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Preventive and Promotive Eye Care during the Pandemic- Ayurvedic Perspective

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ABSTRACT

Eyes are most significant among the sense organs which reflects the beauty and health of an individual. Disturbances of vision directly or indirectly affects the normal functioning of other senses too. Prevention of eye diseases and maintaining the ocular health in this era is of prime importance. Especially during this pandemic period, the digital screen time has increased drastically due to the online classes, work from home etc. and thus induces stress and strain to the eyes. This augments the occurrence of various visual disturbances and other ocular diseases such as myopia, dry eye syndrome etc. Ayurveda, the science of life always offers prime importance to the prevention of diseases before their manifestation. Ancient sages described *Dinacharya*, *Rtu charya*, *Pathyahara-vihara*, *Rasayana* etc. for the maintenance of ocular health. Various *yogasanas* and techniques like *trataka* can also be practiced in this time, which will help in preserving normal functioning of the eyes. Following an Ayurvedic way of life during this pandemic period can effectively reduce the impact of eye diseases and maintain the ocular wellbeing.

Key Words Preventive ophthalmology, Eye care, Dinacharya, Rasayana, Yoga, Pandemic

Received 06th July 21 Accepted 26th July 21 Published 10th September 2021

INTRODUCTION

Among the five sense organs, Ayurveda gives prime importance to the eyes and says that “*Sarvendriyanam nayanam pradhanam*”¹. Eyes make the individual to appreciate, understand and navigate the surrounding world. Owing to the same reason, any disease that affect the normal function of eyes cause negative impact in the quality of the life. Most of the people pay attention to the health of the eyes only after they get through any diseases. In present scenario, during this pandemic time, we are spending more time for

reading, writing, watching TV, laptops, smartphones etc. which disturbs the visual health directly. The changing lifestyles, altered diets etc. also affects the eyes and leads to various diseases namely, dry eye syndrome, computer vision syndrome, ARMD, cataract, refractive errors, diabetic retinopathy, glaucoma etc. Ayurveda has introduced three important factors being responsible for all type of diseases which include such ophthalmic diseases also- *Asatmendriyarthasannikarsha* (incompatible contact of sense organs especially eyes), *Prajnaparadha* (Intellectual



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blasphemy) and *Rituviparyaya* (Abnormal seasons)².

Ayurveda is not only a curative medical science, but it designs and describes a holistic way of life to be healthy – physically, mentally and spiritually. Thus, the Vedic science offers simple and effective techniques to prevent or delay the progression of such ophthalmic diseases. Ancient Indian sages vividly described *Dinacharya* (daily regimens), *Ritucharya* (Seasonal regimens) *Kriyakalpa* (special local procedures), *Rasayana* (Techniques of rejuvenation), *Pathya-Apathya ahara* (Wholesome and unwholesome diets) etc. which directly or indirectly enhance the ocular health and prevent the ophthalmic diseases. Various yoga postures, techniques such as *neti* and *trataka* also help to prevent diseases and restore the ocular health for a long duration.

• ***Dinacharya*-Daily regimens**

Ayurvedic classics giving much importance to follow daily regimens which will prevent bodily ailments. *Sushruta samhitha Chikitsa sthana* 24th chapter, *Charaka samhitha sutrasthana* 5th chapter, *Ashtanga hrudaya, Sutrasthana* 2nd chapter and *Uthara sthana* 13th chapter briefly explains different regimens which should be followed daily. These activities are useful to restore eye health and proper vision.

➤ ***Netra prakshalana*** – It is advised to wash eyes with *Lodhra kashayam* (decoction of *Symplocos recemosa*) and *Amalaki swarasa* (juice of *Emblia officinalis*) after getting up from bed in the morning³. Phytochemical studies proved that presence of many phenolic glycosides,

triterpenoids and flavonoids in these drugs having anti-oxidative and anti-inflammatory actions, which is favorable for the eyes.

