

# Biology's take on genital herpes virus



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## Genital Herpes Virus

In this world today there are many viruses that effects the human population. Herpes is one of these diseases. It is no less then a self-limited communicable disease. Yet its “ victims” describe it as devastating, and society treats those with it like lepers. Until recently most people had never heard of herpes virus. Even doctors were familiar with the virus, yet in the past few years , it has become an epidemic. Why I chose to study this topic is more on how herpes affects a person emotionally. Why should a disease like this which rarely causes great physical problems, be such trouble to many people? It is not as devastating as tuberculosis. Its not a killer like cancer. And it is not as disabling as the flu. It isn't as bad a smoking is to your health, so why should so many people care about it. I think that the main reason is that herpes affects the persons personality. To many, there is nothing more important then that persons genitals. One's genitals gives one the ability to love and to be loved.

Another reason is that this virus, unlike many in today's society, is incurable. With todays fast food restaurants, great health insurance, and one hour prescriptions, people have a hard time dealing with herpes being incurable. The incurability and recurrent nature of herpes makes it a control issue and no one likes to lose control. There is an unbuilding factor in this issue. There is always new research going on for this disease. This topic interests me on an great level. I myself get cold sores and I love to learn of new things that happens to others and cures they are working on. This study can help others for a cure, because I think a cure is greatly needed. In this essay I will examine several case studies and their results. I will also include a “ Most

Common Questions” for any other person that might use this essay to take in new information.

I have used several venues of information. I have dealt mainly with books, because I find they give the best information and are more understandable. On the Internet I received a lot of information and I even talked in a chat area with other people that have Herpes, in a greater degree than myself, and I learned how people deal with it and how they confront it. It is a more widely spread disease than I thought it could be.

### **Herpes Simplex Virus(HSV)**

Herpes simplex virus (HSV) is an alpha herpes virus. HSV infection can result in a wide spectrum of diseases ranging from the mild (e. g. herpes labialis) to the severe (e. g. neonatal herpes, herpes encephalitis). The severity of the resulting disease due to herpes virus infection is affected both by prior infection and the immune status of the individual.

The diagnosis of mucocutaneous manifestations of HSV disease is predominantly clinical. However, the majority of genital HSV infections are not clinically overt. Many patients have ‘ atypical’ lesions, some have subclinical symptoms and others are asymptomatic. Patients who present with first-episode genital herpes may have either a primary infection or a reactivation of an infection which was previously asymptomatic. Laboratory diagnosis is likely to be used to confirm the clinical diagnosis, in epidemiological studies and to look for asymptomatic viral shedding. When diagnosis is made clinically and the disease is severe enough to require treatment, antiviral therapy should be started before the laboratory

diagnosis is known, since waiting for test results may introduce a significant time delay. In visceral manifestations of HSV infection laboratory diagnosis such as culture, antigen detection or application of polymerase chain reaction (PCR) may be required.

In Scandinavia and the USA a change in the epidemiology of HSV infection has been shown with a decreasing incidence of herpes simplex virus type 1 (HSV-1) infection and an increasing incidence of herpes simplex virus type 2 (HSV-2) infection. Simplistically, HSV-1 most commonly causes oropharyngeal and labial herpes and HSV-2 genital herpes, although each virus type may infect either site. Improved serological diagnostic procedures have made typing of HSV-1 and HSV-2 infections more accurate. Typing can also be performed by application of monoclonal antibodies to lesion scrapings or cells from viral culture

### **Varicella Zoster Virus (VZV)**

Varicella zoster virus (VZV) is an alpha herpes virus that after primary infection becomes latent in cells within sensory ganglia; subsequent reactivation causes further disease. Primary infection results in varicella (chickenpox), usually in childhood, and reactivation later in life causes herpes zoster (shingles). The diagnosis of each disease is largely clinical and rarely needs to be confirmed by laboratory investigations.

