

UNDERSTANDING AND PREVENTING COMPUTER VISION SYNDROME THROUGH AYURVEDA

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ABSTRACT

Modern world is incomplete without computers and their applications. Our dependence over computer has increased and it has been an essential part of present educational system, banking, shopping, entertainment etc. This dependence over computer has not only benefited us but also the overuse of the same has triggered many ocular conditions. Computer vision syndrome is caused by overuse of devices with digital screens such as computers, tablets, and cell phones. The symptoms caused by CVS when critically analysed, can be considered as a *Vata- Pitta* predominant disorder. Considering the *Dosha* involvement on the basis of symptoms, *Ayurvedic* remedies can be used to treat the condition. The treatment modalities which are *Vata Pitta Shamaka* and nourishing in nature along with adoption of some preventive measures help in curing the condition.

KEYWORDS: Digital eye strain, *Abhigataja Netra Roga*, *Tarpana*, Computer vision syndrome, Dry eye.

INTRODUCTION

Our eyesight plays an extensive role in acquiring knowledge and memory. Vision being primary sense by which we learn, it is simple to comprehend how vision problems can seriously hamper our life. *Acharya Vagbhata* says that individuals should make constant efforts to protect their eyes as long as they have the wish to live because for a blind person, day and night are identical.^[1]

In the last 20 years, computer technology has advanced significantly. The use of computers in every workplace has greatly increased productivity and made living easier. With the outbreak of covid-19 pandemic, students starting from primary school level and above were encouraged to participate in e-learning to complete the required curriculum on time. Without any limitations, children were increasingly spending most of their time in front of computers and smart phones. Along with these, adults were made to continue their work from home, and they were thus exposed continuously to screens for a long duration.

As computers become a part of our everyday life, more and more people are experiencing a variety of ocular symptoms. The widespread application of LEDs and the rapidly increasing use of smartphones, tablets, laptops and desktop computers generate blue light with wave length ranging from 380 to 500 nm, which can be hazardous to our health.^[2] This high energy light waves reaches our eyes and cause various symptoms.

Computer Vision Syndrome is the new nomenclature to the ocular and extra ocular symptoms arising due to the long time and improper working on the computer. The source of these symptoms can be due to poor lighting, wrong seating position, glare on digital screen, improper viewing distance, uncorrected vision problems or excess exposure to blue light. Prolonged exposure to digital screen may cause symptoms like dry and irritated eyes, eye strain/fatigue, blurred vision, red eyes, burning sensation, excessive tear secretion, head ache, light or glare sensitivity, delay in changing focus, changes in colour perception and along with these neck, shoulder and backache, etc.^[3]

It is estimated that 60 million people suffer from CVS globally, and a million new cases are reported every yearly.^[4]

Symptoms of CVS can thus be categorized based on

- Ocular surface aetiologies
- Accommodative pathologies
- Extra ocular (ergonomic) aetiologies.^[5]

Extra ocular aetiologies leads to musculoskeletal symptoms such as neck stiffness, pain, headache, back ache and shoulder pain. These symptoms are well associated with improper placement of computer screen.

Ocular surface abnormalities: Ocular surface integrity is maintained by tear film which is made of lipid, aqueous and mucous layer. And this pre corneal tear film protects the cornea with its adequate stability, volume, etc. and by constant secretion of appropriate amount of tears through blinking. Due to continuous exposure to digital media, early breakup of tear film occurs and thus cornea gets exposed and further leads to redness, burning sensation, reflux lacrimation, dry eyes etc. Many people may have slight accommodative problem which do not usually cause symptoms when they are doing ordinary less strenuous visual task, but these problems worsen in prolonged period of computer usage.^[6]

Spasm of accommodation: While looking at a distant object, accommodation is always at rest. But while looking at a near object for longer duration, distant vision starts blurring and there is nearly always some error of refraction. Disturbance in accommodative mechanism causes blurring of vision, double vision, presbyopia, myopia and slowness of focus change. The eyes have usually been subjected to too much near work in unfavourable circumstances which may include factors such as bad illumination, bad posture, glare from digital screen, improper viewing distance, exposure to excess blue light and mental stress etc.

Computer vision syndrome has no direct reference in Ayurvedic classics. Based on fundamental theories of Ayurveda, *Nidana* for CVS can be considered as *Asaatmya Indriyaartha Samyoga* of *Chakshu Indriya*.^[7]

The *Atiyoga* (exposure to very bright light, long working hours, light from a short distance, concentrating more on the near work without shifting the gaze), *Hinayoga* (working in poorly illuminated room and without blinking) and *Mithyayoga* (seeing very small fonts against the bright light, constantly staring at computer) of *Chakshuendriya* leads to aggravation of *Vata* and *Pitta Doshas* and *Sthanasamshraya* of *Doshas* in the *Bahya Patala*, *Shukla Mandala*, etc. which produces symptoms of CVS.