➤ ***Anjana***- *Anjana* is the procedure of application of collyrium to the eyes, which improves the vision. Medicine is applied from *Kaneenika sandhi* to *Apanga sandhi* with the *Anjana shalaka*. *Souveeranjana* should be applied daily for clear vision. *Rasanjanam* should apply once in 7 days according to Vagbhatacharya⁴ or once in every 5th or 8th night according to Charakacharya⁵. This will stimulate the secretion and clears the vision. It is said that *netra* is “*tejomayam*” but is easily susceptible to kapha dosha kopa. The *anjana* having *lekhana guna* which will help to remove the vitiated *kaphadi doshas* and *mala*, thus enhances vision⁶.

➤ ***Navana***- *Navana* or *nasya* is the nasal medication in the form of aqueous or lipid extract of herbs which nourishes the organs above the clavicle. Nasal cavity having direct connection with the sensory neural structures of brain. In classics it's said that- “*Nasa hi shiraso dwaram*” i.e., Nose is the gateway of head, and thus the medicine applied through the nostrils reaches the ‘*shrungataka marma*’ which is the junction of the channels from organs of vision, hearing, smell and taste⁷. One can practice *prathimarsha nasya* i.e., 1-2 drops in each nostril, with *Anutaila* to prevent diseases of sense organs and enhance their strength.

➤ ***Gandoosham & kabalam***- Special method of medication in which the liquid or semi-solid medicine is retained in the oral cavity for a



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prescribed time. In *Gandoosha* the oral cavity is fully filled with the medicine but in *kabala*, the amount will be less so as to move it⁸. Medicine will be absorbed through the oral mucosa by the pressure effect. The ophthalmic branch of ophthalmic artery lies along the cheek. Thus, the medicine absorbed may reach the eyes - nourishes, stimulates and make them healthy. It dilates the channels and thus augments the circulation.

➤ **Dhoomapanam**- Special technique of inhalation of medicated smoke through nose and mouth effective in *Akshi shoola* and in various *netra rogas*. *Vata kapha* disorders of *Urdhwajatru* (above the shoulder region) can be prevented or pacified by using *dhumapana*. Eight *Prayogika Dhumapana kalas* are mentioned in *charaka samhitha* as *vata kapha utklesha* occurs at these times⁹. Due to *sukshma guna* of drugs used for *Dhumapana*, it enters the minute channels and due to *Tikshna* and *Ushna guna* liquefies *Kapha* and helps in the excretion of *kapha*. *Dhumapana* clears excessive secretion, does the disinfection of nasal mucosa and maintains the patency of nostrils. The medicaments used in *dhumapana* wick when ignited, will release volatile substances which will pass through the nostrils and absorption of these medicines occurs. It stimulates the nerves surrounding the areas of nasopharynx, endocrine system and nervous system¹⁰.

➤ **Abhyangam**- Procedure of applying medicated oil to the body especially to the head, ears and feet is an important part of *dinacharya*, which is very effective in enhancing the visual sense¹¹. The oil applied on the *murdha* act on the

brain and the optic nerve which is a direct extension of the brain stem. This normalize the *prana vata*, which controls the functioning of eyes. *Abhyanga* nourishes the nerves and helps in prevention of various degenerative disorders of the eyes. The oil for *abhyanga* should be selected according to the *prakriti* of the individual.

➤ **Pada abhyangam** – Massage of feet helps to impart sleep and give clear vision. The foot massage will improve blood circulation, prevents the accumulation of deoxygenated toxins in the distal body part. Prolonged accumulation of deoxygenated toxins will affect the eyes as both are having association with Wernicke's area. The somatic sensory area in the cortex will get stimulation, as nerve supply from both feet and eyes ending in the same area of Cortex II of brain¹².

➤ **Snanam** – cleansing the body with medicated water is beneficial for the health and normal functioning of the senses. Application of *krishnatila* on head during bathing helps in alleviating *vata* and good for eyes. Similarly, *madhuka* and *amalaka* will alleviate the *pittajarogas* of eyes and enhance vision in patients with *timira*. Application of paste of *vachadi gana* prevent *kaphaja netra rogas*. *Amalaka snana* is always indicated and it enhances the visual acuity¹³.

Ushnajala snanam is beneficial for the lower body but not to the head, as it will affect the health of eyes and hairs. Cold water bath is always good for eyes but *snana* is contraindicated in *netra rogas*¹⁴.

