



E-ISSN: 2663-8274
P-ISSN: 2663-8266
www.opthalmoljournal.com
IJMO 2024; 6(2): 11-14
Received: 11-05-2024
Accepted: 19-06-2024

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Management of corneal ulcer with hypopyon: A case report and review of current guidelines

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DOI: <https://doi.org/10.33545/26638266.2024.v6.i2a.197>

Abstract

This case report presents the clinical course, diagnosis, and management of a 49-year-old male with a corneal ulcer complicated by hypopyon. The patient experienced ocular trauma, which progressed to a severe infection in the left eye. Despite initial treatment with antibiotics, the condition worsened, necessitating hospitalization and intensified therapy. This report critically evaluates the therapeutic approach in light of current guidelines and recent literature, emphasizing the importance of early intervention and appropriate microbial identification to guide treatment.

Keywords: Corneal ulcer, hypopyon, ocular trauma, eye infection, case report

Introduction

Corneal ulcers are a significant cause of ocular morbidity and can lead to severe visual impairment or blindness if not treated appropriately. These ulcers often result from infections, trauma, or pre-existing ocular conditions. The presence of hypopyon, a collection of white blood cells in the anterior chamber, further complicates the clinical management and often indicates a severe infection. This report discusses a case of corneal ulcer with hypopyon following ocular trauma and reviews the therapeutic approach in light of the latest guidelines [1-6].

Case Illustration

A 49-year-old male farmer presented to the emergency department with complaints of blurred vision and a foreign body sensation in his left eye, which had persisted for two weeks. The patient reported that his symptoms began after an incident involving a piece of coconut tree debris striking his eye. Initial treatment with topical antibiotics and anti-inflammatory agents by a local ophthalmologist was ineffective, leading to the worsening of symptoms, including the development of white spots on the cornea.

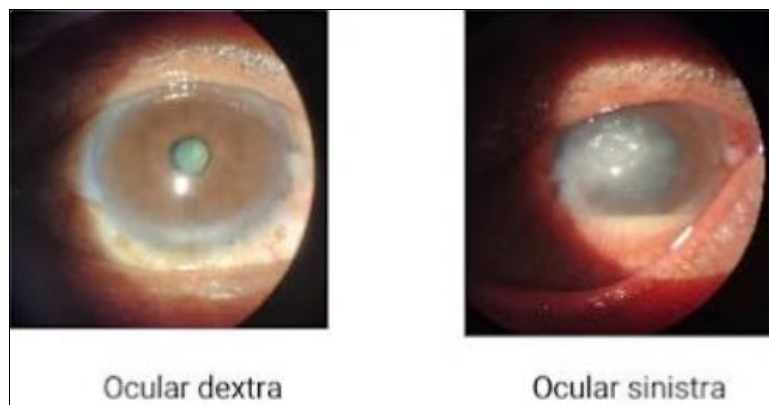


Fig 1: Eyes patient's on examination

Upon examination, the patient's visual acuity was significantly reduced, and the left eye showed signs of corneal opacity, epithelial defects, and hypopyon. The posterior segment could not be adequately assessed due to corneal opacity. Laboratory tests, including a complete blood count and glucose levels, were within normal limits. The patient was diagnosed with a corneal ulcer with hypopyon and was admitted for intensive treatment,

