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Abstract

Srotas are purveyors of the body. It transports different substances present in body. There are various *Srotas* for different entities. *Acharya* described *Mula Sthan* and functions of various *Srotas*. Beside description of *Srotas*, *Acharya Sushrut* also mentioned *Srotas Viddh Lakshana*, means symptoms that appear when a *Srotas* is injured. In modern era there is a need to scrutinize *Srotas* and *Srotas Viddh Lakshana*. Among these *Srotas* one important *Srotas* is *Annavaha Srotas* as it is related with *Anna* (food) that is essential for *Jeevan* so this article is about *Annavaha Srotas* and its *Viddh Lakshan* and their approach with modern science.

Key words: *Srotas*, *Annavaha Srotas*, *Mula Sthan*, *Srotas Viddh Lakshana*

Introduction

Ayurveda is the oldest system among all life sciences which have been invented in India thousands years back and strongly rooted as traditional healthcare practice. Ayurveda is not merely based upon philosophical concepts but undoubtedly these are having enormous scientific importance too. One among them is the concept of *Srotas* which is having a pivotal role in understanding of physiology of body. In Ayurvedic classics *Srotas* means structural and functional passage or channel carry such of tissue elements as are undergoing transformation from their previous states or flow of transforming *dhatus*¹. According to *Acharya Sushrut* *Srotas* originates from hollow spaces, spread throughout the body and purveys materials. *Srotas* are entirely different from *Sira* and *Dhamnaya*². These are the purveyors of *Prana*, *Anna*, *Udaka*, *Rasa*, *Rakt*, *Mamsa*, *Meda*, *Shukra*, *Mutra*, *Purish* and *Aartava*. As *Sharir* depends on food (*Anna*) for vitality, brawn, restoration of damaged cells and tissues so *Annavaha Srotas* has a great significance in *Sharir*.

Aim and objectives

- 1) A brief study about *Srotas*.
- 2) Description of *Annavaha Srotas* and its *Viddh Lakshana*.
- 3) A small effort will be done to analyze *Annavaha Srotas* and its *Viddh Lakshan* by modern science.
- 4) Discussion and conclusion will be drawn on the base of study.

Material and methods

- Ayurvedic texts
- Modern texts or contemporary texts
- websites

This study relies on completely different Ayurvedic and Contemporary texts. Study material associated with *Srotas* and *Annavaha Srotas* are going to be collected by leading Ayurvedic texts. Contemporary texts are going to be remarked study relevant system and its disorders. Websites are going to be thought of for current scientific informations.

Srotas

Number of Srotas –

Aacharya Charak outlined *Srotas* as “*Sravanat Srotamsi*”³ means the structure through that *Sravana* (secretion) takes place. Normally *Srotas* are unit channels that will be *Sthula* or *Sukshma*, massive or little and perceptible or imperceptible. *Srotas* are unit of 2 varieties, ie. *Aabhyantara Srotas* and *Baahya Srotas*. *Aabhyantara Srotas* have their vent within the body and *Baahya Srotas* are external orifices.

Number of Srotas –

Aacharya Charak mentioned multitudinous *Srotas*⁴. He conjointly aforesaid that there are thirteen *Sthoola Srotas*⁵ (table 1) and nine *Chidra*⁶ (table 3).

Aacharya Sushrut mentioned 22 (11 pairs) *Yogavahi Srotas*⁷ (*Aabhyantara Srotas*) (table 2) and 9 external orifices⁸ (table 3) however he conjointly mentioned 3 further external orifices⁹ in females (table 3).

Table 1

No.	<i>Sthoola Srotas</i>	<i>Mula Sthana</i>
1	<i>Panavaha</i>	<i>Hridya, MahaSrotas</i>
2	<i>Udakavaha</i>	<i>Taalu, Kloma</i>
3	<i>Annavaha</i>	<i>Aamashaya, Vama Paarshava</i>
4	<i>Rasavaha</i>	<i>Hridya, Rasavahi Dhamnya</i>
5	<i>Raktvaha</i>	<i>Yakrit, Pleeha</i>
6	<i>Mamsavaha</i>	<i>Snaayu, Twacha</i>
7	<i>Medavaha</i>	<i>Vrikka, Vapaavahan</i>
8	<i>Asthivaha</i>	<i>Meda, Jaghan</i>
9	<i>Majjavaha</i>	<i>Asthi, Sandhi</i>
10	<i>Shukravaha</i>	<i>Vrishan, Shef</i>
11	<i>Mutravaha</i>	<i>Basti, Vankshan</i>
12	<i>Purishvaha</i>	<i>Pakvaashya, Guda</i>
13	<i>Swedavaha</i>	<i>Meda, Roomkupa</i>

Table 2

No.	<i>Yogavahi Srotas</i>	<i>Mula Sthana</i>
1	<i>Panavaha</i>	<i>Hridya, Rasavahi Dhamnya</i>
2	<i>Udakavaha</i>	<i>Taalu, Kloma</i>
3	<i>Annavaha</i>	<i>Aamashaya, Annavahi Dhamnya</i>

4	<i>Rasavaha</i>	<i>Hridya, Rasavahi Dhamnya</i>
5	<i>Raktvaha</i>	<i>Yakrit, Pleeha, Raktvahi Dhamnya</i>
6	<i>Mamsavaha</i>	<i>Snaayu, Twacha</i>
7	<i>Medavaha</i>	<i>Kati, Vrikka</i>
8	<i>Shukravaha</i>	<i>Stana, Vrishan</i>
9	<i>Mutravaha</i>	<i>Basti, Medhra</i>
10	<i>Purishvaha</i>	<i>Pakvaashya, Guda</i>
11	<i>Aartavavaha</i>	<i>Garbhashaya, Aartavavaha Dhamnya</i>

Table 3

No.	Chidra (external orifices)	Numbers	
		In males	In females
1	<i>Netra</i>	2	2
2	<i>Naasa</i>	2	2
3	<i>Karna</i>	2	2
4	<i>Mukha</i>	1	1
5	<i>Medhra</i>	1	1
6	<i>Guda</i>	1	1
7	<i>Stana</i>	-	2
8	<i>Yoni</i>	-	1

Annavaaha Srotas

Among these *Srotas* there is a significant *Srotas*, *Annavaaha Srotas* that acts for digestion & absorption of food and separation of *Sara* and *Kitta*. *Mula Sthana* of *Annavaaha Srotas* is *Aamashaya*, *Vaam Paarshava*¹⁰ and *Annavaahi Dhamnya*¹¹.

Aamashaya – *Aachaya Charak* and *Aacharya Sushrut* has told that *Aamashaya* is the *Mula Sthana* of *Annavaaha Srotas*. *Aamashaya* is settled between *Nabhi* and *Stana*. Anatomically *Aamashaya* is stomach. Here the digestion of food takes place.

Vaam Paarshava – Anatomically *Vaam Paarshava* is left hypochondriac region. Structures placed in this region are stomach, spleen and descending large intestine. However spleen is said to blood & its mechanism and descending large intestine is said to *Purishvaha Srotas*. Each of those structures doesn't seem to be connected with *Annavaaha Srotas*. Therefore *Vaam Paarshava* is left lateral part of stomach that becomes additional distended on left side once it's full of food.

Annavaahi Dhamnya – *Dhamni* is one that shows *Spandan* and carries *Rasa Raktadi Drava Dhatu*. *Annavaahi Dhamni* are unit 2 in variety, situated in small intestine¹² and play specific role in digestion, absorption and separation of *Aahar Rasa and Mala*.

Dalhan says that these area unit helpful in separation of *Rasa, Mutra, Sweda* and *Purish* when the absorption of *Annarasa*. *Ghranekar* correlate the superior mesenteric and celiac arteries to *Annavaaha Dhamnya* which give the nutrition to lining of stomach and small intestine for its correct operate.

Anatomically *Annavaha Srotas* is said with esophagus, stomach and small intestine. The digestion and absorption takes place until the last part of small intestine.

Aacharya Charak and *Aacharya Sushrut* each mentioned *Annavaha Srotas* and their *Mula Sthana*. Beside this *Aacharya Charak* conjointly mention reason¹³ and symptoms of override of *Srotas* (*Srotas dushti*)¹⁴. As a *Shalya chikitsak* *Aacharya Sushrut* otherwise cited *Srotas Viddh Lakshan*¹⁵ (symptoms develop once a *Srotas* is injured).

Reasons for override of *Annavaha Srotas* –

- 1) Excess quantity of meal
- 2) Meal at inappropriate time
- 3) Harmful food
- 4) Due to override of *Jatharagni*

Symptoms of override of *Annavaha Srotas* –

- 1) *Annabhilashanam* (no want to intake meal)
- 2) *Aruchi*
- 3) *Avipaka* (indigestion)
- 4) *Chhardi* (vomiting)

Annavaha Srotas Viddh Lakshan – Any injury in *Annavaha Srotas* manufacture symptoms like:

- 1) *Aadhyman* (flatulence)
- 2) *Shula* (pain in abdomen)
- 3) *Annadwesh* (anorexia)
- 4) *Chhardi* (vomiting)
- 5) *Pipaasa* (thirst)
- 6) *Aandhy* (vision loss)
- 7) *Maran* (death)

Modern facet

Annavaha Srotas is said with digestion and absorption of food. Chief components of *Annavaha Srotas* are stomach and small intestine.

Any injury in stomach or small intestine causes inflammation of their secretion membrane (gastritis/enteritis). Inflammation of secretion membrane of stomach induces pain felt as a diffused burning sensation. It is often referred to epigastric pain. Acute gastritis is characterized by inflammation of superficial layers of mucus membranes. Chronic gastritis involves inflammation of even the deeper layers. It results in the atrophy of gastric mucosa, with loss of chief cells and parietal cells of glands. Therefore the secretion of gastric juice decreases.¹⁶ Loss of stomach secretion leads to achlorhydria (no HCl secretion) or hypochlorhydria (less HCl secretion). When HCl is not secreted or secreted in fewer amounts, pepsin remains inactive as it needs HCl for activation.¹⁷ Inactivity of enzyme results in indigestion, anorexia (*Annadwesh*) and flatulence (*Aadhyman*). Inflammation of secretion membrane induces vomiting (*Chhardi*) that may be a neurogenic response triggered by reflex through irritation of abdomen.

Normal stomachal secretion contains a conjugated protein referred to intrinsic factor, secreted by the parietal cells. It's necessary for adequate absorption of vitamin B 12 from the small intestine. Factor combines with vitamin B complex twelve in abdomen and protects it from being digestible & destroyed because it passes into the small bowel. Then, once the intrinsic factor – vitamin B 12 reaches the terminal small intestine, the factor binds with receptor on the ileum epithelial surface. This successively makes potential absorption of vitamin B complex 12.¹⁸ Loss of parietal cells leads to absence of factor in stomachal secretion. In absence of intrinsic factor adequate quantity of B-complex 12 vitamin is inaccessible for the food. It results in anemia as vitamin B complex twelve is critical for maturation of red blood cells. Typically anemia is related to neuropathies as a result of vitamin B complex twelve is additionally necessary for myeline synthesis in nerves therefore deficiency of vitamin B complex twelve results in neuropathies or medical specialty disorders. Often vitamin B complex twelve deficiencies results in nutritionary optic pathology (damage to optic nerve) that is related to drop in vision (*Aandhy*).¹⁹

Enteritis is characterized by inflammation of secretion membrane of small intestine. It causes malabsorption and diarrhea.²⁰ Malabsorption of vitamins and minerals results in deficiency of vitamins and minerals. Deficiency of vitamin A leads to night blindness. Vitamin A deficiency causes defective rods and cones operate. Prolonged deficiency results in anatomical changes in rods & cones and at last the degeneration of different retinal layers occur²¹. These conditions impede correct vision (*Aandhy*).

Malabsorption of calcium results in hypocalcemia. Hypocalcemia causes neuromuscular hyperexcitability, resulting in hypocalcemic tetany. When the calcium level falls below 4mg/dl, it becomes deadly. Throughout such severe hypocalcemic conditions, tetany happens therefore quickly that an individual develops spasm of various teams of muscles within the body. Pathetic indications area unit within the laryngeal and bronchial muscles that evolve respiratory arrest, leading to death (*Maran*).²²

Poor absorption of water results in dehydration and induces thirst (*Pipaasa*). Inflammation of intestine may be a ground behind diarrhea. Diarrhea leads to loss of water and electrolytes. This results in dehydration and electrolyte imbalance. Dehydration additionally induces thirst. Chronic diarrhea leads to hypokalemia and metabolic acidosis²³ which can be deadly (*Maran*) in severe conditions.

Discussion

Srotas area unit undoubtedly distinct structures that secrete, flow into or transport completely different substances in our body. Among these *Srotas*, *Annavaha Srotas* has its characteristic functions because it conveys, assimilates and absorbs the food. Once observant its functions we are able to correlate *Annavaha Srotas* with a vicinity of gastrointestinal tract (stomach and small intestine). *Aacharya Sushrut* cited *Annavaha Srotas Viddh Lakshana* such as *Aadhyman*, *Shula*, *Chhardi* etc. means any injury in *Annavaha Srotas* manifests these symptoms. As gastrointestinal tract has broad area, both anatomically and physiologically so particular part of gastrointestinal tract is selected for study. According to contemporary science any injury in gastrointestinal tract evolves many symptoms or diseases in them one is inflammation of secretion membrane of stomach (gastritis) and small intestine

(enteritis). Gastritis leads to loss of gastric juice secretion which ends in indigestion, anorexia and flatulence. Deficiency of intrinsic factor leads to vitamin B12 deficiency which causes optic neuropathy and results in vision loss. Enteritis leads to malabsorption of mineral, vitamins and other nutrients. Malabsorption of vitamin A leads to drop in vision. Malabsorption of calcium leads to hypocalcaemia tetany that may be lethal in severe conditions. Poor water absorption induces thirst. Diarrhea also induces thirst as it creates dehydration. Electrolyte imbalance due to diarrhea leads to hypokalemia and metabolic acidosis that can be deadly.

Conclusion

Here we are able to conclude that *Annavaha Srotas Viddh Lakshan* cited by *Aacharya Sushrut*, ie: *Aadhyman, Shula, Annadwesh, Chhardi, Pipaasa, Aandhy* and *Maran* are pertinent with trendy science. As *Annavaha Srotas* is an expanded area therefore just some disorders associated with gastritis and enteritis are studied here to outline *Annavaha Srotas Viddh Lakshan*. It desires more studies to explore it a lot of.

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