THE NORTHERN HOSPITAL

HERPES SIMPLEX

"Sin", oil on canvas, Franz von Stuck 1893

"Lust's passion will be served; it demands, it militates, it tyrannizes".

Juliette, The Marquis de Sade, 1798

"Of all the worldly passions, lust is the most intense. All other worldly passions seem to follow in its train".

Buddha, 6th Century B.C

Between seven and eight o'clock one evening, accompanied by two friends armed with canes, I went to take a look at the new suburb which lies on either side of the long broad thoroughfare called Waterloo road at the end of Waterloo Bridge. This neighbourhood is almost entirely inhabited by prostitutes and people who live off prostitution; it is courting danger to go there at night. It was a hot summer evening; in every window and doorway women were laughing and joking with their protectors. Half dressed some of them naked to the waist, they were a revolting sight, and the criminal cynical expressions of their companions filled me with apprehension…

Several of them accosted us and asked if we wanted a room. When we answered in the negative, one bolder than the rest demanded in a threatening tone, "What are you doing here then, if you don't want a room for you and your lady friend?"…

We went on our way and explored all the streets in the vicinity of Waterloo Road, then we sat upon the bridge to watch the women of the neighbourhood flock past, as they do every evening between the hours of eight and nine, on their way to the West End, where they ply their trade all through the night and return home between eight and nine in the morning. They infest the promenades and any other place where people gather, such as the approaches to the Stock Exchange, the various public buildings and the theatres, which they invade as soon as entry is reduced to half price, turning all the corridors and foyers into their receiving rooms. After the play they move on to the "finishes"; these are squalid taverns or vast resplendent gin-palaces where people go to spend what remains of the night.

The "finish" is as much a part of life in England as the beer-cellar in Germany or the elegant café in France. In the tavern the clerk and the shop assistant drink ale, smoke cheap tobacco and get drunk with tawdrily dressed women; in the gin palace, fashionable gentlemen drink Cognac, punch, sherry, port, and French and Rhenish wines, smoke excellent Havana cigars, and flirt with beautiful young girls in splendid gowns. But in both places scenes of orgy are acted out in all their brutality and horror.

I had heard descriptions of the debauchery to be seen at finishes, but could never bring myself to believe them. Now I was in London for the fourth time with the firm resolve to discover everything for myself…

What goes on in these places ought to be seen, for it reveals the moral state of England better than any words could express. These splendid pleasure houses have an appearance all their own. Those who frequent them seem to be dedicated to the night; they go to bed when the sun begins to light the horizon and awaken after it has set. From the outside these "gin palaces" with their carefully fastened shutters seem to be quietly slumbering; but no sooner has the doorkeeper admitted you by the little door reserved for initiates

than you are dazzled by the light of a thousand gas-lamps. Upstairs there is a spacious salon divided down the middle; in one half there is a row of tables separated one from the other by wooden screens, as in all English restaurants, with upholstered seats like sofas on each side of the tables. In the other half there is a dais where the prostitutes parade in all their finery, seeking to arouse the men with their glances and remarks; when a gallant gentleman responds, they lead him off to one of the tables loaded with cold meats, hams, poultry, pastries and every manner of wines and spirits.

The finishes are the temples which English materialism raises to its gods; the servants who minister in them are dressed in rich liveries and the capitalist owners reverently greet the male guests who come to exchange their gold for debauchery.

