

**CONCEPTUAL STUDY OF SHLESHMDHARA KALA WITH CO-RELATION TO
SYNOVIAL MEMBRANES****Dr. Nachita Kumari^{1*}, Dr. Anju Vashisth², Dr. Jitendra Kumar Sharma³, Dr. Purushottam Das Sharma⁴,
Dr. Dinesh Kumar Sharma⁵ and Dr. Deepa⁶**^{1,2}P.G. Scholar, P.G. Dept. of RachanaSharir, MMM Govt. Ayurved College, Udaipur, Rajasthan.³Professor & H.O.D., P.G. Dept. of RachanaSharir, MMM Govt. Ayurved college, Udaipur, Rajasthan.⁴Associate Professor, P.G. Department of RachanaSharir, MMM Govt. Ayurved college, Udaipur, Rajasthan.^{5,6}Assistant Professor, P.G. Department of RachanaSharir, MMM Govt. Ayurved college, Udaipur, Rajasthan.***Corresponding Author: Dr. Nachita Kumari**

P.G. Scholar, P.G. Dept. of RachanaSharir, MMM Govt. Ayurved College, Udaipur, Rajasthan.

Article Received on 28/04/2023

Article Revised on 18/05/2023

Article Accepted on 08/06/2023

ABSTRACT

Anatomy is science that deal with the different structures of human body like bones, joints, Twacha, different sense organs and kala etc. very concept of Ayurveda has its own importance. There are many concepts mentioned in the classics are scientific and worth understanding in modern words. Among the concepts Acharya Sushruta mentioned Sapta Kalas while explaining the Pratyangas in the body.^[1] While composing the Anatomical and Physiological Sciences Ayurvedic Acharya's thought much for the basic constituents of the (Dhatu) and their substratum (Ashaya). While considering upon the Ashaya they had also thought of the linings marking internal walls of the Ashaya, designating them as Kala.^[2] They presented it in a very silent way. Among the sapta Kalas Shlesmadhara Kala is described by Sushruta and other Acharyas. It is present in all the sandhi.^[3] The aim and objective is to determine the anatomical limitation of Shlesmadhara kala in these structure. To fulfill such aims and objective we have reviewed all the Ayurvedic classics and related literature pertaining to the kala Shareera and Shlesmadhara kala with its structure and functions with the support of modern medical science, to confine its limitation.

INTRODUCTION

The kleda or moisture present in between the dhatu and its aashaya, reacting to its own heat gets converted into Kala. It is called Kala because it is made up of small quantity of the essence of dhatu or dhatu rasa which oozes from the dhatu just like the liquid oozes when a fresh wood is cut. It is enveloped by snaayu (muscle fibers, ligaments and tendons) and Jarayu (membrane).

The Dhatus together with the malas are formed by the Kala which are minute and invisible. Their activity results in production of the several tissues (Dhatus). In uttarottar. Understanding the anatomy of the body is always beneficial for maintaining the health of the body.

In the chapter "Garbhavyakarana nama shareera," Acharya Sushruta taught the science of Kala Shareera in an effort to stress the notion of kala as well as fundamental science. The fundamental components of the body (Dhatu) and their support structure were given considerable consideration by Ayurvedic acharyas when writing the Anatomical and Physiological Sciences (Ashaya). When thinking

about the ashaya, they also considered the layers who would build its interior walls, referring to them as Kala.

They did so in an extremely silent manner. Every Ayurvedic concept has a specific significance. The references in various Samhitas should be used to understand it. When conducting such research, one should consult the specific Samhita. For a better understanding of the Samhitas, numerous ideas or terms need to be defined. One of these is the idea of Kala Sharir that is discussed in the Shareera stana of the Sushruta Samhita. Shareerastana of Sushruta, Charaka, Vagbhata, Sharangadara, and Bhavaprakasha have extensive descriptions of Kala, but they do not specify its anatomical position, structure, or physiological features. The word Kala has many different meanings, such as membrane or bodily parts, The first (kala) is known as mamsadhara the second is raktadhara. The third is medodhara, The fourth is shlesmadhara, The fifth is maladhara the sixth is pittadhara, And the seventh is retodhara (sukradhara) thus the seven kala Hence an attempt is made to understand the Shlesmadhara kala by compiling the existing evidences in contemporary science, to update modern positive relevance and scope

in Ayurveda is considered and the study is undertaken.

An our attempt is made to by doing the dissection of sandhi in order to locate the Shlesmadhara Kala this Synovial membrane and synovial fluid is physiologically responsible for the lubrication of the joint to avoid the friction.

AIM AND OBJECTIVE

To find out the applicability of Shleshmadhara Kala described in Ayurved and co relate with synovial membrane and synovial fluid in the light of contemporary science.

MATERIAL AND METHOD

From various Classical texts i.e. Charaka Samhita, Shushruta Samhita, Ashtanga Sangrah and Ashtanga Hridaya and Evidence based resources as journals, books and data based information from various modern texts.

