

Editorial

A new document of herpes simplex virus report in Islamic traditional medicine

Amirparviz Tavasoli¹, Seyed Ahmad Emami^{2, 3}, Nilufar Tayarani-Najaran⁴, Zahra Nikakhtar¹, Zahra Tayarani-Najaran^{5*}

¹ Faculty of Traditional Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

² Department of Traditional Pharmacy, School of Pharmacy, Mashhad University of Medical Sciences, Mashhad, Iran

³ Department of Pharmacognosy, School of Pharmacy, Mashhad University of Medical Sciences, Mashhad, Iran

⁴ Department of Prosthodontics, School of Dentistry, Mashhad University of Medical Sciences, Mashhad, Iran

⁵ Department of Pharmacodynamics and Toxicology, School of Pharmacy, Mashhad University of Medical Sciences, Mashhad, Iran

Zakhireh Kha[^]razmsha[^]hi is the greatest Persian medical book in Islamic traditional medicine. One of the interesting aspects of this book is its precise description of various diseases and their treatments. While the viral nature of many diseases, including herpes simplex, has recently been referenced in modern medicine, Jorja[^]ni described the labial and genital form of the disease in Zakhireh in the 13th century AD.

The definition of herpes simplex in modern medicine

Herpes simplex, caused by the herpes simplex virus (HSV) or herpes virus hominies, is one of the most common infections of humans throughout the world. There are two major antigenic types: type 1, which is classically associated with facial infections; and type 2, which is typically genital, although there is considerable overlap in disease manifestations. Both type 1 and type 2 HSV are acquired by direct contact with, or droplets from, infected secretions entering via skin or mucous membrane, where primary infection may become evident.

Primary infections may rarely produce a painful, vesicular stomatitis. In crowded areas of the developing world, over 90% of children have antibody by the age of 5 years, but in more temperate areas and higher socioeconomic groups, the incidence is lower in children but rises steadily with age. Type 2 infections occur mainly after puberty, and are often transmitted sexually. Seropositivity is low in children, but about a third of young adults are seropositive for type 2 and this rises to half the population during later life. The primary HSV-2 infection is more commonly symptomatic (1).

Worldwide, 60%–95% of the population is infected by one or more viruses of the herpes viridae

family. In an immunocompetent host, herpesvirus infections can often cause debilitating diseases, which may have psychological and physical sequelae in persons with frequent recurrences. Herpesviruses have two unique biologic properties: the ability to invade and replicate in the host nervous system and the ability to establish a site of latent infection. The neurovirulent properties of herpes simplex virus (HSV) enable the virus to cause a disease primarily of the sensory nervous system rather than of the skin.

During primary infection, virus is transported via sensory ganglia to establish a chronic latent infection, most commonly in the trigeminal, cervical, or lumbosacral ganglia. Retrograde transport of HSV along nerves and the establishment of latency are not dependent on viral replication in the skin or neurons and therefore neurons can be infected in the absence of symptoms.

Periodically, HSV may reactivate from its latent state and virus particles then travel along sensory neurons to the skin and other mucosal sites to cause recurrent disease episodes. Recurrent mucocutaneous shedding of HSV can be asymptomatic or associated with lesions, and in either scenario is allied with a period when virus can be transmitted to a new host (2).

Herpes simplex virus (HSV) is a common cause of both genital and oral disease. HSV type 2 (HSV-2), sexually transmitted pathogen, infects >500 million people worldwide and causes an estimated 23 million new infections each year. HSV type 1 (HSV-1) is even more common, with an estimated seroprevalence of >90% in many nations. HSV-1 is frequently acquired during early childhood, primarily through oral secretions. However, the epidemiology of HSV-1 is changing, such that the frequency of sexual transmission of HSV-1 has increased in many countries, including the United States (3).

