

# Treatment of Blepharitis By Ketoconazole: A Short Review

Reena Antony<sup>1</sup>, Rini Thomas<sup>2</sup>, Bhupendra Prasad<sup>3</sup>

<sup>1,2,3</sup>Dept of Microbiology

<sup>1,3</sup>Career College, BHEL, Bhopal, M.P

<sup>2</sup>Bansal College of Pharmacy, Bhopal, M.P

**Abstract-** The appearance of dandruff-like scales that form on the root of the eyelashes together with symptoms like inflammation, redness, irritation and itchiness is term as an infection of eyelids called Blepharitis. The infection is actually a social stigma in terms of appearance of the patients' eyes. People often misinterpret the patients' eyes as untidy. It may exert a great amount pressure and low esteem for self while patients are addressed as unhygienic. The shampoo based product with 2% ketoconazole has been found to be effective against both dandruff and Blepharitis. Such scientific deliberations should be more intensively done for reassuring such cures to deal with this medical condition which affects the patient mental, physically and socially.

**Keywords-** Inflammation, eyelids, ketoconazole, blepharitis, antifungal.

## I. INTRODUCTION

Blepharitis is one of the most common inflammatory condition of the margins of the eyelid and likely to be the most under diagnosed, undertreated, and underappreciated eye disease worldwide. <sup>1</sup>

The inflammation of the eyelid margins is usually characterized together with redness, itching and irritation of the eyelids, typically in both the eyes. It is classified into 2 types namely anterior or posterior blepharitis. The appearance of blepharitis is often confused with conjunctivitis. Due to the itchy sensation associated with blepharitis, many often wrongly think of it as a dry eyes problem. Blepharitis is commonly caused due to excessive oil secreted by the glands in the eyelid, microbial infections, some allergic reactions or inadequate eye hygiene.

Almost all humans have micro-organisms on the surface of their skin which is called the micro-flora; it also thrives in the skin or at the base of the eyelashes. Large number of microbial colonies around the eyelashes and eyelid margins can cause dandruff-like scale. The dysfunctioning of the oil glands (meibomian glands) present on the eyelids causes a clinical condition called meibomitis. Normally these

glands secrete a thin oily layer that helps to prevent rapid evaporation and therefore keeps the eyes moist. Some of the other factors that may be responsible to cause blepharitis may be skin diseases such as psoriasis, rosacea, seborrhea, and other eczema-like skin implications.

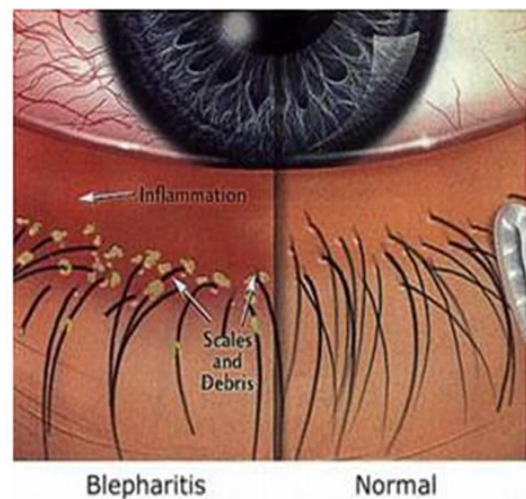


Fig 1: Picture showing the symptoms

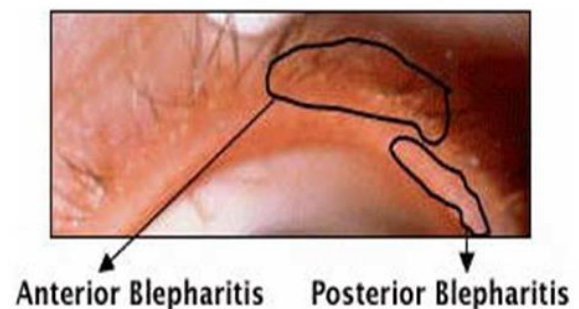


Fig 2: Picture showing the types of Blepharitis

Blepharitis is actually a social stigma in terms of appearance of the patients' eyes. People often misinterpret the patients' eyes as untidy. It may exert a great amount pressure and low esteem for self while patients are addressed as unhygienic.

Notable symptoms of blepharitis include Itching and burning sensation in eyes, soreness, inflammation and redness of eyelid edges, sensitivity to light, Loss of eyelashes, unfocused vision, Sticky release along the eyelash line, Crusting or greasy, waxy scales, Tiny pimples on eyelid edges, Scaly flakes along eyelid margins, irritating sensation etc. These symptoms are most noticeable upon waking up in the morning.

Blepharitis is chronic in nature. It is usually non infectious. In unusual cases the cause may be due to bacterial, viral, chlamydial or fungal organisms. The most common cause is due to inflammation associated with skin problems or systemic disorders. (Fig: 1). There are two forms of blepharitis, (Fig:2) depending upon site of infection: **Anterior** and **Posterior Blepharitis**.

