Clinical Profile of Herpes Simplex Keratitis

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Abstract

Aims
- To document the various clinical presentations and to assess the risk factors contributing to herpes simplex keratitis
- To correlate smear results and serology with various clinical presentations of herpes simplex keratitis
- To assess the results of specific therapy and follow up
- To document the incidence of recurrence.

Methods: This is a prospective case series study conducted at RIO Calicut. 45 patients with clinical features suggestive of herpes simplex keratitis were evaluated. Serological examination done in all cases and giemsa staining of corneal scrapings done in case of epithelial keratitis. All were given specific treatment.

Results: Initial Presentations of herpes simplex keratitis were mainly in the age group of 40 to 50, of which 80% were unilateral. Their main symptoms were redness and dim vision and a history of triggering factor could be elicited in about 50% cases, of which most common was stress. Giemsa staining showed multinucleated giant cells in 42% cases of epithelial keratitis. Serology has got less sensitivity. Recurrence was mainly due to fever. Most common complication was persistent opacity.

Conclusion: Diagnosis is mainly based on clinical presentation; even though various types of investigations are available. Proper treatment can prevent complications.

Key Words: Herpes Simplex Keratitis, Giemsa

Introduction

Herpes simplex keratitis is a leading cause of corneal blindness worldwide. Herpes simplex keratitis (HSK) results from an infection with the Herpes simplex virus type 1 [HSV-1]. The virus produces a variety of clinical manifestation due to its ability to infect a host and establish an indefinite and latent presence in the neuronal ganglia.

Visual loss usually occurs from the cumulative effect of multiple recurrences. Each attack produces additional scarring, vascularisation and thinning. The major factors which dictate the severity of recurrent herpès are: immune response of the host, the viral strain, and treatment.

This study is intended to find out the various clinical presentations of herpetic keratitis in our population and also to identify the factors which can predispose to infection and trigger reactivation. Present study also aims to find out the relevance of investigation for confirmation of diagnosis and also assessed the response to treatment.

Aim of the study
1. To document the various clinical presentations of herpes simplex keratitis
2. To assess the risk factors contributing to herpes simplex keratitis
3. To correlate smear results and serology with different clinical presentations
4. To assess the result of specific therapy and follow up
5. To document the incidence of recurrence

Materials and Methods

This prospective case series study on patients presenting with clinical features suggestive of herpes simplex keratitis was undertaken from a period of 18 months from 1st January 2008 to June 30th 2009 in ophthalmology Department of Calicut Medical College. The follow up period for this study is 6 months.

All patients with corneal disease with symptoms and signs suggestive of herpes keratitis and having decreased corneal sensation were taken for the study. These patients came to the hospital with different clinical presentations like redness, watering, watery discharge, photophobia, dimness of vision, or lid vesicles etc.

A total of 45 patients were taken up for the study, evaluated in detail which includes serologic examination in all cases and Giemsa staining in required cases. In each case a detailed history was taken. These include the presenting complaints of the patient, the eye affected, duration of symptoms, any previous ocular disease, any history of trauma, or any other triggering factors, any drug history, or any other systemic illness. Then a detailed general and systemic examination were carried out for lymphadenopathy, oral lesions etc. The eyes were examined first under diffuse light and then under slit lamp. The eyes were examined for the presence of periorcular involvement, laterality, conjunctival and circumcorneal congestion, type of corneal involvement whether epithelial, stromal or endothelial, any uvetis and for any complications like glaucoma. Best corrected visual acuity was noted in all cases.

IgM HSV examination was done in all cases in the first visit.
ELISA was done using HSV kit which is a Purified HSV antigen coated microassay plate having 96 wells. The reference value is seronegative if IgM < 1:10. Corneal scraping taken in all cases with epithelial involvement. Patients were then given specific treatment according to the type of keratitis. The patients were kept under follow up to assess the response to treatment and to look for complications and recurrences. In case of recurrence, type of keratitis, interval from the primary presentation, type of keratitis were noted. The patients were asked about any triggering factors and they were given specific treatment.

**Observation and Discussion**

In this study following observations have been made regarding herpes simplex keratitis.

