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Research Article

ASSOCIATION OF MEIBOMIAN GLAND DYSFUNCTION WITH PHLYCTENULAR KERATOCONJUNCTIVITIS

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A R T I C L E I N F O

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A B S T R A C T

AIM: To observe the meibomian gland dysfunction (MGD) in patients of phlyctenularkeratoconjunctivitis (PKC).
Method: In cross sectional study, 50 patients with PKC who visited the ophthalmic OPD in the duration of January 2019 to December 2019 were taken into consideration . All patients underwent general, systemic and ocular examination including visual acuity, fluorescence staining, schirmer's test, tear film breakup time (TBUT) and meibomian gland assessement. Meibomian glands of both the lids which coincides with the location of phlycten were assessed on the basis of meibum quality and expressibility of glands and then patients were categorized into four stages according to above mentioned criteria.
Result: Total 52 eyes of 50 patients were studied with 56% females. TBUT and Schirmer's test were normal in most of the patients. Meibomian gland assessment suggested 44% eyes with stage 2 MGD followed by 24% eyes with stage 3 that coincide with location of phlycten.
Conclusion: It can be concluded that MGD can be one of the cause of PKC as MGD was found in meibomian glands which was coinciding with location of phlycten with higher prevalence in females.

INTRODUCTION

Phlyctenularkeratoconjunctivitis is a nodular inflammation and nonspecific allergic response to foreign antigen in the cornea or conjunctiva having high prevalence among childrens and young adults. Before the 1950, phlyctenular keratoconjunctivitis presented as a consequences of tuberculosis resulting due to hypersensitivity of tuberculin protein. With the improvement in health services and decreasing rates of tuberculosis, phlyctenularkeratoconjunctivitis was reported in patients with negative tuberculin test. Other factors that shows association are staphylococcus aureus, propionibacterium acne, worm infestation, fungi, viruses, ocular rosacea and nutritional deficiency[3].

Some clinical and experimental findings suggested that meibomian gland dysfunction may plays a role in the pathogenesis of phlyctenularkeratoconjunctivitis as the nodular inflammation of cornea and conjunctiva causes the friction between the eyelid and ocular surface leading to meibomian gland loss in the patients. It may result in alteration of tear film, symptoms of eye irritation, clinically apparent inflammation and ocular surface disease[5]. Relation between meibomian gland dysfunction and phlyctenularkeratoconjunctivitis received gross attention after Suzuki and colleagues gave the concept of meibomitis related keratoconjunctivitis (MRKC) which presents as corneal nodule with vascularization, conjunctival infection and meibomitis and divided it in two types : phlyctenular and nonphlyctenular keratoconjunctivitis[6].

Not much studied has conducted yet on this association still out of that studies some studies shows strong association and some showed weak association in between the two therefore study of meibomian gland dysfunction in phlyctenularkeratoconjunctivits patients can help to understand the pathogenesis and association in between the two that can help in appropriate treatment and visual outcome of the patients.

In this study we aim to assess the grading and severity of meibomian gland dysfunction in PKC patients by examination of eyelid margins and meibomian glands.

MATERIALS AND METHODS

All patients with PKC came to ophthalmic OPD at tertiary care centre in central India from January 2019 to December 2019 who fulfilled the inclusion criteria and met no exclusion criteria were included in the study. Inclusion criteria-1)All patients of phlyctenular keratitis and phlyctenular conjunctivitis. 2) Those who are willing to sign informed consent form. Exclusion criteria-1) History of Chemical burns and ocular injuries 2) Congenital disease associated with MGD.3) History of any Systemic medication: 13 cis retinoic acid, antiandrogen agent and Topical medication: epinephrine,

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anti glaucoma. 4) H/O Contact lens wear. 5)Neoplastic Lid disease.

After taking a written informed consent, a comprehensive history was taken which included detailed ocular and systemic (Sjogren's syndrome, Stevens-Jhonson syndrome, psoriasis, hypertension and polycystic ovary syndrome) history, any medication (topical and syetemic) demography (age, sex) and laterality.