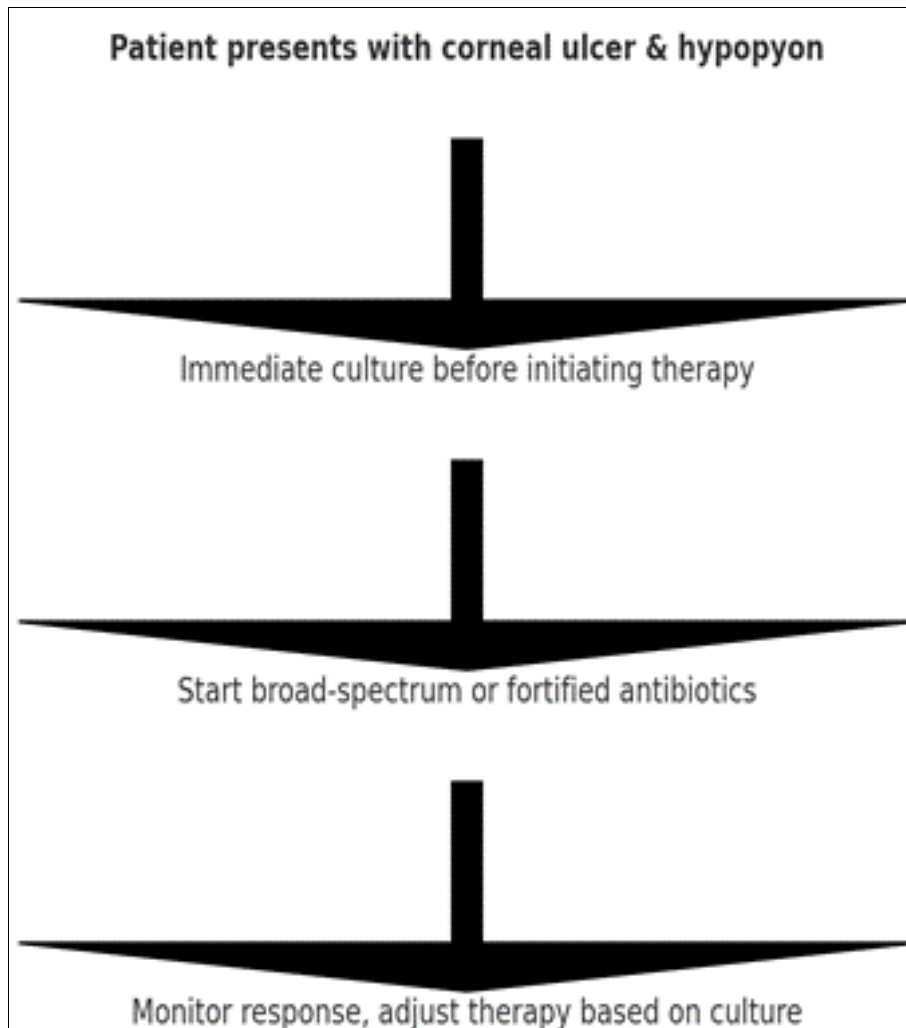
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including intravenous antibiotics, topical antifungals, and supportive care.

Results and Discussion

The management of corneal ulcers, particularly those complicated by hypopyon, requires a multidisciplinary approach. In this case, the patient's condition improved with aggressive therapy, including both systemic and topical treatments. However, the risk of complications, such as corneal scarring and secondary infections, remains high,

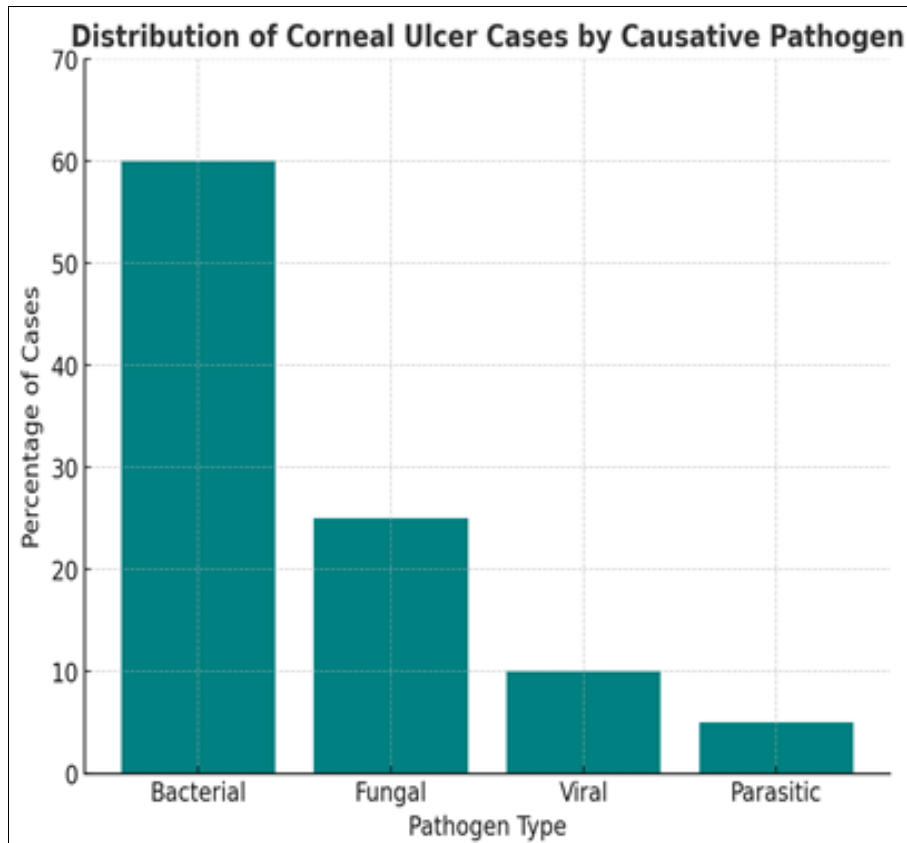
emphasizing the need for early intervention and appropriate treatment [7-9]. Current guidelines suggest that for severe bacterial corneal ulcers, especially those involving gram-negative bacteria like *Pseudomonas*, double coverage with fortified antibiotics is recommended until the organism is identified. In cases where fungal infection is suspected, antifungal agents such as natamycin or voriconazole should be initiated. The use of corticosteroids in treating corneal ulcers is controversial and should be considered only after confirming infection control [10-12].



