Journal of Cardiovascular Disease Research

ISSN: 0975-3583,0976-2833 VOL13, ISSUE 08, 2022

ORIGINAL RESEARCH

Assessment of clinical profile of P. insidiosum keratitis

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Received: 17 September, 2022 Accepted: 23 October, 2022

Abstract

Background: Pythium is an oomycete that causes a devastating infection of the cornea and has been reported to have a poor outcome. The present study was conducted to assess clinical profile of P. insidiosum keratitis.

Materials & Methods: 65 cases of P. insidiosum keratitis of both genders were selected. Demographic details, predisposing factors, clinical course, microbialresults, treatment, and visual outcomes were recorded.

Results: Out of 65 patients, males were 38 and females were 27. Risk factors were dust in 25, insect injury in 15, dirty water in 13 and unknown in 12 cases. Previous treatment done was anti- fungal in 20, antibacterial in 6, antifungal- antibacterial in 35 and no treatment in 4 cases. The difference was significant (P< 0.05). visual acuity6/6-6/60 was seen in 13, 5/60-1/60 in 20 and <1/60 in 32. Clinical presentation was dot like infiltrate in 18, tentacle like infiltrate in 32, peripheral furrowing in 8 and perforated corneal ulcer in 7 cases. The difference was significant (P< 0.05).

Conclusion: Common risk factors were dust, insect injury, dirty water and unknown. Clinical presentation was dot like infiltrate, tentacle like infiltrate, peripheral furrowing and perforated corneal ulcer.

Key words: antibacterial, Pythium keratitis, dot like infiltrate

Introduction

Increasing reports of Pythium keratitis in recent years has garnered much attention, with reports emerging from the Asia Pacific region.[1] Pythium is an oomycete that causes a devastating infection of the cornea and has been reported to have a poor outcome. It is a very difficult disease to treat with patients responding poorly to the conventional antifungal medication or to surgical procedures such as penetrating keratoplasty.[2]

The clinical and microbiological resemblance with fungus, absence of a standardized treatment protocol, relatively uncommon incidence, and aggressive nature of the disease are the challenges in the management of ocular pythiosis.[3] In India, few studies, mostly from Southern India, have been published on P. insidiosum keratitis.Keratitis due to Pythium does not scar easily and afflicted patients face a prolonged recovery often requiring multiple keratoplasty. This is an important issue of concern where the burden of corneal blindness due to microbial keratitis is already high.[4] Recognizing, and if possible, prevention of this devastating disease is very important.Clinical presentation of human pythiosis can be classified into 4 types: subcutaneous, vascular, ocular, and systemic. Consistent with other

ISSN: 0975-3583,0976-2833 VOL13, ISSUE 08, 2022

forms, ocular pythiosis has been proved to have extremely poor prognosis.[5]The present study was conducted to assess clinical profile of P. insidiosum keratitis.

Materials & Methods

The present study comprised of 65 cases of P. insidiosum keratitis of both genders. All were informed and their written consent was obtained.

Demographic details, predisposing factors, clinical course, microbialresults, treatment, and visual outcomes were recorded. Corneal scrapings were collected under topical anesthesia using 0.5% proparacaine. The eyes with positive fungal smears were treated with 5% natamycin suspension. Itraconazole was also used either alone orin combination with 1% azithromycin as topical drops. Postoperatively, all eyes were treated with voriconazole 1% for 3 weeks.Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

Results

Table I Distribution of patients

Total- 65		
Gender	**Males**	**Females**
Number	38	27

Table I shows that out of 65 patients, males were 38 and females were 27.

Table II Assessment of parameters

Parameters	Variables	Number	P value
Risk factors	Dust	25	0.81
	Insect injury	15	
	Dirty water	13	
	unknown	12	
Previous treatment	Antifungal	20	0.05
	antibacterial	6	
	Antifungal- antibacterial	35	
	No treatment	4	

Table II shows that risk factors were dust in 25, insect injury in 15, dirty water in 13 and unknown in 12 cases. Previous treatment done was anti- fungal in 20, antibacterial in 6, antifungal- antibacterial in 35 and no treatment in 4 cases. The difference was significant (P< 0.05).