In both conditions the severity of the disease increases with age. Varicella may be a serious infection in adults, and when it occurs in pregnancy, can sometimes result in congenital infection. Herpes zoster may be accompanied by extreme pain and other complications such as ocular damage or

encephalitis. Treatment of VZV infections is appropriate in many patients, dependent on factors such as their age and the risk of developing complications.

### **Epstein-Barr Virus(EBV)**

Epstein-Barr virus (EBV) is a gamma herpes virus as opposed to herpes simplex virus type 1 (HSV-1) and type 2 (HSV-2) and varicella zoster virus (VZV) which are alpha herpes viruses. It infects mainly B lymphocytes where it remains latent after primary infection.

Exposure to EBV is often asymptomatic, and only apparent from seroconversion in most individuals. However, primary infection may be symptomatic and illness associated with reactivation of latent virus is seen in immunodeficient patients. Several of the conditions described below can be caused either by primary infection or recurring viral replication. The most common presentation is of infectious mononucleosis (glandular fever) in adolescents, and in Africa Burkitt's lymphoma is typically associated with EBV infection. Other lymphoproliferative conditions such as non-Hodgkin's lymphoma arise from EBV infection in immunocompromised patients, and atypical cases of EBV may present as viral encephalitis.

### **Human Cytomegalovirus (HCMV)**

Human cytomegalovirus (HCMV) is a beta herpes virus which is widespread throughout the world. Primary infection is usually asymptomatic. Disease due to HCMV frequently causes congenital infection (following maternal primary infection or reactivation during pregnancy) or neonatal infection (infection during birth or in the immediate post-natal period) and disease in the immunocompromised (reactivation of latent virus or receipt of organs or <https://assignbuster.com/biologys-take-on-genital-herpes-virus/>

blood products from HCMV-positive donors). The exact site of latency of HCMV has not been established.

Current antiviral therapy for HCMV infection is suboptimal. The available therapies can only be given intravenously and have severe side-effects. Treatment is not available for congenital HCMV infection. Opinions differ on the optimum time for initiation of anti-HCMV therapy in the immunocompromised patient. Despite suboptimal therapy of the diseases caused by HCMV infection, diagnosis is important to avoid further diagnostic investigations and to evaluate treatment options.

### **Herpes Virus Type 6**

The closest phylogenetic relative to human herpes virus type 6 (HHV-6) is human cytomegalovirus (HCMV). HHV-6 was first isolated by Salahuddin et al in 1986. More recently, a further herpes virus, human herpes virus type 7 (HHV-7), has been isolated.

The full clinical spectrum of disease caused by HHV-6 infection has not yet been confirmed. This is currently an area of much interest and research work. Laboratory diagnostic techniques for HHV-6 are currently only available at specialist centres. Although the full spectrum of the disease in the immunocompetent and immunocompromised host has not been fully established, a diagnosis of HHV-6 infection may be valuable in eliminating other diagnoses and the need for potentially invasive investigations and, in the future, to identify patients for enrolment into clinical trials.

**Prevention of Transmission**

Most patients with genital herpes are concerned about the risk of transmission of the virus to their partner(s). The physician should explain that the virus may be transmitted both from contact with the lesions during symptomatic episodes and during episodes of asymptomatic viral shedding. Data suggest that most transmission of genital herpes due to HSV-2 occurs during asymptomatic periods. The increased transmission rate during asymptomatic periods may be due to patients with recognized genital herpes refraining from intercourse during symptomatic episodes. It is recommended that direct contact with the lesions should be avoided during symptomatic episodes and that between outbreaks a condom should be used, to minimize the risk of transmission from asymptomatic shedding. Preliminary studies suggest that most asymptomatic viral shedding occurs either before or after a symptomatic episode: with HSV DNA shown using the polymerase chain reaction (PCR) about 1 day before the onset of the prodrome and for several days after the end of the symptoms. Individuals appear to have particular sites from which they shed virus. Both men and women shed virus asymptotically and therefore may transmit the virus to their partner during periods when they have no symptoms. Transmission studies have shown that women are at higher risk than men of acquiring the virus and that prior HSV-1 infection partially protects against acquisition of HSV-2.