Flowchart 1: Early diagnosis algorithm

In this case, initial empirical treatment without prior culture, as employed, may have reduced the likelihood of identifying the exact pathogen. Best practices now suggest obtaining cultures before starting antibiotic therapy to ensure targeted

and effective treatment. Additionally, the importance of close follow-up and therapy adjustment based on clinical response and culture results cannot be overstated, particularly in severe or non-responsive cases [13-15].



Graph 1: Distribution of causative pathogen of corneal ulcer cases

Table 1: Summary of Treatment Approaches and Outcomes

Treatment Approach	Guideline Recommendation	Outcome in this Case
Empirical Antibiotic Therapy	Culture before treatment	Started without culture, risk of misidentifying pathogen
Use of Moxifloxacin	Fortified antibiotics for severe cases	Standard first-line, but may lack coverage for severe infections
Corticosteroids	Use cautiously, after confirming infection control	Not specified in this case
Follow-up and Monitoring	Frequent adjustments based on clinical response	Hospitalization after deterioration

The management of corneal ulcers, particularly those complicated by hypopyon, requires a multidisciplinary approach. In this case, the patient's condition improved with aggressive therapy, including both systemic and topical treatments. However, the risk of complications, such as corneal scarring and secondary infections, remains high, emphasizing the need for early intervention and appropriate treatment [1].

Current guidelines suggest that for severe bacterial corneal ulcers, especially those involving gram-negative bacteria like *Pseudomonas*, double coverage with fortified antibiotics is recommended until the organism is identified [2]. In cases where fungal infection is suspected, antifungal agents such as natamycin or voriconazole should be initiated [3]. The use of corticosteroids in treating corneal ulcers is controversial and should be considered only after confirming infection control [4].

In this case, initial empirical treatment without prior culture, as employed, may have reduced the likelihood of identifying the exact pathogen. Best practices now suggest obtaining cultures before starting antibiotic therapy to ensure targeted and effective treatment. Additionally, the importance of close follow-up and therapy adjustment based on clinical response and culture results cannot be overstated, particularly in severe or non-responsive cases [5].

Conclusion

This case underscores the importance of early recognition

and aggressive treatment of corneal ulcers with hypopyon. The complexity of these cases demands a comprehensive approach that includes both standard and advanced therapeutic modalities. Continued research and innovation in treatment strategies are critical to improving patient outcomes in such challenging clinical scenarios.

Conflict of Interest

Not available.

Financial Support

Not available.

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How to Cite This Article

Nafi' EYA, Rijal S. Management of corneal ulcer with hypopyon: A case report and review of current guidelines. *International Journal of Medical Ophthalmology*. 2024;6(2):11-14.

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