#### A. Anterior Blepharitis

Blepharitis affecting the outer rim of the eyelid, where the eyelashes are attached is called as Anterior Blepharitis. The most common causes of this type of blepharitis are bacteria and scalp dandruff.

#### B. Posterior Blepharitis

Blepharitis affecting the inner rim of the eyelid and is caused by meibomian gland dysfunction. Two skin disorders that cause posterior blepharitis are acne rosacea and scalp dandruff.

In the year 2015, Dadaci investigated the microbial flora of the margins of the eyelids which showed excessive microbial colonies in patients with blepharitis. Few fungal colonies were also detected with periodic acid-Schiff staining in approximately four out of five patients with chronic anterior blepharitis.<sup>4</sup> Shampoo based on ketoconazole has been found to be effective against Scalp Dandruff. Fungi have been implicated in blepharitis as early as in 1990.

In the past ketoconazole 2% cream on the lid margins has seen to be improving the clinical severity of blepharitis.<sup>4</sup> The pathology and physiology of Blepharitis may be influenced by common commensal microbes like Coagulase-negative *Staphylococcus*, *Staphylococcus aureus*, and *Propionibacterium acnes* etc.<sup>5</sup>

Looking into the current scientific research in Blepharitis we isolated the scales from eyelids of around 56 patients in association with the local ophthalmologists and tested the said samples towards various antifungal products in the market. (Fig: 3) Among which a shampoo base with 2%

ketoconazole was found to be most effective for the dandruff and blepharitis both. The patients using this shampoo had to apply the product on the scalp for around 5 min with gentle massage. While this process they were also suggested to slightly rub the product on the eyelids as well. The results for most patients were positive and the recurrence of the problem was not seen.

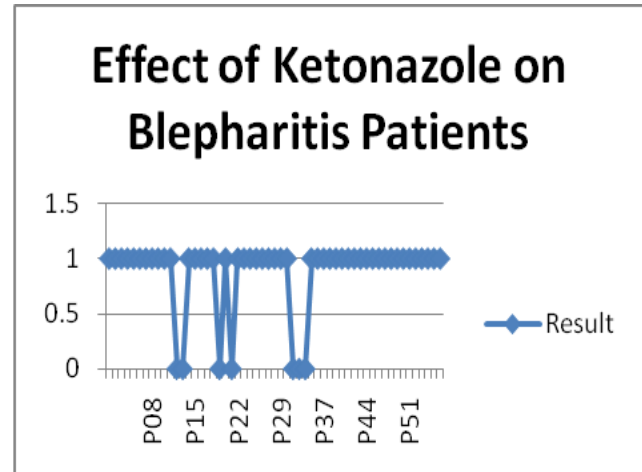


Fig 3: Figure showing effect of ketoconazole on patients with Blepharitis

## II. CONCLUSION

The treatment of Blepharitis may be sometime frustrating and may take some time for complete freedom from the infection. Treatment may include: Warm Compresses, Meticulous Cleansing, Medication massaging etc may be helpful for suppressing the few visible indications like inflammations, scaling on the eyelids etc. A Proper treatment may prevent infections in the future and cornea. A complete eye examination by an ophthalmologist is essential. Use of eye drops, ointment or oral medication together with the daily cleansing regimen is a necessary thing to do. Always remember to follow recommended dosages. The shampoo based product with 2% ketoconazole has been found to be effective against both dandruff and Blepharitis. Such scientific deliberations should be more intensively done for reassuring such cures to deal with medical conditions like Blepharitis.

## REFERENCES

- [1] Z. Dadaci, F. Kılınc, T.T. Ozer, G.O. Sahin, N.O. Acir, M. Borazan, "Periodic acid-Schiff staining demonstrates fungi in chronic anterior blepharitis", *Eye (Lond)*, vol. 29, pp. 1522–1527, 2015.
- [2] M.E. Nelson, G. Midgley, N.R. Blatchford, "Ketoconazole in the treatment of blepharitis", *Eye 4(Pt 1)*, pp. 151–159, 1990.

- [3] J.M. Doughert, J.P. McCulley, “Comparative bacteriology of chronic blepharitis” Br J Ophthalmol, vol. 68, pp. 524–528, 1984.
- [4] K.K. Nichols, “The international workshop on meibomian gland dysfunction: introduction”, Invest Ophthalmol Vis Sci., vol 52, pp. 1917–1921, 2011.
- [5] E. Knop, N. Knop, T. Millar, H. Obata, D.A. Sullivan, “The international workshop on meibomian gland dysfunction: report of the subcommittee on anatomy, physiology, and pathophysiology of the meibomian gland”, Invest Ophthalmol Vis. Sci., vol. 52, pp. 1938–1978, 2011.