Table III Visual acuity & clinical presentation

Parameters	Variables	Number	P value
Visual acuity	6/6-6/60	13	0.05
	5/60-1/60	20	
	<1/60	32	
clinical presentation	Dot like infiltrate	18	0.02
	Tentacle like infiltrate	32	
	Peripheral furrowing	8	
	Perforated corneal ulcer	7	

Table III, graph I shows that visual acuity6/6-6/60 was seen in 13, 5/60-1/60 in 20 and <1/60 in 32. Clinical presentation was dot like infiltrate in 18, tentacle like infiltrate in 32, peripheral furrowing in 8 and perforated corneal ulcer in 7 cases. The difference was significant (P< 0.05).

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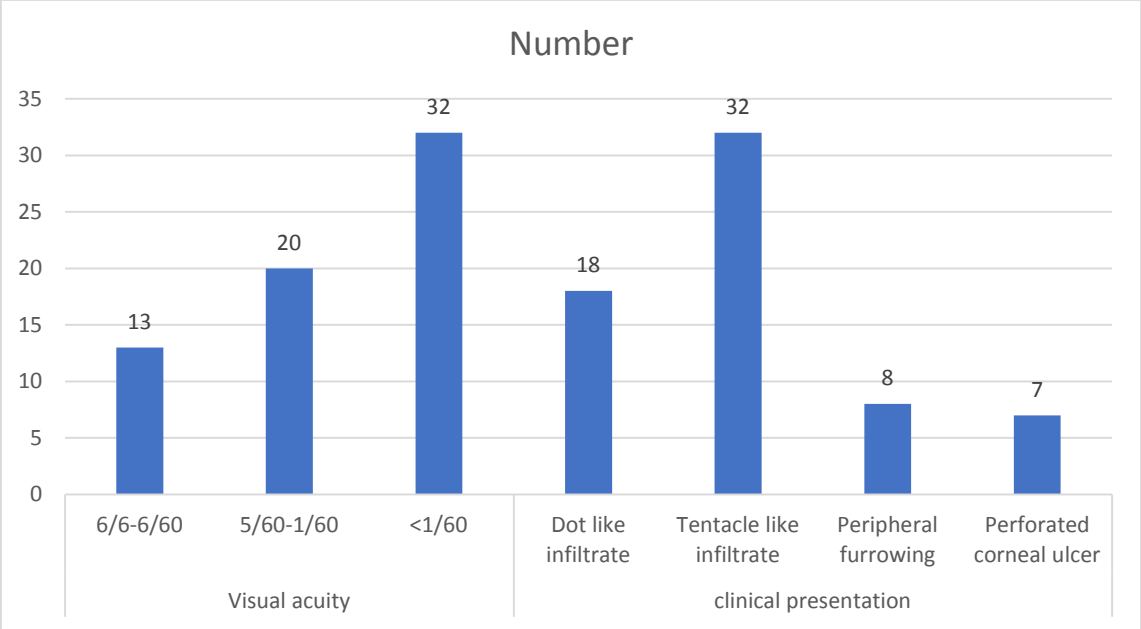
Graph I Visual acuity & clinical presentation



Discussion

Increasing reports of Pythium keratitis in recent years has garnered much attention, with reports emerging from the Asia Pacific region.[6] Pythium is an oomycete that causes a devastating infection of the cornea and has been reported to have a poor outcome. It is a very difficult disease to treat with patients responding poorly to the conventional antifungal medication or to surgical procedures such as penetrating keratoplasty.[7] Major reports of both systemic and ocular infections being caused by Pythium insidiosum are found to be endemic there because of their climatic conditions. Pythium insidiosum keratitis is an uncommon but sight-threatening disease with high morbidity.[8] It occurs when the cornea is infected by Pythium insidiosum (P. insidiosum). P. insidiosum, belonging to the kingdom Stramenopila, is a fungus-like, aquatic oomycete found in tropical, subtropical, and temperate climates. It was long misrecognized as a fungus due to its fungus-like morphologic characteristics.[9] The present study was conducted to assess clinical profile of P. insidiosum keratitis.