Sadvrutham -Codes of conduct



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✚ **Pada prakshalanam**-Washing of feet with clean water helps to stabilize normal vision. Legs are associated with elements of fire. Washing legs with water helps to reduce the strain and temperature variation attains in the distal part of the body stimulates the upper nervous system and eventually optic nerve¹⁵.

✚ **Padatra dharanam**- It is said that two *nadis* are originating from the feet named *pusha* and *alambusha*, spread from toe towards the border of the eye. If feet are getting affected with *mala*, *ushna sanghatana* and *pidana*, it will end in *netra vyadhis*. So, footwear will protect the feet and thus prevent the *netra rogas* due to the injury to these *nadis*¹⁶.

✚ **Chatra dharanam** – *Chakshushyam*. Wearing umbrella is good for ocular health. The shadow acquired by the umbrella will give a dark mode effect to the eyes and cut off the glare. Reduces the eye strain and protects from UV rays¹⁷.

Ritucharya- Seasonal Regimens

Diets and regimens according to seasonal changes are explained in Ayurveda. Many diseases of eye have relation with the climatic conditions such as dry eyes, conjunctivitis etc. It is very important to maintain the health of the eyes by modifying the diets and regimens according to the changing climatic conditions. *Sheethopachara*, *netraprakshalana*, *divaswapna*, wearing glasses and umbrella etc. will help the eyes during summer. In extreme cold climate also, eyes should be protected with glasses and should frequently hydrated with eyewash.

Ritu shodhana, the technique of eliminative therapy in connection with the varying seasons can be effectively practiced to prevent eye diseases originating due to the *dosha* vitiation in specific seasons. *Kaphadosha* should be eliminated by *vamanakarma* in *vasantha*. *Pittadosha* in *sharadritu* and *vatadosha* in *varsharitu* by *virechana* and *vasthi* respectively¹⁸. Seasonal eye diseases can be prevented by practicing this.

Kriya kalpas- Local therapies

Various local procedures like, *Anjana*, *Aschyothana*, *Tharpana* etc. collectively known as *kriyakalpas*. These are used as special treatment methods in diseases, but can also be practiced to prevent eye diseases. Such *bahirparimarjana* (*topical therapy*) procedures having several advantages that the drugs not undergoing digestion, high bio-availability, controlled contact time and easy absorption.

▪ **Anjana**- Application of collyrium to the lower fornix from medial to lateral canthus using a *shalaka* (rod like instrument) or index finger. Considering the *lekhana* property and ease of the procedure it is recommended as a *dinacharya* procedure. Prevents eye diseases due to vitiation of *kapha*.

▪ **Ashchyothana**- medicated drops put in to the open eyes from a height of 2 *Angula*. Helps in hydration of eyes by improving the lacrimal secretion and enhance the vision. It is indicated as the first procedure in all eye diseases¹⁹.

▪ **Seka**- Process of pouring the medicine in the liquid form, continuously in narrow stream on the
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closed eyelids from a height of 4 *Angula*²⁰. Cleansing the ocular surface and enhance the hydration of eye surface without causing any irritation of eyes.

- **Pindi & Bidalaka-** *Bidalaka* is the application of medicated paste on the outer surface of eye lids. *Pindi* is a modified form of *bidalaka* in which the paste is packed in thick cotton cloth and kept tightly on the eye lids, instead of applying directly²¹. These therapies impart vasodilation and thus improve drainage of the toxins and enhances the circulation. The mechanical effect of pressure helps in balancing the IOP by dilation of vessels and drainage of aqueous from the anterior chamber.

- **Tarpana-** According to shargadharacharya, *tarpana* is the most satisfying procedure to the eyes. It is the process of allowing ghee or medicated fats to stagnate over the eyes for a specific time period using a specially prepared frame around the eyes, while blinking the eyes continuously²². It is very effective in nourishing the ocular tissue and the benefits include sound sleep, clarity and lightness of eyes, enhances the visual acuity, perfect colour vision etc.