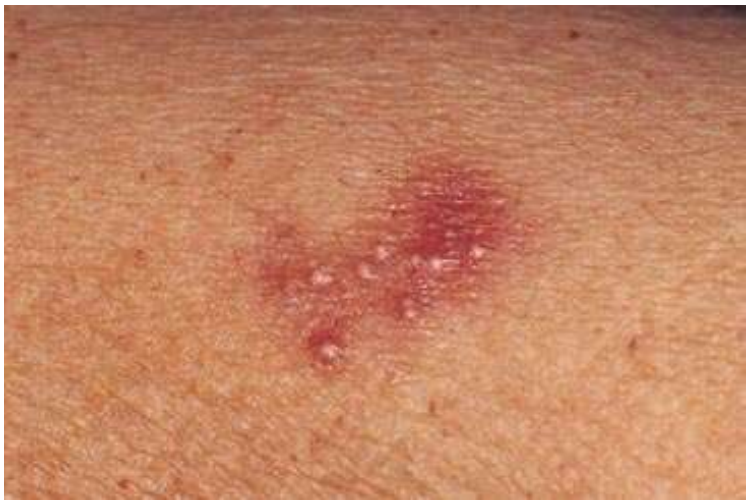
Towards midnight the regular clients begin to arrive, several finishes are frequented by men in high society, and this is where the cream of the aristocracy gather. At first the young noblemen recline on the sofas, smoking and exchanging pleasantries with the women; then when they have drunk enough for the fumes of champagne and Madeira to go to their heads, the illustrious scions of the English nobility…proceed to set up their private boudoir…The orgy rises to a crescendo; between four and five o'clock in the morning it reaches its height. At this point it takes a good deal of courage to remain in one's seat, a mute spectator of all that takes place…I have seen satin dresses of no recognizable colour, only a confused mass of stains: wine, brandy, beer, tea, coffee, cream etc, daubed all over them in a thousand fantastic shapes - the handiwork of debauchery.

Flora Tristan, on the prostitutes of London, 1839

It is difficult to image anything at all that the infamous Marquis de Sade and the Buddha would have agreed on - yet recorded history does tell us that in fact there was one point - Lust is one of life's most powerful passions- no doubt however the two differed as to whether it was a "good" or a "bad" passion! Dante considered it bad - but interestingly - not "all that bad" - it was a sin that could gain you entry into hell, but only into one of the "milder" regions of Hell. Of all his circles of Hell, that of the lustful was the second outermost, (the second circle) so the torments were less when compared to the more inner circles, which were reserved for sins of a more serious nature. Indeed Dante assigned one of the Terraces of Purgatory, the Seventh Terrace the closest to salvation, to those deemed lustful in life, but were worthy of a chance at redemption. And in fact he had a place even in the celestial spheres of Heaven, the third sphere of Venus, for those who in life were lustful, but yet were able to turn their lust in the end to a lust for good, as opposed to a lust purely of the flesh

Of course payment for the sin of lust need not be delayed until the afterlife. In this life a medical punishment may come in the form of the herpes simplex virus.

HERPES SIMPLEX



Typical vesicular lesions on an erythematous base, of herpes simplex infection.

Introduction

Herpes simplex infection in humans is caused by two types

1. **Herpes simplex virus type 1** (**HSV-1**)

    - **HSV-1** is mainly transmitted by **oral-to-oral contact** to cause oral herpes ("**cold sores**"), but can it may also occasionally cause genital herpes.

2. **Herpes simplex virus type 2** (**HSV-2)** cause chronic, lifelong infection.

    - **HSV-2** is a **sexually transmitted** infection that causes **genital herpes**.

Cold sores are the most common manifestation of herpes virus infection and are characterised by a localised primary lesion, latency and a tendency to local recurrence.

In patients with atopic dermatitis or immunosuppression, herpes simplex virus may disseminate causing a generalized eruption and possible systemic complications and will require hospitalization for intravenous antiviral therapy.

Herpes simplex may become chronic in patients with HIV infection with recalcitrant crusted lesions and ulceration.

See also separate documents on:

- **Eczema herpeticum (in Dermatology folder)**
- **Acyclovir (in Drugs folder)**
- **Encephalitis (in Infectious Diseases folder)**

Epidemiology

HSV 1:

In 2012, an estimated 3.7 billion people under the age of 50, or 67% of the population, had HSV-1 infection.

Estimated prevalence of the infection was highest in Africa (87%) and lowest in the Americas (40-50%).

With respect to **genital** HSV-1 infection, 140 million people aged 15 - 49-years were estimated to have genital HSV-1 infection worldwide in 2012, but prevalence varied substantially by region.

Most genital HSV-1 infections are estimated to occur in the Americas, Europe and Western Pacific, where HSV-1 continues to be acquired well into adulthood. In other regions, for example in Africa, most HSV-1 infections are acquired in childhood, before the age of sexual maturity

HSV 2:

Genital herpes caused by HSV-2 is a global issue, and an estimated 417 million people worldwide were living with the infection in 2012.

Prevalence of HSV-2 infection was estimated to be highest in Africa (31.5%), followed by the Americas (14.4%).