Experience suggests that the discussion of asymptomatic viral shedding and the risk of transmission when asymptomatic influences patients to discuss genital herpes with their partners. Patients in stable relationships may consider their partner being serologically tested for HSV to establish whether

they have asymptomatic HSV-2 and then assess the risk of transmission of the virus as a couple.

There is no cure for genital herpes. It is a lifelong infection. This is why so many people have problems with them.

The symptoms of genital herpes include blisters and sores around the genitals, buttocks and thighs, and pain, especially when urinating. After the initial period of infection, the virus lies dormant in the body but can reactivate to cause recurrent attacks. This is due to virus 'latency' – the way that the virus remains dormant in the body following initial infection. Many infected patients are asymptomatic or undiagnosed, and only about one in four patients with recognized disease receives antiviral treatment. Genital herpes lasts for life, and can also be transmitted when the carrier is asymptomatic.

Genital herpes can result from infection with either HSV type 1 (HSV-1) or HSV type 2 (HSV-2). In 95-98% of cases of recurrent disease, genital herpes is caused by HSV-2(7).

In the next part of my paper, I will focus on Genital Herpes. Starting off with case studies.

## **Case Studies**

### **A neonate born to a mother with symptoms of recurrent genital herpes at labor**

#### **Herpes Simplex Virus (HSV)**

Managing Patients with Genital Herpes

Management at first presentation

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Physicians should ensure that their patients who present for treatment are well managed. Good management at first presentation is critical for the patient's additional adjustment to the diagnosis.

At first presentation a thorough clinical examination should be performed and history taken. Appropriate antiviral therapy should be started without delay. A clinical diagnosis should be supported by laboratory confirmation of diagnosis, ideally by culture. Culture specimens taken from a variety of sites such as the ano-rectal area, cervix, vulva, penis and urine should be cultured (if laboratories exist). The physician should assess the patient's risk of having other sexually transmitted diseases and HIV, and consider the need to perform other diagnostic tests. Ideally the clinic should have an 'open-door' policy allowing patients to return whenever they need to see the physician. The patient should be seen again at the first recurrence.

### **Counseling, education and support groups**

All patients with genital herpes should be offered counseling, educational materials and told about local support groups and/or telephone helplines. Patient's partners should be invited to participate in treatment and counseling if they wish to attend. Physicians without appropriate experience should refer couples to trained counselors for couple counseling.

### **Treatment decisions**

The patient should participate in the choice of appropriate treatment. The choice of antiviral regimen should be decided based on the patient's treatment needs and the impact which genital herpes has on their life and their partner's life rather than solely on the number and severity of recurrences.

**Prevention of neonatal HSV infection**

The highest transmission rate is when a primary infection occurs during pregnancy. Screening the partners of pregnant women to identify couples who are serologically harsh might be considered. The new serological techniques (e. g. Western blot) can be used where they are available.

Discordant couples should be counseled about the risk of transmission of the virus to the neonate and advised to practice safe sex during pregnancy.

**Serological screening**

Widespread serological testing to identify those infected with HSV-2 is considered inappropriate in most settings.

**Educational strategies**

Greater knowledge about genital herpes will help to destigmatize the disease. Education of physicians, medical students, patients and the general public is needed. Genital herpes should be redefined as a disease which is common, usually mild and treatable.

**Managing the Pregnant Woman and Neonate Exposed to HSV**

Serological screening of the pregnant woman without a history of genital herpes and her partner

Knowledge of the national epidemiology of HSV infection (including the relative proportion of cases due to herpes simplex virus type 1 versus type 2 [HSV-1 and HSV-2]) is required to develop strategies to manage HSV infection. Currently there are limited data on the epidemiology of HSV infection in the pregnant woman and neonate. There are very wide national and international variations in the incidence of neonatal herpes.