*Corresponding author: Zahra Tayarani-Najaran, Department of Pharmacodynamics and Toxicology, School of Pharmacy, Mashhad University of Medical Sciences, P.O. Box 9177948564, Mashhad, Iran. Tel: +98-51-38823255; Fax: +98-51-38823251; email: tayraninz@mums.ac.ir

Clinical features of HSV

HSV infections have a wide range of clinical presentations, and asymptomatic infection is very common. In primary infections, symptoms typically occur within 3 to 7 days after exposure. A prodrome of tender lymphadenopathy, malaise, anorexia and fever often occurs before the onset of mucocutaneous lesions, which may be preceded by localized pain, tenderness, burning or tingling. Painful, grouped vesicles appear on an erythematous base and may become umbilicated, followed by progression to pustules, erosions and/or ulcerations with a characteristic scalloped border. Crusting of lesions and resolution of symptoms typically occurs within 2 to 6 weeks. A similar prodrome can precede recurrent lesions, but these are often fewer in number, with decreased severity and duration compared to those of a primary infection.

The majority of primary orolabial infections are asymptomatic. Symptomatic infections often present as gingivostomatitis in children, and as pharyngitis and a mononucleosis-like syndrome in young adults. The mouth and lips are the most common sites of involvement, with lesions typically appearing on the buccal mucosa and gingivae. Edema and painful oropharyngeal ulcerations can lead to dysphagia and drooling. Recurrent lesions appear most often on the vermilion border of the lip. Less common sites are the perioral skin, nasal mucosa, oral mucosa overlying bone (e.g. hard palate) and the cheek. Primary and non-primary initial genital herpes infections are frequently asymptomatic but (especially with the former) can also present as an excruciatingly painful, erosive balanitis, vulvitis or vaginitis. In women, lesions often also involve the cervix, buttocks and perineum and are associated with inguinal adenopathy and dysuria. Lesions in men typically occur on the glans or shaft of the penis, and the buttocks are occasionally affected. Systemic complaints and complications are more common in women. Extragenital lesions, urinary retention and aseptic meningitis occur in 20%, 10-15% and 10% of affected women.

A short note about the importance of Zakhireh Kha^hrazmsha^hhi

Seyyed Esma'il Jorjaⁿⁱ (433_531 AH/1041_1136 AD) was the most important famous physician after Avicenna who wrote several worthy books on medicine during his lifetime. Zakhireh Kha^hrazmsha^hhi "The Treasure of Kha^hrazmsha^h" is considered the most detailed medical book in Persian with nine big chapters which explains diseases from cap a pie, manifestations, diagnostic methods and the ways to treat them, also about cosmetics and beautification, poisons; and two appendices on simple and compound drugs (5). The

book has been translated into Hebrew and Turkish due to the importance of its content.

In this writing we wish to discuss Jorjaⁿⁱ's point of view about HSV and his precise definition of the disease.

In Arabic, herpes is called "Namleh" and erysipelas is called "Homreh". In the page 753 of Zakhireh Kharazmshahi it is written that erysipelas affects the lips and the penis (6). Although apparently Jorjaⁿⁱ confused between erysipelas and herpes but an important point is that he had differentiated between the genital and labial types of herpes centuries ago.

In chapter 7 page 639 of Zakhireh Kharazmshahi, Jorjani said the following about erysipelas:

"Homra" is a hot, severely itchy and corrosive rash which irritates the skin and tends to cause corrosion, and merges to the skin somewhat deeply and remains as a black scar. It looks similar to a scar caused by heat (burning), yet is less moist. Its inducing agent is almost like black bile. Rashes are few and dispersed and pea size or larger. There are also some types without rash but they are itchy and irritating and appear in red and then turn to lead color or gray. Sometimes it is accompanied by a severe fever which is fatal (6).

In page 644 from the mentioned chapter of the book, Jorjaⁿⁱ said the following about herpes:

"Namle" is small spots which are close to each other and interconnected. It is spread widely, with itching and burning, and is warm to the touch.