It was also shown to increase with age, though the highest numbers of people newly-infected were adolescents.

More women are infected with HSV-2 than men; in 2012 it was estimated that 267 million women and 150 million men were living with the infection. This is because sexual transmission of HSV is more efficient from men to women than from women to men.

Pathology

Organism

Group: Group I (dsDNA)

Order: Herpesvirales

Family: Herpesviridae

Subfamily: Alphaherpesvirinae

Genus: Simplex-virus

Species:

- Human herpes simplex virus (HSV) type 1
  - ♥ A large, enveloped DNA virus
- Human herpes simplex virus (HSV) type 2
  - ♥ A large, enveloped DNA virus

Complications

These include:

1. Secondary bacterial infection.
2. Eczema herpeticum**:**
   - In patients with atopic dermatitis herpes simplex virus may disseminate
3. In patients with immunosuppression:
   - Herpes simplex virus may disseminate causing a generalized eruption
   - Infection may become chronic in patients who have HIV
4. Menigoencephalitis

Transmission

Transmission of HSV infections occurs through close contact with a person shedding virus from a peripheral site, at a mucosal surface, or in genital or oral secretions.

Inoculation of virus onto susceptible surfaces such as oropharynx, cervix, conjunctivae or small cracks in skin is required for infection.

HSV type 1:

- Contact with HSV type 1 in the **saliva of carriers** is the most important mode of spread.
- Contact of health care workers with patients who are shedding HSV may result in an infection of the tip of the finger (herpetic whitlow).

HSV type 2:

- Transmission of HSV type 2 to non-immune adults is usually by sexual contact.

Incubation Period

- The incubation period varies from **2 - 12 days**.

Reservoir

- Humans.

Period of Communicability

- Secretion of virus in the saliva may occur up to **7 weeks** after recovery from stomatitis.

- Patients with primary genital lesions are infective for **7 - 10 days**.

  Those with recurrent disease are infectious for **4 -7 days** with each episode.

Susceptibility and Resistance

- Everyone is susceptible to infection.

- The disease does not usually confer protective immunity because the virus tends to become latent in dorsal root ganglia of the spine where it may become reactivated at a later date.

Clinical features

HSV has been isolated from nearly all visceral and muco-cutaneous sites.

Both HSV-1 and HSV-2 infections are lifelong.

The clinical presentation will depend on

1. Portal of entry
2. Age
3. Immune status
4. Type of HSV (1 or 2) infection.

A range of clinical manifestations are therefore seen including:

1. Perioral lesions (cold sores)

   Usually **HSV type 1**

   - Cold sores are the most common manifestation of herpes simplex infection.

   - Lesions are usually preceded by a prodromal stage of **pain, burning, tingling or itching**, for several hours to days before the appearance of the rash.

- The primary infection may be mild and generally occurs in early childhood before the age of 5 years.

- About 10 % of primary infections cause a more severe form of disease manifested by fever and malaise.

  This may last a week or more and can be associated with vesicular lesions leading to ulcers in and around the mouth (gingivostomatitis)

  Features of gingivostomatitis include ulceration of the tongue, gums, lips and anterior buccal mucosa, severe systemic toxicity and lymphadenopathy.

Reactivation:

- Reactivation of latent viral infection in the dorsal root ganglia results in cold sores appearing as clear vesicles on an erythematous base.

- These usually occur on the face and lips and crust and heal in a few days.

- This reactivation may be precipitated by trauma, fever, environmental conditions such as windy days, sunburn or intercurrent disease.

2. Herpetic whitlow:

   - Contact of health care workers with patients who are shedding HSV may result in an infection of the tip of the finger (herpetic whitlow).

   - It begins with intense itching and pain and is followed by vesicle formation and then ulceration.

3. Erythema multiforme:

   - Herpes simplex may be complicated by erythema multiforme which may be more disabling than the infection itself.

4. Ocular:

   - Herpetic ulcer, (see separate guidelines)

5. Genital herpes:

   Usually **HSV type 2**

   - This virus is the usual cause of genital herpes although this can also be caused by type 1 virus less commonly. Genital herpes occurs mainly in adults and is sexually transmitted. Primary and recurrent infections occur, with or without symptoms.

- The principal sites of primary disease in **women** are the cervix and vulva. Recurrent disease generally involves the vulva, perineal skin, legs and buttocks.