A program to screen pregnant women and their partners for HSV has been proposed, but may not be practicable until type-specific serological assays are commercially available. There are also concerns about the feasibility of screening programs in populations with a low prevalence of genital HSV infections and where cultural or ethical concerns may make partner screening impractical.

If the partner is HSV-2 antibody positive or HSV-1 positive with a history of genital herpes, the couple should be counseled on the risk of transmission of the virus during pregnancy and the use of condoms. These women should be retested in late pregnancy, particularly if the pregnancy is complicated by pre-term labor, pre-term rupture of membranes or fetal growth delay. If the woman has seroconverted, she should be counseled about the increased risks of asymptomatic shedding at the onset of labor and the potential benefits of delivery by Caesarean section should be discussed.

A limited approach to identifying women at risk of acquiring HSV during pregnancy can be made by asking the pregnant woman and her partner whether he has a history of HSV infection at the first antenatal visit. The HSV-seronegative woman can still be identified using type-common serological assays and the couple counseled to avoid transmission of HSV during pregnancy.

### **An individual presenting with genital herpes for the first time**

#### **Diagnosis of Genital Herpes**

Typical genital herpes is not difficult to diagnose from a thorough physical examination by an experienced physician.

**Clinical diagnosis**

Primary genital herpes is usually severe. The characteristic herpetic vesicles are rarely seen in patients with a first episode of genital herpes because patients often present too late. Such patients may present with ulcerated or crusted lesions. Lesions tend to be more extensive and to coalesce in women, and the illness in primary genital herpes tends to be more severe. The signs and symptoms of primary genital herpes may be more severe in women than in men.

Women are more likely than men to see another physician before referral to a sexually transmitted diseases (STD) clinic. In Sheffield, UK 60% of women have seen another physician before being referred compared with 25% of men. Women are therefore more likely to present to a non-specialist physician with early genital herpes. As many as two thirds of patients with primary genital herpes who are seen by a non-specialist physician may be initially misdiagnosed.

The initial episode of genital herpes is more severe in patients with a true primary infection than in those with pre-existing herpes simplex virus type 1 (HSV-1) antibodies. The combination of genital and oral manifestations may occur in primary genital herpes. More than 10% of women with primary genital herpes have pharyngitis ranging from mild erythema to severe ulceration.

The more frequent local complications of acute genital herpes include secondary bacterial infection in women and, in uncircumcised men, phimosis and paraphimosis. In women labial adhesions often occur, but this may be

due to poor management of the acute illness rather than a complication of genital herpes per se.

The combination of HSV and candidiasis seems to commonly affect diabetic women and may cause serious problems. Complications of acute genital herpes at distant sites include autoinoculation which frequently affects the fingers (i. e. herpetic whitlow). Dissemination rarely occurs except in the immunocompromised individual or during pregnancy where mild immunosuppression occurs. Neurological symptoms (e. g. headache, neck stiffness, photophobia) frequently occur in primary genital herpes but encephalitis and transverse myelitis are rare.

### **History**

A detailed history including a sexual history should be obtained. The physician should ask particularly about partners, sexual practices and use of recreational drugs (including alcohol) which will influence use of safe sex practices. Obtaining a good patient history is highly predictive of diagnosis of genital herpes with a specificity of more than 90%.

### **Laboratory confirmation of diagnosis**

A clinical diagnosis of genital herpes should be confirmed by laboratory techniques. A positive culture for HSV is still the best test to confirm a clinical diagnosis of genital herpes at first presentation. Culture has the advantage that typing and, if necessary, acyclovir sensitivity testing can also be performed. Specimens for culture should be taken from several sites. If the culture result is negative a second culture should be performed. Alternatively, some antigen detection tests may also be useful if culture is

not available. Serological testing, including use of the Western blot assay, is not the method of choice for diagnosis of first-episode genital herpes.

### **Differential diagnosis**

Worldwide, HSV is the most common infective cause of genital ulceration. The old rule that 'genital ulceration is due to syphilis unless proven otherwise' could now be replaced by the statement: 'genital ulceration is due to herpes unless proven otherwise'.

