

CAUSES OF MICROBIAL KERATITIS IN PATIENTS ATTENDING AN EYE CLINIC AT PESHAWAR

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ABSTRACT

Background: Microbial keratitis is a potentially sight threatening disorder and the leading cause of monocular blindness worldwide. This study was conducted to find out the causes of microbial keratitis in our set up.

Patients & Methods: It was a prospective study performed at Augenklinik, Khyber Medical Centre, Peshawar, from January 2007 to December 2009. Patients with infective corneal ulcers were included in the study. Age, sex, cause of ulcer and the results of scrapping were recorded.

Results: In 100 patients with clinically diagnosed microbial keratitis, 67(67%) were males and 33(33%) females. Nineteen (19%) were children <16 years, 69(69%) adults 17-60 years, and 12(12%) were old >60 years of age. Ocular trauma was the most common cause found in 39(39%) patients. Twenty-two (22%) cases showed positive culture. Pseudomonas was the most common organism cultured in 5(5%) of the cases.

Conclusion: Corneal infections are more common in the middle aged men. Ocular trauma is the leading cause. Pseudomonas is the most common organism causing bacterial keratitis.

Key words: Corneal ulcer, Infective keratitis, Microbial keratitis.

INTRODUCTION

Microbial keratitis is a potentially sight threatening disorder and the leading cause of monocular blindness worldwide.¹ Infectious keratitis can be caused by various pathogens i.e. bacteria, fungi, viruses, and parasites. Specific treatment requires accurate identification of the causative organism. Thus it is necessary to perform laboratory studies including microscopy and culture of a corneal scrapping.² The etiologic and epidemiologic pattern of corneal ulceration varies with the patient population, geographic location, and climate, and it tends to vary somewhat over time.³

The objective of this study was to identify the causes of microbial keratitis in patients attending Augenklinik, Khyber Medical Centre, Dabgari Garden Peshawar.

PATIENTS AND METHODS

This was a prospective observational study conducted at Augenklinik, Khyber Medical Centre, Dabgari Garden Peshawar. All patients with microbial keratitis attending the clinic who gave informed consent were included in the study from January 2007 to December 2009.

Age, sex, cause of corneal ulcer and the results of scrapping were recorded on a standard proforma.

RESULTS

Among 100 patients clinically suspected of microbial keratitis 67 (67%) were males and 33 (33%) females. Nineteen (19%) were children (<16 years), 69 (69%) adults (17-60 years), and 12 (12%) were old (>60 years).

Microbial keratitis occurred due to trauma in 39 (39%), steroid use 4 (4%), contact lens wearing 2 (2%), corneal scar 1 (1%), lagophthalmos 1 (1%), lid coloboma 1 (1%), trichiasis /entropion 1 (1%), previous ocular surgery 3 (3%), diabetes 2 (2%), chronic dacryocystitis 4 (4%), dry eye 1 (1%) and spontaneously in 40 (40%).

Twenty-two (22%) cases showed positive culture of which 13 (13%) were bacteria and 9 (9%) fungal isolates. Pseudomonas was isolated in 5 (5%) cases, Staphylococcus aureus 4 (4%), Streptococcus pneumoniae 1 (1%), Proteus 1 (1%) and mixed organisms in 2 (2%).

DISCUSSION

In our study males had a tendency to get corneal ulcer more than females, which may be

explained by males having more chances of accident or trauma than females due to more outdoor activities. This is similar to the other studies conducted in Thailand,² Malaysia,⁴ India⁵ and Oman.⁶ In contrast there is female preponderance in studies from Bahrain⁷ and England.⁸

In our study 69% were adults in the age group 17-60 years. These findings are similar to studies from Thailand² and India⁵ where corneal ulcer was common in middle age group and different from the study from Oman⁶ where corneal ulcer was more common in the elderly. A bimodal age distribution of patients presenting with microbial keratitis has been documented in previous studies, which may attribute to ocular trauma and contact lens related keratitis in younger group, and poor immunity and predisposing ocular disease in the older age group.^{9,10} In our study ocular trauma occurred in 39% cases and was the major cause of corneal ulcer. While non-surgical trauma is the principal cause of corneal ulcers in developing countries,^{10,11} pre-existing ocular disease and contact lens are common risk factors in the developed countries.¹¹⁻¹⁴ In a study from Oman⁶ of the eye conditions predisposing to corneal ulcer it was found that 24% had undergone intraocular surgery before the development of corneal ulcer. Eight percent patients showed trichiasis, 15.4% corneal degeneration, 5.85% had history of trauma, 2.12% gave history of contact lens, 1.59% were on local steroids, glaucoma was present in 14.36% and 2.5% had corneal opacity, 1% proptosis and 3.72% had blepharitis. Among the systemic diseases diabetes was noted in 8.5% patients while 1 patient was debilitated.

In a study conducted in Thailand² on 214 patients with corneal ulcers, 82.24% had at least one of the known predisposing risk factors. Antecedent ocular trauma was the most common cause in 44.39%, ocular surface disease in 14.48%, contact lens in 10.75%, chronic steroid use in 3.74%, underlying systemic diseases including diabetes, AIDS, stroke, cancer and myasthenia gravis in 8.8%. No predisposing factor was found in 17.76% patients.

In our study we did corneal scrapping for microbiological study. The result was positive in 22% patients. In a study at Oman⁶ 43.18% cases showed positive culture. The reason for low result in our study was that most of the patients had already used topical antibiotics before consulting the clinic.

Pseudomonas was the most common bacteria in our study. This is similar to other studies from Thailand,² Singapore,⁴ Bangkok,¹⁵ Hong Kong¹⁶ and China.¹⁷ In studies from France,¹¹ Australia¹⁸ and New Zealand¹⁴ coagulase ne-

gative staphylococci was the most common isolate.

In our study 2% patients had mixed growth. Mixed growth is not uncommon in corneal ulcers. In a study by Butler et al¹⁸ 11.1% had mixed growth of organism. In a study by Wong et al polymicrobial growth was found in 33% cases.¹⁴

Fungal hyphae were detected in 9% of cases on microscopy. Agricultural activity and related ocular trauma are the principal causes of fungal keratitis. Potassium hydroxide wet mount preparation is a simple and sensitive method for the diagnosis.¹⁹

CONCLUSION

Corneal infection is more common in the middle-aged men. Ocular trauma is the leading cause of microbial keratitis. *Pseudomonas* is the most common organism causing bacterial keratitis.

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