- **Putapaka-** it is similar to *tarpana* in procedure but the ingredients, preparation and duration are different. It helps in reducing the *avasada* (lethargy) of eyes (usually after *tarpana*), Sharpens vision and improve tolerance of eyes towards light and wind²³.

- **Mukhalepa-** Application of medicated paste to the face. It is of three types- *doshahara*, *vishahara* and *varnyakara* differs in the thickness

of application. The facial artery, facial nerve and trigeminal nerve are lying along the cheek, having branches towards eyes. So *mukhalepa* having specific effect on eyes also. Nurture the eyes, enhances the blood circulation to eyes and thus improves the ocular functions²⁴.

Rasayana-Rejuvenative therapies

By the age of 50, one in every three individuals has some vision impairing eye disease such as presbyopia, cataract, glaucoma, ARMD, diabetic retinopathy, dry eye syndrome, ptosis etc. Three-fourth of all geriatric eye problems are preventable by Ayurvedic *rasayana* techniques. *Indriyabalavardhana* is an important aspect of *rasayana*. Charakacharya recommended to begin the use of *rasayana* by young or middle age itself²⁵. The main *rayayana prayogas* adopted in eye health promotion are *naimittika rasayana* and *achara rasayana*. Various *chakshushya rasayanas* are explained in ayurvedic treaties which are very effective in enhancing the ocular health, slow down the degenerative process and thus preventing the diseases of eyes.

Among the *chakshushyarasayana*, *triphala prayoga* is very important. *Triphala churna* mixed with unequal quantity of ghee and honey taken in night act as *rasayana* and preserve the ocular health and enhance the function. Combination of *yashtimadhu* and *triphala* also can be used to strengthen the eyesight. *Triphala* is a combination of *Terminalia chebula*, *Terminalia bellerica* and *Emblica officinalis* in equal quantity. While taking the individual qualities, *Terminalia chebula* is having the property of cleansing the micro and

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macro channels, pacifies all *doshas* and is having anti-aging property. Terminalia bellerica is a best homeostatic drug. Emblica officinalis is a powerful antioxidant and prevents aging and degeneration²⁶. Ghee helps in *dhatuposhana* and nourishment of neurons of brain preventing ocular neurodegenerative diseases. *Ghritamanda* (upper portion of ghee) is rich in unsaturated fatty acids, especially omega-3 and omega-4 which are essential for vision. Considering honey as *chakshushya*, most of the components like flavonoids, phenolic acid, ascorbic acid, tocopherol, aminoacids, vitamin B₁, B₂ and B₆, minerals and enzymes work together to provide synergic, antioxidant, antibacterial and anti-inflammatory effects²⁷.

Herbal drugs such as *Shatavari*, *Lodhra*, *Punarnava*, *Shigru* etc. and minerals including *Suvarna* (Gold), *Abhraka* (Mica), *Tamra* (Copper), *Yashada* (Zinc) etc. are also proved to have significant action on the ocular health and can be followed as single drug *rasayanas* according to the conditions.

Other *chakshushya rasayana yogas* described in various *samhitas* are as follows-*Jeevaneeya gana* (Ch.Su.4/11)

- *Droneepravesharasayana* (Ch.Chi.1-4/7)
- *Suvarna rasayana* (Su.Su.46/325)
- *Bijakadi yoga* (Su.Chi.27/12)
- *Vidanga tandula yoga* (Su.Chi.27/8)
- *Triphala rasayana* (A.S.Su.12/47)
- *Musthadi yapana vasthi* (A.S.Ka.5/11)
- *Thuvaraka taila* (A.S.U.49/55)

- *Kanchuki vividha prayoga* (A.S.U.49/178)
- *Shiva gulika* (A.S.U.49/193)
- *Swarna makshika* (A.S.U.49/199)
- *Kushta vividhayoga* (A.S.U.49/218)
- *Sarpi guda* (A.S.Chi.7/52)
- ***Pathyahara vihara-Wholesome food and activities***

Ayurveda gives equal importance to the diets and regimens to prevent diseases and the medicines to cure the manifested diseases. Various vedic treaties describes *Pathyahara-viharas* to prevent the eye diseases and promote the vision.

Wholesome foods and activities related to ocular health described in *samhitas* are enlisted in **Table 1** and **Table 2**²⁸⁻²⁹.