In the long-term, the consequences for the individual with genital herpes can be severe. They include psychological and social morbidity, and the potential for neonatal transmission, transmission to partners and recurrences.

### **'Atypical' genital herpes**

Extragenital lesions occur commonly in 16% of patients with primary genital herpes, 8% of non-primary genital herpes and 4% of cases of recurrent genital herpes. Extragenital lesions commonly affect the buttock, groin or thigh and are more frequent in females than in males. Cutaneous extragenital lesions recur as frequently as genital lesions. Diagnosis of an 'atypical' case of genital herpes may be easier if a good patient history is taken. A history of recurrences at the same site, with healing taking 4-7 days suggests genital herpes.

## **Management of Genital Herpes**

### **First presentation**

Management of the patient with first-episode genital herpes should include both the clinical symptoms and the psychological impact of the diagnosis of genital herpes on the patient. Optimal management of the patient with

genital herpes is not simply a prescription for an antiviral drug, but should also address the patient's clinical and emotional issues. Such management is time-intensive.

The patient should be asked to return for a second visit during the following week. Some patients may need to be admitted to hospital for a short period at the first episode.

Management at first presentation is critical to the patient's subsequent recovery and adjustment to the disease. Good management will help the patient to cope well with the diagnosis, whereas poor management may lead to subsequent stigmatization. The physician should show a caring attitude, ask the patient open, non-judgmental questions and develop the patient's trust to be able to ask about other STDs including HIV.

Clinical management: The first stage is diagnosis of genital herpes. To the experienced physician the combination of signs and symptoms leading to a diagnosis of genital herpes is straightforward.

The patient should be reassured that recurrences of genital herpes are usually less severe than the primary episode (except when the first episode is actually a recurrence). The physician should explain clearly, in language that the patient can understand, that the virus becomes latent and may recur.

The physician should give the patient sufficient information such that he/she can decide on the appropriate management of their disease. Antiviral therapy will alleviate the symptoms in first-episode genital herpes. Many

studies have shown that acyclovir is effective in the treatment of primary and non-primary episodes of genital herpes. Treatment of first-episode genital herpes should include counseling on emotional issues.

Specific symptoms should be addressed. Hospitalization may be necessary for treatment with intravenous antiviral or to treat acute urinary retention or pain.

Psychological management: Management of the patient with genital herpes requires considerable time. Some physicians find that an experienced nurse practitioner, physician assistant or nurse can help in the psycho social management of the patient with genital herpes.

If the patient is referred to a specialist centres for counseling, the diagnosing physician should still address the acute issues at the first presentation.

Not all patients will want to take up the offer of counseling and support, nevertheless it should be offered to all.

**The following guidelines should be considered:**

Counseling should take place in a comfortable setting The patient should be dressed Interruptions should be minimized The session should be kept confidential The physician/counselor should stop taking notes (notes can be written up later) Terms that are pejorative or prejudiced should be avoided Listen to the patient The physician/counselor should show that he/she cares for and understands the patient The patient should be given the necessary time Give the patient information to take away and read The patient should be encouraged to return with a list of questions

The education process may include answering questions about the natural history of the disease including the likely triggers for reactivation. Little solid data exist, but patient experience suggests that stress appears to be associated with outbreaks in some patients. Advice on how to manage stress and lead a healthy lifestyle (exercise, good diet etc) should be given with care. Too much advice on lifestyle may be stressful for the patient, heighten feelings of guilt and the belief that the disease is self-inflicted.

Correct management of acute genital herpes is time-intensive. The likely impact of the disease on the patient and how well they are coping should be assessed. Psychological issues and concerns should start to be addressed at the first session. Many patients will be worried about the risk of having acquired HIV or other STDs, that they are seen to be promiscuous and may be worried about the doctor's opinion of them. In all cases (whether primary, non-primary or first symptomatic reactivation) the emotional consequences of the disease need to be addressed. The diagnosis of genital herpes will provoke a shock reaction in many patients and cause feelings such as guilt, anger, confusion and a sense of isolation.

