Cornea is one of the most mysterious, delicate and complicated living structures in human body. Its optical clearness is important for normal vision. Due to various causes, cornea may lose its transparency and landed in to permanent whitish clouded corneal opacity / scar. This condition possibly leads to blindness in spite of all other structures of eye event are healthy. Hence all attempts should be done viz. Ahara (diet), Vihara (proper lifestyle) and Audshadhi (medicinal / surgical therapies) should be done to keep eyes healthy. Acharya Sushruta explained corneal scar as Avrana shukra in special classification of Krushnagat vyadhis which are explained in Uttar Tantra. Etiopathology and management of Avrana Shukra is is found mentioned in many other classical texts viz. Ashtang Hridaya, Yogaratnakar etc. Modern science has explained corneal opacity in detail. Ultimate treatment for corneal blind is keratoplasty. Medicinal or conservative therapy has very limited outcome in view of vision restoration. In present review we reviewed few Ayurveda classical texts, few past article and internet references to find current scenario of Corneal scarring. Here Ayurvedic management explained about Avrana shukra from different classical texts is summarized.

Keywords: Corneal Opacity, Avrana shukra, Ayurveda management.

1. INTRODUCTION

Cornea has highly important structure in the process of vision. Light from outside first touches to the cornea and then refraction takes place and light passes through cornea for further process. Optical clarity of cornea plays important role in vision perception. One can’t see if all other structures of eyes are healthy and active except cornea. Corneal diseases are one of the most common causes of blindness after cataract and glaucoma.1 There are limitations in modern science for treatment of corneal opacity. There is lack of donor tissue for optical keratoplasty, even after good keratoplasty procedure, there are high chances of failure of graft. Ayurvedic texts explained corneal blindness as Avrana shukra. Acharya Sushruta has explained corneal scar as a Avrana shukra in special classification of Krushnagat vyadhis which are explained in Uttar Tantra.2 A lot of modalities are explained in Ayurvedic literature regarding management of Corneal opacity. At present there is extreme necessity of research on effective management of Avrana shukra. Lot of clinical trials are needed to be done in context of Corneal opacity and its Ayurvedic management. Present article is written to understand current scenario of corneal opacity and Ayurvedic modalities mentioned in classical texts are summarized. This review can provide foundation to carry out further detailed narrative or systematic review and clinical trials in the co-
text of *Avrana shukra* and corneal scarring / opacity.

2. METHODS

The study type is conceptual study based upon short review. Objectives were to study *Avrana shukra*, Corneal opacity and its Ayurvedic management. Literature from different Ayurveda classical texts viz. Sushruta Samhita, Ashtang Hriday, Yogaratnakar etc., past articles, internet sources and modern text books was reviewed for this study.

3. CONCEPTUAL REVIEW

3.1. Ayurveda view

Under the topic of *Krishnagat Vyadhis* Sushruta has given detailed explanation of Savrana shukra and *Avrana shukra*. *Avrana shukra* is explained as sequelae of untreated *Abhishyanda* or any other eye diseases. Based on classification as per *doshas*, it is Raktaj vyadhi. As per prognosis *Avrana shukra* is curable disease and classified as *aushad sadhya vyadhi*. Madhavkara has explained clinical features of *Avrana shukra*. White opacities viz. Shankh indu or Kundapushpa or Megha on *Krishna mandal* of eye are present. These may be associated with or without pain and lacrimation. Sushruta has stated two types of *Avrana shukra* viz. Achhaghana anukari shukra and Bahala Shukra.

*Achhaghana anukari shukra*

*Shukra* which is situated in *Uttan bhaga* (superficial part), white as conch shell, with less pain and watering. This type is considered as *Sadhyatam shukra* (easily curable).

*Bahala Shukra*

*Shukra* which is *Gambhir* (deeply situated) and *Chirkari* (chronic). This type is considered as *Krucchasadhya* (difficult to treat).