The ophthalmic examination included assessment of best corrected visual acuity on Snellens chart, flouroscence staining, schirmers test (ST), tear film breakup time (TFBUT), slit lamp examimatination of 5 meibomianglands of upper and lower lid each coinciding with the location of phlycten to assess meibum quality and glands expressibility. As per Geerling *et al*;(IOVS, special issue 2011,vol 52,no.4) grading of meibum quality and gland expressibility was decided. On the basis of grading patients are divided in 4 stages of MGD. Stage 1: Minimally altered secretions (grade 0) Expressibilty: 1, Stage 2: Mildly altered secretions (grade1) Expressibility:1 , Stage 3: Moderately altered secretions (grade 2) Expressibility: 2, Stage 4: Severely altered secretions (grade 3) Expressibility: 3.

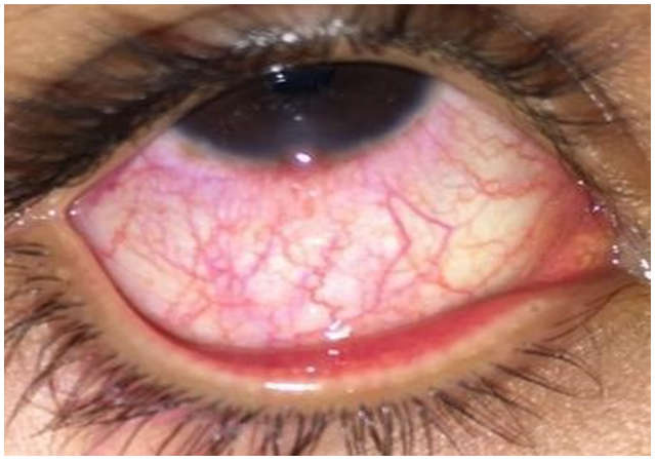

Fig 1 Slit Lamp Hotograph Showing Inferior Limbalnodule With Conjunctival Injection.

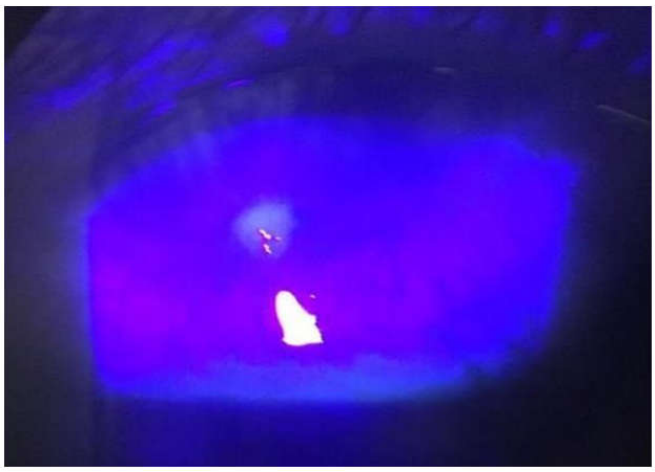

Fig 2 Showing Slit Lamp Photograph of Inferior Limbal Nodule Stained With Flouroscence Dye In Cobalt Blue Filter.

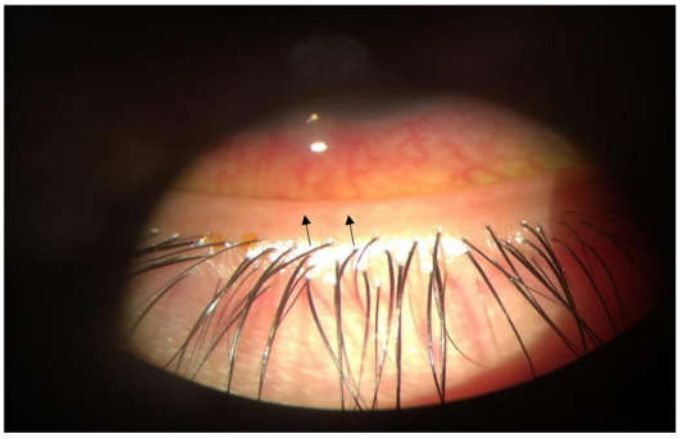

Fig 3 showing slit lamp photograph showing clogged meibomian gland orifice (black arrow) in lower lid coinciding with location of limbalphlycten.

RESULT

During the course of study 52 eyes of 50 patients were included in this study out of which 28 were females and 22 were males with the age ranges between 3 to 35 years having phlyctenularkeratoconjunctivitis as shown in table 1.