DISCUSSION

seven kalās (membranes) also appear as structure intervening between dhātus (rasa, rakta etc.) and their seat asayas (viscera). Here dhātu also denotes dosas and malas as they too support the body.^[4]

As on cutting the wood, its pith is observed, likewise dhātu is four dissecting the musculature. the kalas are those which are covered by ligaments, spread as membranous structure like amniotic membrane and smeared with ślesma^[5] (mucus).

The fourth kala is known as Shleshmadhara kala present in synovial membrane. This is present practically in all sandhi (joints). It has been compared like the lubricant in a wheel axis which permits the (wheel) to move round in free manner. Similarly the shlesma with the shlesmadhara kala allow all bony joints to move freely on their respective axis.^[6]

According to Sushruta the fourth kala is Shlesmadhara kala present in all joints and supporting its life. Just like the wheel moves easily when its axel hole is lubricated with oil, similarly the joints move freely, lubricated with Shlesma (Kapha).^[7]

According to Bhavaprakasha Samhita the kleda present inside the dhatu (tissue) Asaya (organs viscera) Dhatvantara (places in between oragans/tissues) which gets cooked by the dehosma (heat of the body tissues) is known as kala. Its is known to be composed of snayu(tendons, sheaths) jarayu santata (sheets of fetal covering) and shleshma vestita (smeared with kapha).

The term synovium is used to describe the synovial lining, and it is often also used to describe the synovial fluid that lies within the synovial lining. Synovial lining produces and renews synovial fluid on

a regular basis.

This synovial membrane is lubricated with synovial fluid. The synovial membrane is soft and thin membrane yet has various significant roles that are very essentials for our body movements.

In any one position, much of the cartilage is close enough to get nutrition directly from the synovium.

Some areas of cartilage have to obtain nutrients indirectly and may do so either from diffusion through cartilage or possibly by 'stirring' of synovial fluid.

The surface of synovium may be flat or may be covered with finger-like projections or villi, which, it is presumed, help to allow the soft tissue to change shape as the joint surfaces move one on another.^[9]

The synovial membrane and fluid have several functions, including lubricating the joints, providing nourishment to the joints, and removing debris from the joints.

The presence of synovium allows the moving parts of joints, like the bones and tendons, to move without becoming damaged or irritated. The soft cushion of the synovial membrane and the thick synovial fluid provide a surface against which the joint structures can move.

Synovial fluid contains glucose, sodium, potassium, oxygen, and other small molecules that are necessary for the health and survival of every cell in the body. These tiny molecules can flow between the synovial membrane and the structures in the joint.

The synovium is a thin, fluid-filled lining composed of connective tissue, found inside movable joints throughout the body. Synovial lining encloses synovial fluid, a type of fluid that lubricates and nourishes synovial joints.^[8]

CONCLUSION

We learn a lot from Kala Sharir about the body's layers and membranes, which are involved in many crucial body structures. And they create and store vital bodily fluids like blood, mucus, faeces, and others. Since the kala are the sites of production and storage for many essential body components, So shlesmdhara kala can be correlate with synovial membrane according there function formation of synovial fluid and lubrication of joints. When we will open Chal Shandhi during dissection it inclose by capsule of joint. Capsule lined inside by synovial membrane its secretion lubricate joints like Aksh and parts of machines. And give long life to joints.

REFERENCES

1. Shushruta Samhita Sharir sthan chapter 4 commentator Dr. Ambikadutt Shashtri, Varanasi Chaukhambha, Sanskrit Sansthan, 2005.
2. Ambikadutta Shashtri Kaviraj, Sushruta Samhita, Sharir Sthan, Choukhamba Prakashan, Varanasi, 2010; 92.
3. Ayurved Rhesydipikakhya Sharir sthan chapter 4 commentor Dr.Bhashkargoivnd Ghanekar Meharchand Lachhmandas Publication, 2019.
4. Ambikadutta Shashtri Kaviraj, Sushruta Samhita, Sharir Sthan, Choukhamba Prakashan, Varanasi, 2010; 92.
5. Dr. Shankhlal Hetal Arvind wjpmr, 2022; 8(6): 190-192. CONCEPTUAL STUDY OF KALA SHARIR WITH CO-RELATION TO MEMBRENES.
6. Kaviraj Kunjalal Bhashgratna Shushruta Samhita, Kalpasthan Vol.I, Chowkhambha Sanskrit Series office, Varanasi edition 4th 2009 Editor– Dr.Laxmidhar Dwivedi.
7. Dr. Kevalkrishna Thakara Shushrut Samhita, Sharir sthan Vol.I, Chowkhambha Orientaliya, Varanasi. Reprinted, 2017.
8. Net-
<https://www.easyayurveda.com/2016/06/13/kala-shareera-definition-types>.