

Case report

Herpes simplex virus: A case report and review of literatureMamatha Shetty¹, Deepa Sara John¹, Surabhi Durgapal¹, Urvashi Shetty²¹Department of Periodontics, ²Department of Oral Pathology and Microbiology, AB Shetty Memorial Institute of Dental Sciences, NITTE (Deemed to be University), Mangalore, Karnataka, India

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Corresponding author: **Urvashi Shetty**. Email: urvashishetty10@gmail.com**ABSTRACT**

Herpes simplex virus (HSV) is a double-stranded DNA virus that exists in two forms- HSV 1 and HSV 2. Oral herpetic lesions are typically caused by HSV-1. In the oral cavity, they are known to cause painful lesions that most commonly involve gingiva, palate, and buccal mucosa. Since it is a contagious infection and has the potential to cause complications in the host, timely diagnosis and management are important. Therefore, dental professionals must be aware of clinical presentation and appropriate diagnostic and management measures. The following case report discusses a case of Herpes Simplex Virus in a 33-year-old, systemically healthy female patient, who reported to the dental OPD with oral symptoms. The clinical features, investigations, diagnosis, and management of the condition have been elaborated in the review.

Keywords: Herpes; herpes simplex virus; oral herpetic lesion.**INTRODUCTION**

Most commonly occurring viral infection that affects about 60%-90% of adult population are associated with Herpes simplex virus (HSV). Although more than 80 different herpes viruses have been discovered, only eight of them are known to be human pathogens (1). All herpes viruses are found to have three similar characteristic features – the particle morphology, double-stranded DNA genome (120-250 kbp), and the potential for undergoing reactivation following a latent phase. HSV is a large, enveloped virus that has three classes of genes- alpha, beta, and gamma [2,3].

Oral herpes is an infection caused by HSV- type 1. Oral manifestation includes painful sores that involve lips, buccal mucosa, gingiva and palate. This case report discusses the classical presentation of the herpetic oral ulcer, its diagnosis, and management in a healthy female patient.

Case presentation

A 33-year-old female patient, with a chief complaint of pain in the upper right back region of the oral cavity for 5 days, reported to the Department of Periodontics, AB Shetty Dental College, Mangalore. The pain was persistent in nature and localized. It was also associated with a burning sensation while consuming spicy and hot food. History revealed the presence of small eruptions which developed in the palate area of the mouth in the past five days. No medications were taken for the same. Medical history was unremarkable, suggesting that the patient was systemically healthy. The patient did not report any history of fever or weakness. There was no significant family history and drug allergy. The patient neither reported any incidence of similar lesions in the past. The patient had undergone a routine dental checkup and oral prophylaxis one

month back. Extra orally, there were no abnormalities detected. Lymph nodes were not palpable.

Following the recording of history, an intraoral evaluation was performed. The examination revealed the presence of multiple small ulcers (1 x 1 mm) on the palate, adjacent to the premolar and molar area of the first quadrant. It was accompanied by a coalesced ulcer measuring 5 x 5 mm. The lesion was well defined and had an erythematous border (Fig. 1). It was soft and tender on palpation. The patient's oral hygiene was satisfactory.



Fig. 1: Intraoral presentation of herpetic ulcers in the palate. Multiple small ulcers coalesced to form a single large ulcer. The lesion had a well-defined erythematous border.

Based on history given by patient and clinical presentation of the coalesced pattern of the ulcer, a provisional diagnosis of Herpes simplex infection mucous membrane pemphigoid and traumatic ulcer were considered until further investigations.

Investigations

A smear and biopsy tissue were collected and sent for further histopathological investigations. Routine blood investigations were done to rule out other autoimmune disorders.

Histopathologic features

H&E-stained section shows the presence of intraepithelial vesicle formation along with acantholysis and ballooning degeneration of the cells at the floor of the vesicle. The underlying connective tissue consist of dense mixed inflammatory cells, lymphocytes along with few extravasated RBC s were seen (Fig. 2).

Histopathological examination of PAP-Stained smears showed altered epithelial cells exhibiting ballooning degeneration, few cells also show margination of chromatin and nuclear enlargement (Fig. 3).

