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# PERIORBITAL HYPERPIGMENTATION & *AYURVEDA*: A REVIEW

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## ABSTRACT

The term "lifestyle" is often used to denote the way people live, reflecting a whole range of social values, attitude and activities. The ever changing life style has exposed men to various disorders. Periorbitalhyperpigmentation (POH) or "dark circles under the eyes" is one of them. This aesthetic facial concernis defined as bilateral, homogeneous hyperchromicmacules and patches primarily involving the lower eyelids but also sometimes extending towards the upper eyelids, eyebrows, malar regions, temporal regions and lateral nasal root. POH has not been described directly in *Ayurvedic* classics but as per its signs and symptoms it can be deduced that it occurs due to vitiation of *Vata* and *Pittadoshas.* Various treatments proposed in modern medicine for POH tend to give temporary relief only. *Kriyakalpas*mainly *Vidalaka* and *Akshitarpana* told in *ayurvedic* texts are found very helpful in the management of POH. This paper highlights the mode of action of drugs and *kriyakalpas* in the management of POH.

**KEYWORDS:** *Akshitarpana, vidalaka, kriyakalpa*, aesthetic facial concern.

## INTRODUCTION

Periorbital hyper pigmentation (POH) is one of the most commonly encountered conditions in routine dermatology practice. The development of dark circles under the eyes in any age is of great aesthetic concern because it may depict the individual as sad, tired, stressed, and old. POH may be defined as blemishes around the eyes, especially at the lower eyelid, that are frequently seen in both men and women.[1] The age of onset is usually after puberty or in early adulthood (16-25 years). It is more pronounced in certain ethnic groups and is also

frequently seen in multiple members of the same family.[2] Although not rare in males, females are affected more owing to the hormonal factors[3]

**Etiological classification[4]**

- Constitutional: The presence of a curved band of brownish to black pigmentation on the skin of the lower eyelids approximating the shape of the orbital rim with frequent involvement of upper eyelids.
- Post inflammatory hyper pigmentation: Presence of irregular patches of brownish or grey pigmentation on the skin on the upper, lower or both eyelids with features of lichenification, accentuation of skin creases, and eczematous papules or patches in the surrounding areas. Personal and/or family history of atopy may or may not be present.
- Superficial location of vasculature: Presence of erythema predominantly involving the inner aspect of lower eyelids, with prominent capillaries or telangiectasia (capillaries) or the presence of bluish discoloration of the lower eyelid and visible bluish veins that becomes more prominent when the overlying skin is stretched. This type of dark circle appears to be due to a combination of transparency of the overlying skin and dermal vascularity.
- Shadowing due to skin laxity: Presence of a dark shadow under an overhanging tarsal muscle, eye bags, or the presence of a deep tear trough over the medial aspect of inferior orbital rim that disappear with direct lighting.
- Dermal melanin deposition
- Secondary to atopic or allergic contact dermatitis
- Stress
- Anemia
- Periorbital edema

**Predisposing factors**

**Age:** more common in early adulthood

**Season:** Marked in winters

**Family history:** It is an autosomal dominant trait which usually runs in the families

**Sleep pattern:** Inadequate sleep and insomnia

**Faulty habits:** history of frequent eye rubbing and scratching in periorbital area which implies that there may be some ingredient in it that causes allergic contact dermatitis and on resolution leaves post inflammatory hyper pigmentation in periorbital area.

**Error of refraction:** According to Gathers, exhaustion of periorbital muscles[5] may play a significant role in causation of POH.

**Stress:** Majority of these patients had aggravation of dark circles during periods of stress. It may be due to effect of increased MSH secretion via HPA axis in response to stress which creates a vicious cycle and it is very difficult to differentiate whether stress increases POH or *vice versa* but once dark circles appear, it definitely increases stress regarding their aesthetic appearance. According to Gathers, fatigue, stress, emotional liability and aging all may play a significant role[5] in development of POH.

**Anemia:** In these patients POH may be either because enough oxygen is not reaching the periorbital tissues or due to facial pallor which makes the periorbital region look comparatively darker.

Menstrual disturbances: According to Gathers, chronic use of some drugs[5] including oral contraceptives, hormone-replacement therapy, antipsychotics, gold, chemotherapeutic compounds can lead to periorbita lhyper pigmentation.

Systemic diseases: Gendler*et al* stated that some medical problems that may contribute to dark circles include disorders[6] of heart, thyroid, kidney or liver, Vitamin K deficiency, Addison's disease, etc. According to Boxrud*et al*. systemic conditions[7] that can lead to pigmentation of periorbital area include metabolic and endocrine disorders.

**Management:** POH is a generally benign, extremely common condition that is notoriously resistant to treatment.

- **Sun protection** is a cornerstone of therapy.

- **Dietary supplement**[8](soy extract, fish protein polysaccharides, extracts from white tea, grape seed and tomato, vitamins C and E as well as zinc and chamomile extract).