Netra vyayama-Eye exercises³⁰

Eye exercises are mainly aimed at toning up the eye muscles. They also help in relaxation of the eyes. By practicing eye exercises daily for a few minutes can improve the sight even in patients with refractive errors like Myopia, Hyperopia and astigmatism; they can discard the spectacles or at least reduce the power of glasses. These are preferably done twice a day i.e., early morning and early evening.

- **Eye wash-** This can be done either in cold water or *Triphala hima* (cold infusion) by directly splashing or dipping the eyes in eye cups and blinking. This can be done once before and after the sunning exercises. Helps in toning the eyes and surrounding tissue.
- **Sunning-** Sun is regarded as the greatest nourisher of eyes which enhances the vitality of



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eyes and helps in increasing the blood circulation to the eyes. This is done by exposing the closed eyes facing the sun for 3 minutes, always swing from one side to the other, after applying one drop pure honey to each eye. Best practiced during sunrise and sunset. Helps in relieving photophobia by making the retina gradually accustomed to progressively bright light.

- **Palming-** Sitting comfortably and the eyes are gently closed and covered with the heels of the palm in such a way that all light is excluded and no pressure is applied over eyeballs. The elbows should be supported on the table in front or on a thick pillow. This enhances the efficiency of nerves, if it is done with deep breathing. It relaxes the mind and improves blood circulation.

- **Shifting-** Moving the eyes from one point to the another. Holding a foot scale in front of the eyes at a distance of 15 inches by staring straight i.e., at 6 inches mark. Slowly move the eyes towards 0-inch mark blink once. Then again move towards 6 inches mark and 12 inches mark and blink in these points.

- **Swinging-** In this technique one should stand in front of a swinging bar (appears like a railway fencing which measures 14x14 inch. Plates are half inch broad and half inch apart.) or a window. Spread the feet to stand at ease position and slowly sway body from right to left position and then left to right, looking through the rods at a distant object. Blink the eyes while reaching each end. Make the swings smooth and rhythmic and repeat for 50 times. This help to break the habit of

staring and prevent eye strain. Swing and shifting help to relax the eyes, correct the accommodative defects.

- **Eye ball movements-** done by moving the eye balls in various directions i.e., vertically, horizontally, diagonally and circularly. Same can be done by throwing a ball. This strengthens the extra-ocular muscles.

- **Candle light reading-** Reading the fine print in a dark room with the illumination of a candle. It improves the retinal functions, correct the refractive errors. The flame stimulates the retinal cells, improves the blood circulation and gives a feeling of comfort rest and relaxation.

- **Fusion-** Focusing on a nearer object (pen/pencil) and a distant object (a point on the wall/ tree) alternately. Repeat this for 5-10 times. It is aimed at improving the use of extrinsic muscles and the mechanism of accommodation.

- **Vaporization and cold pad-** After all exercises relieving the strain of eyes is important. Vaporization act as decongestant and cold pads soothes after exercises.

Yoga

Yoga techniques make all the organs of the body relaxed and revitalized. Various yoga practices enhance the vision and reduces the eye strain. One can practice the yoga techniques easily with proper training.

- **Asana-** Many yoga postures including *Matsyasana*, *Chakrasana*, *Halasana*, *shirshasana*, *Surya namaskara* etc. having considerable effect on the eye health. These



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postures enhance the blood flow towards the eyes and surrounding tissue, relieve the strain and prevent the refractive errors of eyes³¹.

✚ **Pranayama-** *Pranayama* is the technique of balanced breathing practices. Improves the vital capacity, oxygen supply to the tissue and relaxes the body and mind. A balanced mental status is essential for the proper functioning of the eyes. Because all the senses perceive the objects only in the presence of mind. Proper practice of *Nadishuddhi*, *Seetali*, *Seetkari* and *Bhramari* type of *pranayama* calm the mind, increases the stress tolerance, improve circulation, and relieve the tension of muscles. All these having promotive effect on ocular health³².