Treatment

The patient was instructed to follow a nutritious diet and stay hydrated. The following medications were prescribed: To restrict spread of infection, Acyclovir, an antiviral drug, analgesic (Paracetamol 500 mg), for pain and use of Chlorhexidine mouthwash 0.2% was recommended for a week.

Recall and review

The patient was recalled after 15 days for follow-up. It was observed that the patient had responded well to the medication. The healing was satisfactory. (Fig. 4)

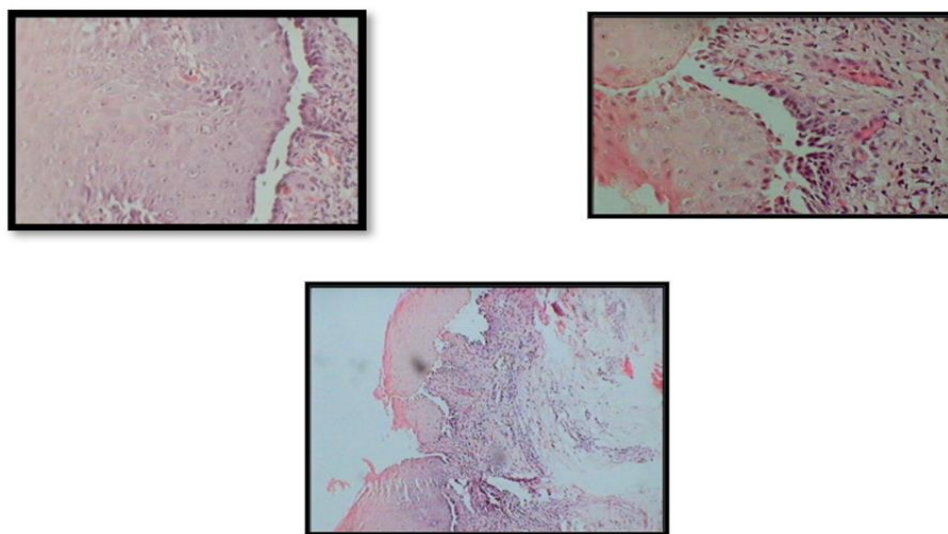


Fig. 2: (Low power magnification) H &E-Stained section shows intraepithelial vesicle along with ballooning degeneration of the cells at the floor of the vesicle .

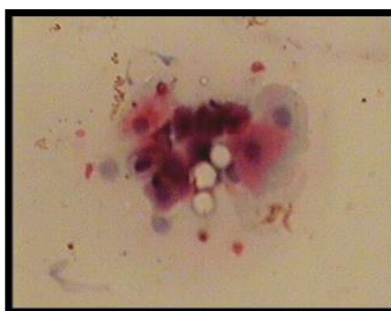


Fig. 3: Cytologic smear stained by PAP stain (100 X) shows altered epithelial cells exhibiting a mild form of ballooning degeneration ,margination of chromatin and nuclear enlargement



Fig. 4: Fifteen days follow-up showing satisfactory healing of the lesion

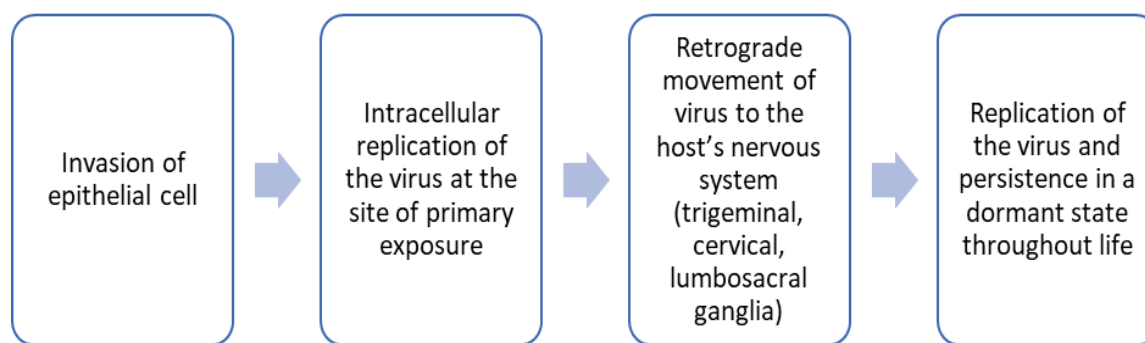


Fig. 5: Sequence of events that occur post exposure to Herpes Simplex Virus (HSV)