1. **Gender:** In our study females outnumbered males by 5%.
2. **Age of first presentation:** In the study most common age group for first presentation was 40-50 [26.7%]. Followed by 20-40 age group [20%].
3. **Laterality:** In the present study 17.8% cases were bilateral. Bilateral cases were mainly epithelial keratitis. Of the bilateral cases 75% cases were SPK’s and one was having dendritic ulcer and one stromal keratitis.
4. **Presenting symptoms:** Of the 45 patients 93.3% had complaints of redness. 62.2% cases had complaints of pain. 53.3% patients complained of watering. Only 2.2% cases had lid vesicles i.e., only one case. About 88.9% cases [40] had defective vision. So of the complaints, most common was redness, then diminution of vision and the least was that of lid vesicles (Table-1).
5. **Types of lesion:** In this study 53.4% cases were epithelial keratitis with SPK’s 35.6% and dendritic lesions 17.8%. Stromal keratitis was 26.7% and endothelitis 17.8%. Only one [2.2%] patient presented with primary herpes (Fig-1,2,3,4) (Table-2).
6. **IgM positivity:** In this study IgM positivity was found in 33.3% cases. But values were different for different types of keratitis. This shows that IgM positivity cannot be taken as a sole criterion for the diagnosis of herpes keratitis.
7. **GIEMSA staining:** Giemsa staining of corneal scrapings showed multinucleated giant cells in 41.67% cases of epithelial keratitis. Giemsa was done in epithelial keratitis only. This shows that Giemsa can provide a clue to the presence of HSV infection in suspected cases (Table-3).
8. **Triggering factors in first presentation:** In the present study history of some triggering factors could be elicited in 53.3% cases. Of the triggering factors most common was stress 15.6% followed by fever and trauma [11.1%]. Next is history of foreign body. Stress includes physical and mental stress. Mental stress includes stress at home, or occupation. (Table 4)
9. **Recurrence:** We got a recurrence rate of 20% [9 cases] during the follow up period. Of which 5 were stromal keratitis and 4 epithelial. In our study, epithelial keratitis recurred as either epithelial or stromal, but there was no recurrence of epithelial keratitis in stromal keratitis (Fig-5).
10. **Interval from first presentation:** In the present study average interval of recurrence was found to be between 2 to 3 months. (Table-5)
11. **Triggering factors for recurrence:** In our study we could elicit a triggering factor in 77.8% [7 out of 9] of recurrences. Four patients gave history of fever. Two had history of stress. And one patient had pemphigus vulgaris exacerbation, who was on treatment with steroids (Table-6).
12. **Complications:** All patients were routinely checked for any complications. Of the endothelitis patients three developed elevated intraocular pressure and one developed exacerbation and bullous keratopathy following cataract surgery [2.2%]. 8.8% cases developed persistent opacity (Table-8).

**Discussion**

1. **Herpes simplex keratitis was mainly unilateral [82.2%].** Of the bilateral presentations more common was superficial punctate keratitis. Females [53.3%] were more affected than males [46.67%] in our study.
2. **Initial presentation of herpes simplex keratitis in our study was mainly in the age group 40 to 50 [26.7%].** Of the presenting symptoms common symptoms were redness [93.3%], dim vision [88.9%], pain [62.2%], photophobia [51.1%], lid swelling [48.8%], watering [53.3%], and least common was lid lesions [2.2%].
3. In our study type of keratitis were mainly epithelial. 53.4% cases were epithelial keratitis [SPK’s 35.6% and dendritic lesions 17.8%]. Stromal keratitis was 26.7% and endothelitis 17.8%.
4. **Even with characteristic clinical features IgM was negative in [68.9%] cases.** So it cannot be considered as a sensitive test for herpes simplex keratitis. Giemsa staining of corneal scrapings showed multinucleated giant cells in 41.67% cases of epithelial keratitis.
5. **History of triggering factors could be elicited in 53.3% cases during primary presentation.** Of the triggering factors most common was stress [15.6%] followed by fever and trauma [11.1%]. Other triggering factors include foreign...
6. All the epithelial and endothelial keratitis responded well to treatment. But two stromal keratitis patients showed aggravation, whenever the medications were stopped and needed long term medication.

7. In this study we got a recurrence rate of 20%. Of which 5 were stromal keratitis and 4 epithelial keratitis. Epithelial keratitis recurred as either epithelial or stromal. None of the patients with stromal keratitis on recurrence, showed any epithelial involvement. Average interval from initial presentation was 2 to 3 months (6.7%). History of triggering factors could be elicited in 77.8% cases during recurrence. Four patients gave history of fever. Two had history of stress. And one patient had pemphigus vulgaris exacerbation, who was on treatment with steroids.

8. Complications were less, of which the most common was persistent corneal opacity (8.87% cases).

Since the diagnosis of herpes simplex keratitis is mainly based on proper history and clinical improvement, a careful evaluation with a high index of suspicion and appropriate management could restrict corneal damage and reduce incidence of severe visual loss.
Table 2: Type of keratitis on first presentation

<table>
<thead>
<tr>
<th>Type</th>
<th>Frequency</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>SPK</td>
<td>1</td>
<td>11.11</td>
</tr>
<tr>
<td>DU</td>
<td>3</td>
<td>33.33</td>
</tr>
<tr>
<td>SK</td>
<td>4</td>
<td>44.44</td>
</tr>
<tr>
<td>Necrotizing SK</td>
<td>1</td>
<td>11.11</td>
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<tr>
<td>TOTAL</td>
<td>9</td>
<td>100</td>
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Table 3: Giemsa positivity

<table>
<thead>
<tr>
<th>Type</th>
<th>Positive</th>
<th>Negative</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPK</td>
<td>4</td>
<td>12</td>
<td>25</td>
</tr>
<tr>
<td>Dendritic ulcer</td>
<td>6</td>
<td>2</td>
<td>75</td>
</tr>
<tr>
<td>TOTAL</td>
<td>10</td>
<td>14</td>
<td>41.67</td>
</tr>
</tbody>
</table>

Table 4: Triggering factors on primary presentation

Table 5: Interval of onset of recurrence from primary presentation

Table 6: Triggering factors on recurrence

Table 7: Type of keratitis on recurrence

Table 8: Complications

References
7. Herpetic Eye Disease Study.; Epithelial Keratitis Trial: A Controlled Trial For The Prevention Of Stromal Keratitis Or Iritis In Patients With Herpes Simplex Virus Epithelial Keratitis; Arch Ophthalmol;1997;115;703-712