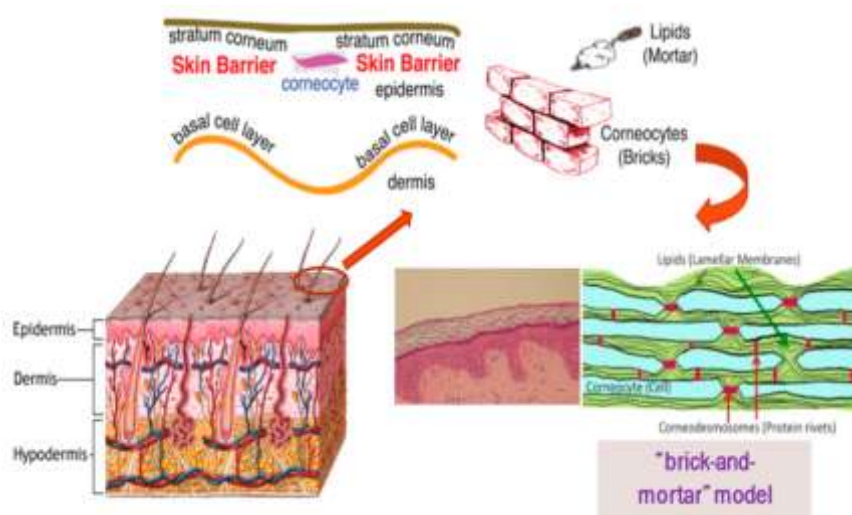


Figure No1. Showing Brick and Mortar mechanism of absorption

It has already been mentioned that the surface of the skin is divided into innumerable lymph chamber having diameter of 8-12mm each, so during the act of Abhyanga, a massage of the lymphatics could be performed by which lymph flow as well as the lymph movement is possible. Lymph is the extracellular fluid of the cell which contains amino acids, glucose, fat, hormone, enzyme, salts and lymphocytes. Lymph, having no direct pumping station like heart, moves through the body mainly by the movement of the muscles, exercises, massages anozia etc. This system returns back the protein lost naturally in the extra cellular space to the main stream of blood.

The process of abhyanga increase venous return by direct mechanical and reflex on blood vessels. By definition, venous return is the volume of blood return to the right atrium through veins. It is the single most important factor for maintenance of normal

cardiac output. Actual mechanism is that, more blood coming to heart more is the ejection. It also maintains the contraction force of left ventricle during systole. In this way abhyanga helps to perform an effective circulation with minimum pumping action of heart and also makes proper drainage of metabolic end products from the tissue space.

CONCLUSION:

Abhyanga is the procedure can be done for two purposes. It can be regularly to a person for the prevention of several diseases and for the maintenance as well as promotion of positive health. It can also be done as a special therapy for a limited period. This has a great therapeutic value. There are many hypotheses regarding the absorption of oil or the medication used for the treatment. The absorption of the medicine through skin and lymphatic is fact explained in the science. There are still more researches has to be carried out for the better understanding of the this postulate.

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