The stinging of the rashes is like an ant biting. It is mostly spread spots that look like warts. The base of the spots is wide and the top is narrow. It seems like a pensile, yellow in color. Some spots become wounds and some disappear. The main cause of the "Namle" is a stingy (irritant) substance that is mixed with the blood under the skin and passes over narrow vessels of the skin (6).

Bad Sorkh (erysipelas)

Erysipelas is an acute and inflammatory type of cellulitis which differs from other types of cellulitis in the significant lymph node involvement of erysipelas.

In contrast to classical cellulitis, erysipelas is a more superficial infection; which affects the dermis and upper part of subcutaneous tissue and has a clear and distinct surrounding.

Group A *Streptococci* are the most common cause of Bad Sorkh (Red Wind). The onset of the disease is abrupt.

The most common site of involvement is the leg. Face, arm and loin are other common sites. In infants, the skin around the navel is a common area of infection.

One or more of the red, firm and tender spots raise fast and produce a firm and extremely stiff,

erythematous, hot and shiny stain with irregular borders.

The erythematous lesion is extremely dark in color and may progress on the sidelines and on the ongoing level (surface) of the lesion, vesicles are formed.

Itching, burning, tenderness, and pain may be moderate to severe.

Herpes simplex (cold sores)

Herpes simplex virus is a double-stranded DNA virus with two different viruses (type one and two) that can be differentiated by lab methods.

Type one is generally associated with mouth ulcers and vesicular infections, while type two is commonly associated with genital infections. The herpes simplex virus infection has two stages: primary infection, after which the virus becomes established in a nerve ganglion, and the secondary stage in which the disease recurs in the same location.

Symptoms appear 3 to 7 days after exposure. Tenderness, pain, mild paresthesia, or tingling are displayed before the appearance of lesions at the site of inoculation.

Inflammation of the gums and mouth (gingivostomatitis) and pharyngitis are the most common manifestations of the infection in the first exposure to type one herpes simplex.

Local pain, lymphadenopathy, tenderness, headache, pervasive pain and fever are the typical and prognostic symptoms.

Women with primary and symptomatic genital infection may be attacked by vulvovaginitis, erosion with pain and edema in the vagina and cervix, and also urinary irritation.

A group of vesicles appear on the erythematous body and then reform to erosions. The lesions last for 2 to 4 weeks and then heal without any scars.

After 2 to 4 days the vesicles are ruptured and form aphthous ulcers in the vaginal area, or erosions covered with a rough layer on the lips and skin.

Conclusion

The precise definition of diseases in earlier centuries by Jorja'ni shows the precise and close view of the scientist. The interesting point in his definition about HSV is the differential diagnosis of the labial and genital types of HSV. Due to the intricacies of Islamic medicine and the scrutinized view of the scientists of this period, more attention to subjects that have been neglected in this period is necessary.

References

1. Burns T, Breathnach S. Rook's textbook of dermatology. London: Blackwell scientific publications 2010; 2:432-433.
2. Simmons A. Clinical manifestations and treatment considerations of herpes simplex virus infection. *J Infect Dis* 2002; 186: (Supplement 1) S71-S77.
3. Bernstein DI, Bellamy AR, Hook EW 3rd, Levin MJ, Wald A, Ewell MG, *et al*. Epidemiology, clinical presentation, and antibody response to primary infection with herpes simplex virus type 1 and type 2 in young women. *Clin Infect Dis* 2013; 56:344-351.
4. Bologna JL, Jorizzo JL, Schaffer JV, Cerroni L, Heymann WR, Callen JP, *et al*, editors. *Dermatology* London: Mosby 2012; 2:1323.
5. Tadjbakhsh H. History of human and veterinary medicine in Iran. Lyon: Fondation Merieux 2003; 162-174.
6. Jorja'ni SI. Zakhireh Kha'razmsha'hi, Treasure of Kha'razmsha'h (in Persian), Tadjbakhsh. H. editor with introduction. Tehran: Amirkabir Publications; 2012 (Photoprint of the manuscript dated 582 AH).p.639, 644 and 753.