LAKSHANA		DOSA VITIATED
Dry eye	<i>Sushka Akshi</i>	<i>Vata</i>
Burning sensation	<i>Usha</i>	<i>Pitta</i>
Redness	<i>Raga</i>	<i>Pitta</i>
Blurriness of vision	<i>Avyaktam Ikshate Rupam</i>	<i>Vata</i>
Eye pain	<i>Toda</i>	<i>Vata</i>
Excess lacrimation	<i>Asru</i>	<i>Vata</i>
Headache	<i>Shiroruk</i>	<i>Vata</i>
Photophobia	<i>Prakasha Akshamata</i>	<i>Pitta</i>
Neck, shoulder pain, backache	<i>Gatra Ruk</i>	<i>Vata</i>

Upon critical analysis of CVS, it can be concluded as a condition caused by predominance of *Vata- Pitta* derangement causing ocular and systemic symptoms.

The prevention from symptoms should essentially start with *Nidana Parivarjana*. Prolonged duration (> 4 h), improper posture, and inadequate lighting conditions are directly proportional to the symptoms of computer vision symptoms.^[8,9] The blink rate reduces significantly during computer usage from 18 to 3/min in one of the studies and from 22 to 7 blinks/min in another study.^[10,11]

Some preventive measures for CVS include.

- Controlling the bright light sources to minimalize visual fatigue.
- Balancing light between computer screen and surroundings.
- Use of screen filters to reduce glare and reflection of computer screen.
- Screen brightness and contrast should be adjusted to provide balance with room lighting and maximum visibility.
- Musculoskeletal problems related to head and eye posture can often be prevented by proper workstation adjustment.
- Blinking of eyes to keep eyes moist.
- Practicing 20-20-20 rule to relieve eye strain. (For every 20 minutes a person looks at a screen, they should look at something 20 feet away for 20 seconds.).

Treatment

Considering the *Dosha* involvement on the basis of symptoms, *Ayurvedic* remedies can be used to treat this condition. Therapeutic measures like *Kriyakalpa*, *Shamana Aushadhis*, *Chakshushya Dravyas* and *Rasayanas* etc., which improve the homeostasis, ocular strength and which are *Vata –Pitta* pacifying can be used in managing CVS. For eyes damaged by intense light, high-voltage electric sparks, and heat exposure, *Acharya Vagbhata* recommended *Hima* (cooling), *Snigdha* (unctuous) and *Tarpana* (nourishing) therapy.^[12]

- *Shushkakshi Paka Chikitsa* which includes *Akshi Tarpana* with *Jivaniya Gana Ghrita*, *Nasya* with *Anuthaila*, *Pariseka* with luke warm milk added with *Saindhava Lavana* can be adopted.^[13]
- *Stanya Seka* can be done in *Abhigataja Akshi Rogas*.^[14]
- *Manjishtadi Ksheera Seka*^[15] helps in reducing burning sensation and photophobia.
- *Sarva Abhishyandahara Triphala Ashchyotana* can be given in excess lacrimation.

- *Shatavaryaadi Churna* with *Ghrita* and *Madhu Anupana*, along with *Tarpana Karma* with *Go-Ghrita* was found to be more effective in relieving the different ocular as well as non-ocular features of CVS.^[16]

DISCUSSION

Since it's now pretty clear that computer vision syndrome is not going away any time soon, it is essential from a public health perspective to focus on practical protective and preventive approaches concentrating on improving the vision-related quality of life of individuals affected with computer vision syndrome. Public education about the lasting effects of excessive screen time and awareness among public to encouraging healthier lifestyle practices.

No remedial measure for the prevention and cure of this pathology prevail in the domain of modern medicine except using ocular surface lubricants, computer glasses, and counselling for judicious computer use. But Ayurveda literature has kept the doors open to prospective/unexplained health problems to be incorporated in the system on fundamental grounds.

CONCLUSION

Improper use of sense organs, violating the moral code of conduct, and the effect of the time are the three basic causative factors behind all the health problems. *Ayurveda Siddhantas* are eternal and can be applied in understanding newer diseases like Computer Vision Syndrome in *Poorvaroopo Avastha* itself so that it doesn't worsen the condition. The discussion on ocular and non-ocular symptoms of Computer Vision Syndrome in the view of *Ayurveda* is clearly suggestive of *Vata Pitta* vitiation in the eye and body as a whole. Hence, systemic and holistic approach should be undertaken to treat the disease. By treating this humeral imbalance with local/ topical therapeutic procedures, the condition could be managed well. The *Nidana* mentioned under the CVS i.e. duration of Computer work is directly proportional to the severity of the symptoms in CVS. So *Nidana Parivarjana Chikitsa* needs to be well applied here. By above treatment modalities it can be concluded that CVS can be well managed with Ayurveda treatment.

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