We found that out of 65 patients, males were 38 and females were 27. Vishwakarma et al[10]studied demography, clinical profile, laboratory diagnosis, and management of Pythium keratitis. Pythium keratitis commonly affects middle-aged males with low socioeconomic profile and history of trauma. Samples stained with Gomori methenamine silver showed 93.8% positivity and Iodine-potassium iodide-sulfuric acid showed 100% positivity. Periodic acid-Schiff's showed negative staining in 62.5% and weak in 37.5%. Kirby-Bauer disc diffusion method showed zone of inhibition as 30.25 ± 4.61 mm for Linezolid and 23.56 ± 6.86 mm for Azithromycin. Medical management included topical/oral linezolid and azithromycin. Therapeutic penetrating keratoplasty (TPK) was done in 15 eyes (83.3%), repeat TPK in 4 eyes, and evisceration in 3 eyes (16.7%). One patient required only medical treatment. Globe salvation was obtained in 15 (83.3%) eyes, and good visual outcome in 7 eyes (38. 9%). There was graft failure in six eyes (40%) and two (11.1%) eyes went into phthisis. Patients were divided into early and late presenters. Late presenters had more complications and worse final visual outcome.

We observed that risk factors were dust in 25, insect injury in 15, dirty water in 13 and unknown in 12 cases. Previous treatment done was anti- fungal in 20, antibacterial in 6, antifungal- antibacterial in 35 and no treatment in 4 cases. Hasika et al[11] studied demographic profile, clinical features, treatment outcome, and ocular morbidity of microbiologically

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proven Pythium keratitis. Seventy-one patients with microbiologically proven Pythium keratitis were identified. The mean age was 44(±18.2) years with an increase in male preponderance and 50% were farmers. Duration of delay at time of presentation to the hospital was a mean of 14(±7.2) days. The visual acuity at baseline ranged from 6/6 to no light perception (median 2.1 logMAR). A combination of 5% natamycin and 1% voriconazole was given to 42% patients, and natamycin alone was given to 39.4% patients. 1% itraconazole eye drops alone was initiated in 7 (10%) patients and 3 among this group responded. Therapeutic keratoplasty (TPK) was performed in 48 (67.6%) patients. None of the primary grafts remained clear after a period of 1 month. Twenty-six eyes (54.2%) had graft reinfection and all these eyes either developed anterior staphyloma (4) or were eviscerated (3) and 13 eyes became phthisical. The remaining 22 patients who had TPK resulted in failed graft. Among these, re-grafts were performed in 6 patients, of which 5 were doing well at the last follow-up.

We found that visual acuity6/6-6/60 was seen in 13, 5/60-1/60 in 20 and <1/60 in 32. Clinical presentation was dot like infiltrate in 18, tentacle like infiltrate in 32, peripheral furrowing in 8 and perforated corneal ulcer in 7 cases. Sood et al[12]assessed the cases of Pythium insidiosum keratitis. 84 cases of Pythium keratitis of both genders were included. In all patients, clinical course and visual outcome were analyzed Out of 84 patients, males were 52 and females were 32. The common risk factors were dust in 50, dirty water in 12, insect injury in 14 and unknown in 10 cases. Clinical appearance was tentacle like infiltrate in 36, dot like infiltrate in 20, peripheral furrowing in 15 and total corneal ulcer in 13 cases. Medical therapy was Natamycin + voricanazole in 40, natamycin in 22, Itraconazole nin 18 and itraconazole + azthromycin in 4 cases.

The limitation the study is small sample size.

Conclusion

Authors found that common risk factors were dust, insect injury, dirty water and unknown. Clinical presentation was dot like infiltrate, tentacle like infiltrate, peripheral furrowing and perforated corneal ulcer.

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