DISCUSSION

The herpetoviridae family comprises eight different types of human herpes virus. HSV is the most well-known amongst them. The other viruses include varicella-zoster, Epstein Bar Virus (EBV), HHV-6, HHV-7, HHV-8 and cytomegalovirus (4). HSV is further classified as HSV-1 (Herpes Simplex Virus-1), most commonly involves Oro-labial infections, pharyngeal infection, meningoencephalitis, and dermatitis above the waistline and HSV-2 (Herpes Simplex Virus -2), predominantly associated with genital infections (5). The primary mode of spread is by the direct exposure of the lesions or secretions of a patient with active infection to the mucous membrane (1). Infection may spread to the hands of the dental professional examining the patient shedding HSV and may result in herpetic whitlow (6). The two main features exclusive to HSV are its latency and reactivation (1). The sequence of steps that occur once the patient is exposed to HSV is described in Fig. 5.

In some cases, due to triggering factors such as stress, fever, heat, cold or sunlight exposure, fatigue, and immunosuppression, there could be a reactivation of virus resulting in herpes simplex infection. In such cases, virus from its dormant state transforms into the proliferative state (1,6).

The incubation period of HSV can range from 2 to 12 days (6). The clinical presentation of the infection predominantly depends on various factors such as the entry portal, host immune response, and if the infection is primary or recurrent (7). Clinically, there could be pain, burning, and tingling sensation of the affected area. Small clusters of vesicles may appear on the oral mucosa, which can cause painful ulcerations on rupture. It may be accompanied by various symptoms like fever, myalgia, dysphagia, lymphadenopathy, headache, and loss of appetite (1,6).

The present case was diagnosed by the typical cluster-like appearance of small ulcers seen on the hard palate, which had a well-defined erythematous border. These small ulcers had also coalesced to form a large ulcer adjacent to the molar area. However, the patient did not report any history of fever, or weakness.

Based on present clinical features diagnosis was made. However, there are several tests available to confirm the diagnosis. A smear can be made on a slide by using a spatula to scrape over the lesion. Direct examination of the smear will show evidence of viral damage to epithelial cells (8). In addition, serological assays, Tzanck test, and immunofluorescence can be performed (9). Viral cultures remain the gold standard (6). Polymerase Chain Reaction (PCR) can be used to identify low-level HSV shedding prior to the onset of a clinically evident lesion (9, 10).

In this case, since the patient had reported four days after the onset of the disease, smears were collected for laboratory analysis. The histological examination of the smears revealed altered epithelial cells which showed ballooning degeneration and nuclear enlargement (Fig. 3).

The HSV lesions are usually managed by supportive care which includes diet management, maintenance of fluids, analgesics, and antipyretics (5, 11). Routinely used drugs target the viral DNA replication, which includes acyclovir, valacyclovir, cidofovir, and foscarnet. Acyclovir is currently the gold standard for prophylactic and treatment of HSV infection (5, 12). Since the patient, in this case, presented with mild symptoms and did not report any other systemic complications, treatment was aimed at restoring a healthy diet and intake of more fluids. In addition, acyclovir was prescribed to be used for one week.

In healthy individuals, recovery is expected within two weeks and has an excellent prognosis. However, even after the clinical remission of the disease, the intraoral viral shedding can be seen for several weeks (1). The patient, in this case, responded well to the medications, and healing was observed in ten days follow-up. The patient has been asked to come for follow-up visits. While dealing with HSV suspected individuals, dental and medical practitioners are advised to follow universal precautions to prevent self-inoculation and cross-contamination (4).

CONCLUSION

HSV infections cause mucocutaneous infections in both children and the elderly. Although it does not

cause major health concerns in healthy individuals, it causes discomfort and inconvenience. Timely identification aids should be implemented for effective treatment, and prevention of further complications. Due to the higher risk of developing complications, immunocompromised patients require special care. Due to higher risk of disease transmission, dental professionals should thoroughly investigate clinical signs and symptoms presented by the patient.

CONFLICT OF INTEREST

The authors have no conflicts of interest.

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