- **Topical medications**[9](contain antioxidants, bleaching agents, moisturizing and stimulants of new collagen formation, such as as vitamins C and E, Q10 coenzyme, retinoid acid, glycolic acid, hydroquinone, furfuriladenine, and kojic acid)

- **Chemical peels** (TCA and Phenol peels)- They act through exfoliation, abrasion, and shedding of the superficial skin cells.

- **Laser**[10] (pixel Erbium laser, Ruby or Nd:Yag, the Q-Switched Alexandrite laser, the carbon dioxide laser and the Intense pulsed light )-They improve dark circles by acting on specific chromophobes for each laser and/or light source, like water, hemoglobin, and melanin. By targeting these chromophobes, they improve vascular and pigment alterations. Furthermore, they stimulate collagen production, thus improving the flaccidity that worsens dark circles. When laser rays are targeted over this area, body stimulates healing response to this injury and new collagen and supporting tissue is formed. This results in strengthening of blood vessels and lesser leakage, thus in-turn takes care of pigmentation and puffy eyes.

- **Fillers**[11] if patients have sunken eyes, then they are treated with injectablehyaluronic acid gel.

**Vidalaka**[12]**:** The simple smearing of the medicated paste on the skin surface of the eyelids and keeping it undisturbed for certain period is called by the name *vidalaka*. The application is made all over the eyelids avoiding the area of eyelashes. Thickness of the paste should be half *angul* and it must be removed before it gets dried.
Indications:Stye, *abhishyanda*,traumatic conditions,insect bite, black coloration over eyelids

**Drugs used**[13]

- *Erandapatra, moolaottwakkalka +Amalakikalka+ MahanimbakalkaYashtimadhu+gairik +daruhaldi +rasanjan*
- *Raktachandanadilepa*
- *Matulungadilepa*
- *Lodhradilepa*
- *Siddharhthakadilepa*
- *Vatapatradilepa*

***AkshiTarpana***[14]

*Tarpana* is a procedure wherein lukewarm medicated *ghrita* is made to stay stagnant in the eyes for a speculated time in a specific formed frame. Patient is asked to blink his/her eyes.The therapy is quite beneficial for the relaxation of eyes and the treatment of various ailments related to eyes.

**Drugs used**[15]

- *Jeevanthyadi*Gritham
- *Mahathriphala*Gritham
- *Patoladi*Gritham
- *Triphala*Gritham
- *Drakshadi*Gritham
- *Sathahwadi*Gritham
- *Dasamoola**Jeevanthyadi*Gritham
- *Vasabringadi*Gritham
- *Lodravasadi*Ghritham

*Kriyakalpa* are enlisted under *bahiparmarjanchikitsa*. They have advantages over oral medications which are as follows-

- The drug given orally will follow *pachankriya* with the help of *pachakpitta* whereas drugs administered through *kriyakalpa* do not follow this mode.
- Oral drugs have difficulties to cross blood aqueous[16], blood vitreous, blood retinal barriers to reach target tissue of eye ball. Topical drugs cross such barriers.
- The medication can be selected according to *vyadhiavastha*.
- The tissue contact time of the formulation can be properly controlled with the help of *kriyakalpa* along with the location (*sthana*), severity, stage of the disease.

**Benefits of using *ghrita***

- *Ghrita* is effective in subsiding *Pittaja* and *Vataja*[17]disorders.
- It improves *dhatus* and is overall booster for improving *Ojas*[17] and reduces hyperpigmentation.
- The *Ghrita* has the quality of beingchakshushya[18] of the body. Hence when applied in the eye, it enters into deeper layer of *Dhatus* and cleanses and nourishes every minutest part of them.
- Also due to its *Sansakaranuvartana*[19]quality, it easily imbibes the properties of other drugs processed with it without leaving its own properties.
- *Ghrita* is also *SheetaVeerya*[20], skin being the site of *BhrajakaPitta* can be effectively managed by constantly using *Ghee* for*AkshiTarpana.*
- *Ghrita* also contains properties like *Balya, Brimhana*[17], so it gives strength to the overall tissues of the eyeball as well as to the nervous tissues.

- *Ghrita* contains mainly omega-3 & 6 fatty acids, Vit A, E & K & antioxidants.
- *Tarpana*when did with *SiddhaGhrita,* it contains more small chain fatty acids having small molecular radius than the long chain fatty acids. Thus, they may get readily absorbed.
- Oleation is done by the ghrita which in cases of chronic edema, the fibrin within the fluid can be stretched, so facilitating drainage of fluid into lymph vessels and relieves puffiness of eyes[21]

## CONCLUSION

According to modern medical science POH is a generally benign, extremely common condition that is notoriously resistant to treatment. But there are kriyakalpa procedures described in our texts which are found very useful in treating this aesthetic concern.Vidalaka and Netra Tarpana are the two very important kriyakalpas which if promptly used show objective evidences of excellent responses in POH.

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