✚ **Trataka-** *Jyoti trataka*, the special yogic technique among *shadkarmas* involves staring at a steady candle flame. It keeps away the eye strain by improving the stamina of eye muscles and by giving deep relaxation. Make the eyes clear bright and radiant. This Cleanses the lacrimal passages, improves the accommodative power. *Trataka* also helps to develop intense concentration and boost memory³³.

✚ **Neti-** *Jala neti* is one among the *shadkarmas* of yoga which cleanses the nasal passages. In this sterile lukewarm saline solution is allowed to flow through the nostrils while the person breath by mouth. *Neti* relieves sinusitis and headache by reducing *kaphadosha* and give a clear vision. *Hathayoga Pradipika* and *Gheranda Samhita* clearly mention that accepting procedures like *Trataka* and *Neti Kriya* helps to improve vision and prevent the diseases of eyes³⁴⁻³⁵.

Things to ponder during the pandemic³⁶:

- Avoid unnecessary touch to eyes.
- Consider wearing glasses more often than contact lenses as it reduces irritation and unwanted touches to eyes. If must wear contacts, be sure to clean and disinfect them exactly.
- Provide proper protection to the eyes while going out with goggles, face shields etc.
- Limit the screen time with enough rest to eyes, ensure timely intervals to avoid strain (20-20-20 rule)
- Assure proper sleep.
- Following healthy diet and regimen with exercise.
- Regular eye checkups.
- Early screening of lifestyle disorders and other systemic ailments.

DISCUSSION

As the world is going through tough times due to the spreading pandemic, each individual should make effort to protect and promote own health. Eyes are the most delicate organs of the body and should be free from stress, over use and functional derangements. But the present situation makes the eyes overburdened due to the lifestyle changes, increased screen time and lac of nutritious diet. As a result, the population will suffer from various eye diseases such as dry eyes, computer vision syndrome, refractive errors, glaucoma, diabetic retinopathy, hypertensive retinopathy, age related macular degeneration etc. even from the early stages of life. It is the need of the hour to develop



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an integrated approach to preserve and promote the ocular health. Prevention modalities have an equal role in fighting the emergence of diseases as that of treatment modalities. Ayurveda is not merely a system of medicine in the conventional sense to cure the diseases, but it is also a way of life that teaches to protect and promote the health. The holistic approach of this science targeted towards physical, mental and spiritual wellbeing and thus make it a great preference in life style diseases. Prevention of Diseases is possible by lifestyle regulation and adopting Ayurvedic principles in life. Ayurveda paves a path towards the health through the *Dinacharya*, *Rtucharya* and *sadvrutha* practices with boundless descriptions of wholesome and unwholesome diets and regimens which targets the proper functioning and nourishment of each organ. By close examination it is clear that the diets depicted as *chakshushya* are rich sources of vitamins and minerals that are essential for ocular health. Eye diseases due to ageing process are inevitable but can be delayed by taking *Chakshushya Rasayanas*. These *Rasayana yogas* revitalizes each cell and prolongs the senescence. *Kriya kalpas* have a major role in preventing lifestyle induced eye diseases and preserve the normal function of the eyes. Eye exercises and yogic practices like *trataka* etc. make the ocular tissue active and stress-free.

CONCLUSION

As the most significant sense organ, there is no doubt that one should maintain the health of the

eye till the end of life. In this challenging situation of the world everyone can make use of the time and bring about few modifications in our daily routine by adopting the ayurvedic principles can make wonders in preserving our eye health and prevent or delay the incidence of ocular diseases. Simple techniques like *Anjana*, *Nasya*, *Abhyanga* etc. can be included in the daily regimens which will improves the vision and prevents many diseases of eyes. Incorporating nutritious foods in the daily diet is also very important to make sure that the eyes are getting necessary nutrients for their proper functioning. Avoiding alcohol, cigarettes and tobacco is also having equal importance. *Rasayana yogas* are very effective in preventing or delaying the diseases in old age. *Kriyakalpas* act in both preventive and curative aspects. They are simple procedures with high bioavailability. Eye exercises strengthen the ocular muscles and improves the circulation. Yoga practices enhance the vision by relieving the stress and relaxing of the mind. Integrating all these techniques and following a positive way of life is very important in these hard times.



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