Patients with genital herpes are usually very concerned about the diagnosis of the disease, its potential impact on their lives and how they will be viewed by their family and friends. Common concerns of patients relate to the social stigma of the disease, transmitting the disease, fear of telling potential sexual partners who may then reject them and how it will affect both their sex life and their social activities. Patients should be reassured that they are not alone in having genital herpes. The physician or counselor could offer information about local genital herpes support groups.

**First recurrence**

Patients should be asked to return to see the physician at the first recurrence.

At the first recurrence it may be useful to suggest that the patient keeps a symptom diary. This helps to educate the patient about their disease. If patients are treated with episodic antiviral therapy, recognition of the prodrome preceding an outbreak of genital herpes will allow the patient to start the drug immediately. The first recurrence may be the best time to tell the patient about local support groups.

**Long-term management**

Patients with few recurrences may be best managed with episodic antiviral therapy or no therapy, whereas those with more frequent recurrences may find suppressive therapy more beneficial. Medical indicators considered when evaluating the potential suitability for suppressive therapy are the frequency, duration, severity and psychological impact of recurrences. Psychological factors considered are whether the patient is psychologically affected by genital herpes, if the patient is withdrawn, frightened, unable to function and whether the patient's sex life is affected by recurrences (e. g. in new relationships the patient may feel a greater need to use therapy than in an established relationship). In some cases suppressive therapy may be indicated if the psychological impact of genital herpes on the patient is great. The patient should be made to feel empowered to use antiviral therapy.

### **Involving the Partner in Treatment Programs**

The diagnosing physician should establish whether the patient with genital herpes has a partner, and if they do, the partner should also be invited to attend the clinic. The partner should be seen individually at first and then, if the couple agree, the patient and his/her partner should be seen together. Counseling of patients and their partners requires different skills from counseling individual patients and should only be tackled by those with appropriate skills and experience. In this case, referral to an appropriate counselor might be considered or specific training in couples counseling undertaken.

### **Counseling the patient and partner**

As mentioned above, counseling of couples is best approached only by those experienced in this area. The physician/counselor should acknowledge at the first visit that the partner's decision to be included in the treatment program is to be commended and is a positive sign, since many partners do not wish to be involved in the treatment and counseling for genital herpes.

### **PRESS RELEASE**

#### **IHMF Meets to Address the Increase in Genital Herpes**

A major international meeting to address the public health problems caused by the dramatic increase in genital herpes world-wide, highlighted by recent new data in the New England Journal of Medicine, takes place on 23-24 November 1997 in Cannes, France.

Genital herpes is caused by herpes simplex virus (HSV), with most cases attributable to the type 2 strain (HSV-2). It is estimated that 107 million people in western countries are now HSV-2 seropositive. A recent US survey

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showed that HSV-2 seropositivity increased by 32% from 1978 to 1990 and in the UK the number of new cases recorded in 1995 was 62% higher than in 1988. The authors of the New England Journal of Medicine paper argue that improvements in the prevention of genital herpes infection are urgently needed, particularly as genital ulcers have been implicated in aiding the transmission of HIV.

The meeting of the independent group of clinicians, the International Herpes Management Forum (IHMF), will bring together over 450 delegates to discuss the implementation of IHMF guidelines for the management of genital herpes, published in June 1997. The guidelines highlight the following disturbing findings:

60% of HSV seropositive patients have signs or symptoms of genital herpes infection which remain unrecognised. Only 20% of HSV seropositive patients have recognized symptoms. Of the patients who consult a physician, only 27% receive antiviral treatment.

“ The increase in the incidence of genital herpes and the increasing number of cases that are undiagnosed and untreated is of major concern to us” commented IHMF spokesperson, Professor Richard Whitley of the University of Alabama, Birmingham, USA. “ We are hoping that this meeting will identify how we can ensure patients get effective trea