



AETIOLOGY & MANAGEMENT OF CORNEAL PLAQUE

Ophthalmology

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ABSTRACT

AIM: A prospective study on the aetiology and management of corneal plaques. **MATERIALS AND METHODS:** Study involves 47 eyes of 47 patients with corneal plaque over a period of 2 years, from June 2017 to May 2019 being evaluated for aetiology and managed accordingly.

KEYWORDS

Corneal Plaque, Penetrating Keratoplasty, Vkc, Corneal Ulcer

INTRODUCTION:

Corneal plaque¹ by definition is a distinct abnormal raised semi-hardened patch on the corneal epithelium. It is an opaque corneal epithelial lesion causing reduction of vision. Epithelial plaque denotes local hyperplasia and cornification of cornea. When there is a loss of anterior corneal tissue, a natural healing process takes place in which the area is filled in by thickened epithelium. This is important because by far the largest percentage of refraction is that which occurs at the anterior cornea, or, more properly, the air-tear interface over the anterior cornea.² Corneal epithelial hyperplasia (CEH) is also observed during routine histopathologic examination in a variety of common corneal diseases marked by stromal loss or ectasia.² Another entity, Corneal mucous plaques are abnormal collections of a mixture of mucus, epithelial cells, and proteinaceous and lipoidal material that adhere firmly to the corneal surface.³ The plaques also may enmesh calcareous granules and bacteria, as well as dust particles and other foreign bodies. An abnormality of the exposed surface of the superficial corneal epithelial cells, excessive mucous formation, and the presence of epithelial receptor sites for the plaque elements predispose to this condition.³

The causes of Corneal plaque are: Vernal Keratoconjunctivitis, Infectious Keratitis, Contact Lens Related, Post -Penetrating Keratoplasty, Lasik, Keratoconjunctivitis Sicca, Band keratopathy, Keratomalacia, Systemic Collagen and Autoimmune Disorder, Idiopathic.⁴

METHODOLOGY:

A total of 47 eyes of 47 patients who attended VSSIMSAR, BURLA OPHTHALMOLOGY OPD within a study period of June 2017 to May 2019 with corneal plaque were included in the study and enquired for history of the same, any associated ocular pathology, duration of it, any medications used.

INCLUSION CRITERIA:

1. Epithelial plaques
2. Patients consenting for taking part in the study

EXCLUSION CRITERIA:

1. Endothelial plaques
2. Active Corneal ulcer
3. Grade I shield ulcer

Detailed anterior segment examination was done. Visual acuity, slit lamp evaluation, fluorescein staining, TBUT, Schirmer's test, scrapping of plaque for microbiological study were done for every patient.

RESULTS AND DISCUSSION:

After complete ocular and systemic examination following causes are identified as mentioned in Table 1:

TABLE 1: AETIOLOGY OF CORNEAL PLAQUES

CAUSES	NO. OF PATIENTS
POST-CORNEAL ULCER	15
VERNAL KERATOCONJUNCTIVITIS	6
INFECTIOUS KERATITIS	9
KERATOCONJUNCTIVITIS SICCA	2
BAND KERATOPATHY	6
KERATOMALACIA	3
POST-PENETRATING KERATOPLASTY	2
IDIOPATHIC	4

Post corneal ulcer patients presenting with corneal plaque, where only epithelium was involved –6 patients underwent debridement. In patients having Descemet's and deeper stroma involvement – 9 patients underwent Therapeutic keratoplasty.

VKC patients with shield ulcer were graded according to CAMEROON's grading⁵ and managed. Grade II ulcers with plaque- 4 were debrided and sent for culture. 1 of the case showed recurrence after a week and was given Amniotic membrane transplantation (AMT) after debridement. 2 cases of Grade III ulcer with plaque were debrided with AMT.

Out of 9 infectious keratitis with plaque, 3 were positive for fungal elements, 1 showed Staphylococcus epidermidis, 2 showed staphylococcus aureus, 2 showed Mycobacterium tuberculosis, 1 showed microsporum in microbiology evaluation, and were treated accordingly. 1 fungal keratitis, 1 bacterial keratitis didn't improve with conservative measures and underwent Therapeutic keratoplasty.

KCS patients were treated for dry eye with artificial tear substitutes and topical mucolytics. 1 patient underwent plaque removal, with no recurrence till date.

In Band keratopathy cases, complete systemic examination was done and all under went EDTA chelation. In 2 failed cases we went for Phototherapeutic keratectomy.

Keratomalacia cases were given Vit A supplements and are under observation.

In two patients who underwent Therapeutic keratoplasty following post-corneal ulcer plaque had recurrence of plaque over the graft. In 1 patient it was debrided, on microbiologic evaluation no organisms could be detected. In the other patient, there was recurrence even after debridement, which also involved Bandage contact lens given. The patient underwent repeat-penetrating keratoplasty.

In 4 cases the cause couldn't be established and after ruling out other associations, Therapeutic keratoplasty was done.

TABLE 2: MICROBIOLOGICAL RESULTS

ORGANISM	NO. OF CASES
STAPHYLOCOCCUS EPIDERMIDIS	1

STAPHYLOCOCCUS AUREUS	2
MYCOBACTERIA TUBERCULOSIS	2
MICROSPORUM	1
FUNGI	3
STERILE	36

As shown in Table 2, majority of the cases were sterile showing no growth on microbiological studies. As above the patients were treated according to cause. Therapeutic keratoplasty was reserved for idiopathic and treatment failure cases.



CONCLUSION:

In our study majority of the cases were post-corneal ulcer, so to avoid such complications, treatment should be early and rigorous for each ulcer patient. Rest other cases were managed according to causes. However, a more detailed study including histopathology also is needed to understand the pathology of corneal plaques.

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