The Correlation of structure, Kala to The Strotasa According to Ancient Ayurvedic As Well As Modern Science

Vd. Pallavi L Nibe
Author:- MD(RachanaSharir) Final Year, PMT’s Ayurved College, Shevgaon

Vd. Prasad P Pande
Guide&Professor,Dept. of RachanaSharir, PMT’s Ayurved College, Shevgaon

Vd. Prasad N Ghanawat
Co-author :- MD (Rog-Nidan)

Abstract:
The concepts of Ayurveda are like roots of the tree. Among them the Kala and Strotasaare very basic and useful concepts. The potency of these channels is necessary to maintain healthy status of body. The structure described as kala can be correlated to strotasa according to Ayurveda as well as modern point of view, though the definition, description and the function of the two structures being different. The obvious difference and identity between kala and strotasa, especially they later relate to their structure and function. In present context the kaladescribed as the pittadharakala which is correlated with Annavahastrotas.

Keywords :- Ayurveda, Kala, Strotasa, Sara, Kitta, Dhatu, Ashay, Sira, Dhamani.

Introduction:
According to Ayurveda, human body is a conglomeration of Strotasa. Body is composed of numerous strotas which have significant role in the maintainence of the equilibrium of the body. ‘Charak’ has defined strotas as a structure through which oozing takes place1. ‘Susruta’ has defined kala as the fine structures that separates the Dhatus from their Ashayas2. The dhatus referred to here are seen to be the elementary tissues, which in Ayurveda are: the rasa (plasma, tissue fluid and lymph); rakta (the erythrocytes); mansa (muscle tissue); meda (adipose tissue); asthi (bone including cartilage tissue); majja (marrow tissue) and shukra(reproductive tissue)3.

If the function of the strotasais to permit the passage of material from one side to other through it by exudation, filtration, permeation and oozing. According to Sushrutafunctions of kala are, seen generally to refer to such structure as the lining and supporting membranes which are, as we see today, composed of epithelial and endothelial tissues. Hence in a view of ShariraRachana and Sharirakriya, a detailed & clear knowledge of correlation of these two structures i.e kala and strotas become very much necessary as it is responsible for carrying and transformation of tissue elements there by maintain the health.

Discussion :
AnnavahaStrotasand kala :

The terms Mahastrotasandkoshthaare strictly anatomical. They refer to gastro-intestinal tract as a whole. On the other hand, the term annavahastrotasahas been included in the list of strotasi. The term annavahastrotaspontinuously performed by this channel viz., the transportation of food. Its modern equivalent is alimentary canal i.e the channel in which alimentation takes place. Ingestion, digestion and egestion are referred together as alimentation.

The annavahastrotasimplies not only the structures immediately concerned with the foregoing three processes but it also refers to the functions of the minute channels of transport of the digested food from the intestine to the circulating fluid medium, described in Ayurveda as rasadhatus and blood plasma in modern physiology. Atreyawas quoted elsewhere as having described the annapakanaditius being composed of kala(lining mucosal membrane) and peshi(muscles). The kalaperforms very important functions, they are
digestion of the ingested food and the transport of the food digested to the circulating rasa (rakta) through intestinal barrier.

**Seven kinds of kalas :-**

Seven kinds of kalas have been described by Sushruta.

As follows - 1) Mansadharakala 2) Raktadharaakala 3) Medodharakala 4) Shleshmadharakala 5) Purishadharaakala 6) Pittadharaakala 7) Shukradharakala

According to Sushruta The sixth kala situated between the pakwashaya and amashayais the pittadharaakala and is known as the Grahani. Its main function is to provide pachakpitta which is necessary for the process of digestion of the food brought to this part of koshta from the urdhvamashaya (stomach) on its way to pakhwashaya (large intestine) and to retain the food in this part for the duration of its digestion and the separation of the sara (nutrient fraction) from the kitta (undigested food residue).

Purishadharaakalais stated to extend from yakrit (liver) to the antras (small and large intestine) and other abdominal viscera. It is said to separate sara of the food from kitta. The portion of this kala present in the undukat (caecum) is claimed to take over this function.

**Modern equivalence of kala :-**

The description in the present context, of the pittadhara&purishadharaakalas draws attention to the covering membranes of the small and large intestines. The epithelium with which the covering membranes of these two parts of the gastro-intestinal tract is composed of the simple columnar type. The glandular diverticula form the gastric glands, Brunner's glands and the Crypts of Lieberkuhn, in the whole extent of the small intestine, constitute the glands of this part. Those covering the villi of the small intestine are concerned with the absorption of the products of the digestion.

The epithelial cells that lines the serous cavities provide a smooth moist surface. In most cases, they compose the semi-permeable membranes through which material pass to and fro in the course of their secretory and excretory activities.

**Correlation of kala and strotasa according to Ayurveda :-**

It is important to note that Sushruta has excluded Siras (veins) and Dhamanis (arteries) from the scope of strotasa and compared the strotasa to the fine channels present in the lotus stem through which fluids circulate and exude.

It will thus be seen that regardless of their individual structure and specific function, strotansi are, for the most part, (semi-)permeable and they permit the passage of material from one side to another. In this sense, the kala of the annapakandhi is composite of两种 kind of strotansivi, a type which draws raw materials from the circulating rasa-rakta, contrives them as pachak pitta and secretes this pitta complex into the pachyamanashaya or agnyashaya (also known as adho-amashaya, grahamani and kshudrantra) to facilitate annapachanand sarai-kittavibhajan and another type, which permits the rasa or annarasa (chyle) to permeate through it and pass on the circulating rasa-rakta.

**Conclusion :**

From above description, looked at from the Ayurvedic point of view, these are strotansi and they compose the kala. The kala part of the annavahanadicomprising as it does of pittadhara and purishadharaakalas, function through the different kinds of strotansi that compose them.
References: