



ANALYZING THE TERM ANDHYATVA (BLINDNESS) IN SUSHRUTHOKTA ANNAVAHA SROTOVIDDHA LAKSHANA (INJURED GIT SYMPTOMS).

Dr. Sachin. Deva

Reader, PG Dept of Roga Nidana, Parul Institute of Ayurveda, Parul University, Vadodara, Gujarat, 391760

ABSTRACT Any substance that can get digested, assimilated & metabolized by human beings to get energy in the form of carbohydrates, protein, fat, vitamins, minerals & also help in building tissue is called Ahara (Food). The path which helps in the transformation of substances is called Srotas (Channels) and precisely Srotas has 3 basic characters Avakasha (Space), Sravana (Flow) and Parinamam Aapadhyamananam Dhatunam Abhivahini (Transformation). Andhyatva (Blindness) is an important and interesting symptom among Sushruthokta Annavaaha Srotoviddha lakshanas (Injured GIT symptoms). The logical understanding of the same even without sophisticated equipments is incredible and praiseworthy. So here an attempt will be made to analyze the pathology of blindness due to consumption of Annavaaha Srotodusti Nidana (causes for GIT diseases) considering Vitamin A deficiency which leads to Keratomalacia further causing blindness as its complication.

KEYWORDS : Andhyatva (Blindness), Annavaaha srotoviddha lakshana (Injured GIT symptoms), Keratomalacia.

INTRODUCTION

The physiological and anatomical pathways that carry all the components, elements, signals, reflexes come under *srotas* (Channels). In some contexts *srotas* (Channels) can be traced anatomically and hence understood as channels or passages. One important among them is *Annavaaha srotas*. Whereas in some anatomical traces may not be found instead they are identified by physiological pathways. Every *srotas* (Channels) has its *moolasthan* (origin) from which transportation or transmission begins and one *prabhava sthana* (route) from which the transported matter finally reaches its destiny.

Annavaaha srotas (GIT Channels) is not simply the GIT. It represents the complex mechanism of Neurohumoral regulation of nourishment. Charaka considered the *moola* (origin) of *Annavaaha srotas* as *Amashaya* (Stomach) and *Vamaparshwa* (Left side of abdomen). The nidanas like *Atimatra ahara* (Excessive food intake), *Akala ahara* (Untimely food) etc. which causes *Annavaaha srotoviddha lakshanas* (Injured GIT symptoms). like *Adhmana* (Distension of abdomen), *Shoola* (pain abdomen), *Annadwesa* (Eversion towards food), *Chardi* (Vomiting), *Pipaasa* (Thirst), *Andhyatva* (Blindness) and *Marana* (Death).

Andhyatva (Blindness) is one among Sushruthokta *Annavaaha Srotoviddha lakshana* (Injured GIT symptoms) and its relevance will be analyzed in this article.

AIMS AND OBJECTIVES

To analyze the term *Andhyatva* (blindness) in *Sushruthokta Annavaaha srotoviddha lakshana* (Injured GIT symptoms).

MATERIALS AND METHODS

Charaka samhita, *Sushrutha samhita*, *Astanga Hridaya* and other relevant books, Journals and internet sources.

OBSERVATION & DISCUSSION

Channels carrying *Anna* (Food materials) is called as *Annavaahasrotas*. Charaka considered its *moola* (origin) as *Amashaya* (stomach) and *Vamaparshwa* (Left side of abdomen). Sushrutha told *Annavaaha srotas* are two in number and their *moola* (origin) as *Amashaya* and *Anaavahini dhamani* (Channels carrying *anna*).

Amashaya (Stomach) as per modern science is a muscular bag forming the widest and most distensible part of digestive tract. It is connected above to lower end of oesophagus and below to the duodenum. It acts like a reservoir of food and helps in digestion of carbohydrates, proteins and fats.

Vamaparshwa (?Abdominal aorta/Omentum) It is a region of descending aorta, originating superiorly as a continuation of thoracic aorta, as it passes through an opening in diaphragm and terminating inferiorly as abdominal aorta bifurcates into left and right common iliac arteries. It is a large lumened, unpaired arterial vessel that is a part of main trunk of the systemic arterial system.

The abdominal aorta and its major arterial branches are highly elastic. Omentum is also known as the policeman of abdomen for its role in fighting intra abdominal infections.

Greater omentum is a double layered peritoneum which mainly consists of fat, connective tissue and lymphatic cells. It descends from greater stomach curvature and folds under itself and then connects to transverse colon.

Atimaatrasya cha Akaale cha Ahitasya cha Bhojanaat | Annavaahini Dushyanti Vaigunyaat Paavakasya cha⁴ ||

Excessive intake of food, inappropriate timing of food intake, unwholesome food intake and also disturbance of *agni* (digestive fire) functioning are considered as the basic or important causes for *Annavaahasrotodusti* (GIT disorders).

Whether the above mentioned *Nidanas* (Causes) can really cause *Andhyatva* (Blindness) in person?

In ophthalmology the term blindness strictly refers to "Inability to perceive light". This is considered as the old definition and further scholars improvised it by telling that "Blindness is Visual acuity of less than 3/60" and later again this definition of blindness got much more specific and concluded as "Inability to count fingers in daylight at a distance of 3mts".

While the problem of blindness is global, its magnitude is much higher in India. Of estimated 45 million, India itself has 12 million blind people. Several causes have been listed for the same & one among them is Vitamin deficiency especially here the deficiency of Vitamin-A is considered.

Vitamins are vital organic substances, required in limited amounts with key roles in certain metabolic pathways. Vitamin A is a part of family of retinoids which is present in food and the body as esters combined with long chain fatty acids. It is a fat soluble vitamin which is stored in the body, but their absorption may be poor in fat malabsorption disorders or in disturbances of digestive functions.

Vitamin A (Retinol) is available in diet in 2 forms:

Preformed retinol- Egg yolk, butter, whole milk, fish etc.

Provitamin precursor carotenoid- Carrots, pumpkin, potato, mango, spinach etc

The main physiological function of retinol is to maintain a normal vision in reduced light. It involves formation of 2 pigments by oxidation of retinol

-Rhodopsin in rod cells

-Iodopsin in cone cells

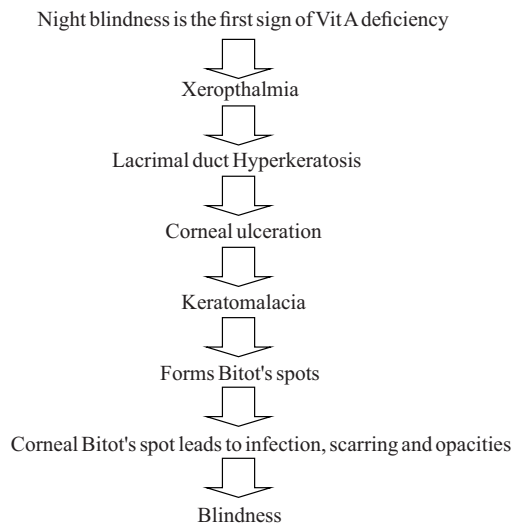
Both transfer the radiant energy into nerve signals helpful in visualizing.

What is the relation between *Andhyatva* and Vitamin A functions?

Akaale cha Ahitasya bhojana (Untimely food intake) and more importantly *Abhojana (without food)* and *Pramitashana (less intake of food)* as *nidana* causes deficiency of nutrients in body & one among them is Vitamin A which leads to ocular lesions. Vitamin A deficiency is the leading cause of childhood blindness.

By considering its serious health hazards in individuals the Govt of India started Vitamin A prophylaxis program during 1970 which is a part of NPCB were 2 lakh IU of vitamin A are given orally at 6 monthly intervals between 1-6yrs of age. This indirectly gives us a hint regarding the description made by our *Acharyas* that *Annavaha srotodusti Nidanas (causes for GIT diseases)* can cause blindness.

Understanding the Pathophysiology of Blindness due to Vitamin A deficiency.



What are the Chronic causes for *Andhyatva*(Blindness) due to *Ahara*?

According to American Macular Degeneration Foundation junk food is one of the major cause for chronic blindness. Intake of the food having fat including mono & polysaturated and also linoleic acid may cause Age related macular degeneration (AMD). It is a proven fact that all kinds of highly processed foods are the causes of AMD. Above *Nidanas(Causes)* are to be considered as *Ahitasya cha bhojana(Unwholesome food intake)*...as per our science.

Can there be Acute blindness due to *Ahara* ?

Regularly consuming home made food may not cause sudden blindness but accidental methanol intoxication will surely cause blindness.

To understand its relevance a small case report from the source (BMJ, PMID:PMC1771266, PMID 12185141)⁴ is discussed here:

A 19 yr old comatose patient was admitted to hospital with acute methanol intoxication. He had metabolic acidosis and was treated with IV Ethly alcohol & Bicarbonate. Neurological examination 2 days later revealed extrapyramidal motor disturbance and CT showed basal ganglia infarctions. Visual acuity was light perception in both eyes. Optic discs were oedematous with dilated peripapillary vessels.

6 weeks after intoxication pupils were dilated and un reactive to light. Eyes were pale, atropic optic discs with thinning of neuroretinal rim area. Acute loss of nerve fibres presumably had induced washboard like pattern of internal limiting membrane. Later on MRT imaging bilateral putamen necrosis typical of methanol intoxication was seen.

This above mentioned case suggests that acute blindness is also possible due to *Annavaha srotodusti Nidana(causes for GIT diseases)*.

Knowingly or unknowingly we intake foods containing methanol and some of them are Canned, bottled, jarred aseptically packaged fruits and their juices. Methanol is methyl alcohol produced from natural gas, coal and renewable sources such as municipal waste, biogas and recycled carbon dioxide.

This is a basic effort to understand *Andhyatva(Blindness)* mentioned by our scholars in *samhitas*. Further more causes as well as understanding related to the above subject will enhance the knowledge of the same.

CONCLUSION:

Andhyatva(Blindness) is an important observation made by Sushruta under *Annavaha srotoviddha lakshana(Injured GIT symptoms)*, and it is also an unique contribution to medical science. Many of the time this symptom is neglected due to lack of our understanding regarding the depth of knowledge and practical observations. "*Vision 2020*" is a global initiative launched by WHO during 1999 and we have just 2 years to fulfill it. Intensification of eye health education is most important measure which has to be brought into practice with cost effective treatments. Vitamin-A prophylaxis program launched during 1970 which is a part of NPCB were 2 lakh IU of vitamin A are given orally at 6 monthly intervals between 1-6yrs of age.

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