- In **men**, lesions appear on the glans penis or prepuce, and in the anus or rectum of those engaging in anal sex.

- Other genital or perineal sites as well as the mouth may also be involved in either gender depending on sexual practices.

More serious disease includes:

6. Disseminated herpes virus infection:

   - Immunocompromised patients

     ♥ Including patients with HIV

     Cutaneous HSV may become chronic in patients with HIV infection or other immunosuppression, with recalcitrant crusted lesions and ulceration, or the infection may disseminate to cause severe extensive disease with visceral organ involvement.

   - Patients with generalized chronic skin dermatoses, **eczema herpeticum.**

   - Vaginal delivery in pregnant women with active genital infection carries a high risk of disseminated visceral infection, encephalitis and death to the newborn.

7. Central neurological disease:

   - Meningitis:

     ♥ **HSV-1** is a common cause of meningoencephalitis.

   - Encephalitis:

     HSV type 1 (**see also separate document on Encephalitis in Infectious Diseases folder**).

   - Transverse myelitis

Investigations

1. Virus isolation:

   - Confirmation is made by direct fluorescent antibody tests, by isolation of the virus from oral or genital lesions or other sites.

2. PCR:

- Detection of HSV DNA by nucleic acid testing of lesion fluid or CSF.

3. Antibodies serology:

   - Asymptomatic infections with HSV type 1 virus are common.
   - More than 90 % of the population has antibodies to HSV-1 by the fifth decade of life.
   - HSV type 2 is frequently associated with sexually transmitted infections and 20-30% of adults have antibody evidence of exposure.

     The prevalence is greater in socio-economically disadvantaged groups and those with multiple sexual partners.

4. Patients should be fully screened for other STDs, including HIV infection, on their first presentation of genital herpes.

Management

1. Topical antiseptics:

   - For symptomatic treatment of minor attacks, use **povidone iodine 10% paint solutions** applied **three times daily**
   - Chlorhexidine mouthwash is also useful for intra-oral lesions.

2. Analgesia:

   - Lignocaine 2 % gels topically, every 3 hours for oral muco-cutaneous herpes

3. Sun protection is important in preventing recurrences of facial herpes simplex.

4. Antiviral agents:

   Cold sores:

   Mild disease

   - Acyclovir 5 % cream, 5 times daily for 5 days.

   Severe disease:

   For severe primary HSV infections on any part of the skin or oral mucosa, use oral antiviral therapy.

   Options include:

   - Acyclovir

Or

- Famciclovir

Or

- Valaciclovir

Few studies compare valaciclovir or famciclovir with aciclovir for primary oral muco-cutaneous HSV infection, however, available evidence suggests that the three drugs are therapeutically equivalent for herpes simplex infection.

Therefore, ease of administration and cost should be considered when choosing therapy.

Treatment is most effective when started **early**, but only limits the duration by about 24 hours and does not appear to diminish recurrences.

Dendritic ulcers:

- Acyclovir 3 % cream, 5 times daily for 14 days.
- Avoid steroids.

Genital herpes:

This is treated with **oral** agents

Options include:

- Acyclovir

Or

- Famciclovir

Or

- Valaciclovir

See Therapeutic Guidelines for full prescribing details.

Meningitis and encephalitis:

- These will require **IV Acyclovir**

  See Therapeutic Guidelines for full prescribing details.

Immunocompromised:

For the treatment of acute symptomatic episodes of mucocutaneous herpes simplex in **immunocompromised** patients, use:

- IV Acyclovir

Or

- Famciclovir orally

Or

- Valaciclovir orally

See Therapeutic Guidelines for full prescribing details.

There should also be consultation with a specialist Infectious Diseases Physician in these cases.

Eczema herpeticum:

- This will require oral or in severe cases IV acyclovir

Vaccine:

- No vaccine is currently available.

School exclusion:

- Young children with **cold sores** who are unable to comply with good hygiene practices should be excluded while the lesion is weeping.

- Lesions should be covered by a dressing where possible.

Notification:

- Notification is not required.

References

1. Herpes Simplex in The Blue Book Website, 31 August 2018.

2. eTG - July 2018.

3. Herpes Simplex Fact Sheet, WHO; 31 January 2017.

Dr J. Hayes
Reviewed October 2018.