Table 1 Demographic Profile Study Subjects

Age Groups	Gender		Number of Study Subjects	Percentage(%)
	Male	Female		
3-10 YEARS	6	9	15	30
11-18 YEARS	10	13	23	46
19-26 YEARS	3	2	5	10
>27 YEARS	3	4	7	14
TOTAL	22	28	50	100

Table 1 shows that in our study age of patients was ranged from 3 years to 35 years with maximum study subjects(n=46) belonged to 11 to 18 years of age with more preponderance in females (n=28, 56%) than males (n=22,44%) with M:F ratio of 1:1.27.

A total of 29 cases (58%)out of 50 cases was fall in normal schirmer's test value (≥10mm) while 20% subjects had mild dry eye (6-10mm). only 14% subjects (n=7) fall in category of moderate dry eye while only 8%(n=4) fall in category of severe dry eye.

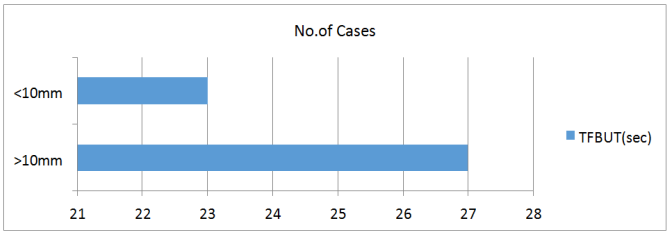

Fig 4 Showing TFBUT in phlyctenularkeratoconjunctivitis.

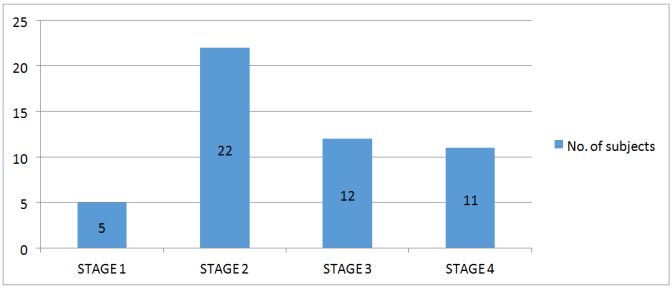

Fig 5 Showing distribuition of subjects according to staging of MGD

DISCUSSION

In this study slit lamp examination of meibomian glands expressibility and the quality of meibum revealed meibomian gland dysfunction in patients with phlyctenularkeratoconjunctivits with more prevalance in females. Previous studies have reported a relationship between phlyctenular keratitis and plyctenularconjunctivits and inflammation of eyelids and meibomian glands (1-4). Suzuki *et al* [2] (2005) evaluate the eyelid for meibomitis in patients of phlyctenular keratitis and their findings are consistent with our study. They suggest that lesion and severity of ocular surface manifestation corresponded well with location and severity of meibomitis with higher prevalence of disease in females. Suzuki *et al* [3] (2016) study also come out to be consistent with our findings. They assess MGD in phlyctenular keratitis patients with the help of non contact meibograph.

Schirmers test and tear film breakup time was found to normal in most of the patients in this study. Chhadva P *et al* [4](2017) find results that are in contrast to our study.

Limitation of our study were 1) we did not consider the bacterial culture of eyelids and meibomian gland. Bacteria like propionibacterium acne, staphylococcus aureus produce toxins and protease which might be the cause of meibomian gland pathology. 2) Non availibilty of non contact meibograph which can precisely measure the meibomian gland loss in patients. 3) patients group included twelve patients (>20years) thus ages could influence to meibomian gland pathology. 4) Owing to the smaller sample size generalizability of the results is not feasible to the PKC population. 5) We did not follow up the patients after giving antibiotic and steroids to evalute the meibomian gland normalization after disappearence of phlycten and associated inflammation. Thus further investigation revealing the relationship between meibomian gland dysfunction and phlyctenularkeratoconjunctivitis is required.

CONCLUSION

Slit lamp examination of meibomian glands in patients of Phlyctenularkeratoconjunctivitis revealed that MGD might be associated with Phlyctenularkeratoconjunctivitis with higher prevalence in females.

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