3.2. Modern view

In developing countries, blindness is major health issue caused by different conditions viz. Cataract, Glaucoma, Corneal diseases etc. In less developed countries conditions like cataract and corneal diseases are mostly common causes for blindness. In India approximately 68 lakh people have severe vision impairment due to corneal disease. Due to corneal diseases, these people are having vision of at least one eye 6/60 or less. Amongst them approximately 10 lakh people with corneal diseases suffer from have bilateral visual impairment. By 2020 the predicted number of cases with unilateral blindness due to corneal diseases may increase up 1.6 Crore in India. 90% out of total global cases of either trauma of eye or ulceration of cornea which leads to blindness are from developing countries.

In modern ophthalmology management modalities of corneal scar are stated viz. Optical Iridectomy, Keratoplasty, Phototherapeutic keratectomy (PTK), Coloured contact lens (Cosmetic Purpose). But recurrence cannot be avoided in each and every case. Cost for above-mentioned therapies is not in reach of common people.

3.3. Ayurveda management of *Avran shukra*

Sushruta has explained *Avrana shukra* as *sadhyatam vyadhi* (easily curable disease). That means medicinal treatment of Ayurveda can be helpful for restoration of corneal transparency.

3.3.1. *Shodhan karma*

As per *Dosha*, *Dushya*, *Prakriti* and *Samprapti* ghataka, *Sarvadaihik koshtagat shuddhi* is advised as per indication to eliminate vitiated *doshas* out of body. Amongst *Vaman*, *Virechana* and *Raktabha* either or all procedures can be performed as per indications, *dosha avastha*, *rugna bala* etc.

3.3.2. *Sthanik dosha nirharana*

A. *Avapidan / Shirovirechan* (Nasya)

Use of Danti mool, *Krushadi Tail* for nasya is mentioned in Yogaratnakar.

B. *Parishek / Ashchotana*

Local application of medication by *Parishek vidhi* will useful. *Haridradi kwath*, *Jayadi kwath*, *Dhatrphaladi sechan* are useful due to their having *lekhan* property.
C. Anjana Yoga

Anjana kalpas like Triphaladi anjan, Sampraharshan anjan, Ksharanjanam, Sadhaaavanjan are mentioned. Such drugs are helpful to reduce opacification due to lekhana (scrapping) property.

D. Lekhananjan

Lekhananjan is one of the most effective anjana kalpa, the name itself suggests its lekhana property. Mahanila varti, Chandrodhay Varti, Vanshajadyanjan, Pratyanjan are some lekhan anjan explained in the texts.

3.3.5. Abhyantar chikitsa

Along with shodhan (body purification) and sthanik (local) chikitsa (treatment), shaman chikitsa kalpa (orally used drugs) viz. of Lohadi Guggul and Patoladi Ghrit are mentioned in the texts. These drugs are having lekhan as well as ropan properties.

4. DISCUSSION

Avrana shukra (Corneal opacity) is one serious disease of eye which can lead to blindness if not treated in time. Ayurvedic texts have mentioned many treatment modalities for Avrana shukra. Meticulous use of drugs can definitely give effective outcome in Avrana shukra (Corneal Opacity). With basic discipline of Ayurveda i.e., Dushyam, Desham, Balam, Kalam, Analam (Agni), Prakriti and Vaya, if physician use appropriate medicines, he can get success and positive effects in Avrana shukra. Sarvadaihik chikitsa (shodhana i.e., panchakarma), Sthikan chikitsa (kriyakalpa, lepa, netrasek, aschyotan, anjan karma etc.) Abhyantar chikitsa with Guggul, Ghrita etc. are common guidelines for management of Avrana shukra. Keratoplasty, Topical medication and Cosmetic lenses are main therapies explained regarding corneal opacity in modern ophthalmology.

Since this study is short review based on limited literature, it has its own limitations. Only current scenario and available treatment modalities regarding Avrana shukra (corneal opacity) were reviewed and presented here without elaborating its details. This review can provide foundation for further detailed narrative or systematic review on large amount of literature. There is wide scope of clinical trials which are much needed for definitive evidence.

5. CONCLUSION

Ayurveda literatures focused a lot on Avrana shukra and explained multi-dimensional treatment for this particular disease. Ayurveda and modern medicine in conjugation with each other can show very positive results in its favor. Yet lot of scope is available to study and to carry out clinical trials in this subject. Necessity of financial support, Drug trial permissions, Motivation to Ayurveda ophthalmologist to work without hesitation is need of time.

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