

Asymptomatic Herpesvirus Hominis (HVH) cervicovaginal infection in normal and high risk pregnancy

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Summary: Asymptomatic genital Herpesvirus hominis (HVH) infection in a group of 100 pregnant women with normal and high risk pregnancy was examined. Vaginal and cervical HVH shedding was diagnosed by the method of immunofluorescence. The results of cervical and vaginal swabs taken from the same patients, showed that in both groups of pregnant women examined, the presence of HVH infection in the vagina and cervix was not always simultaneous. Asymptomatic vaginal HVH type 1 infection was found more often in high risk pregnancy, and the difference in reference to the normal pregnancy was statistically significant. Asymptomatic cervical infection was more caused of HVH type 2 both in normal and high risk pregnancy.

Key words: Genital HVH shedding; Asymptomatic vaginal HVH infection; Asymptomatic cervical HVH infection; Normal pregnancy; High risk pregnancy; Immunofluorescence test.

INTRODUCTION

The genital herpes which is followed by clinical signs does not present a great problem in the diagnostic sense; this disease is better known than asymptomatic genital Herpesvirus hominis (HVH) infection. Pregnancy stimulates the virus persistence and it seems that the asymptomatic genital HVH infection is responsible for the majority of neonatal herpes^(2, 9, 12). According to Boehm *et al.*⁽¹⁾ such a form of genital HVH infection in the last trimester caused six of seven neonatal herpes. Hager *et al.*⁽⁵⁾ showed that

genital HVH infection without symptoms was followed by periodical virus shedding, and emphasized the importance of laboratory examination.

Data found in published literature considering genital HVH infection and pregnancy show clearly that the recurrent genital herpes appears more often than primary infection in pregnant women. The prevalence of active HVH infection is three times higher in pregnant than in non-pregnant women, and increases with gestation⁽⁶⁾. Clinical signs of genital herpes appear in only one third of pregnant women. According to reports in literature there is a danger to the fetus i.e. to the newborn infant in all forms of genital HVH infection: primary, recurrent, with or without symptoms, but it is

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not always equally present and depends on locality.

Starting from the above-mentioned findings, during our research we examined the frequency of asymptomatic genital HVH shedding in pregnant women with normal and high risk pregnancy. Asymptomatic genital HVH infection cannot be observed according to the gravity of disease during and after pregnancy, but the differences in the frequency of asymptomatic viral shedding can be examined in these conditions.

MATERIAL AND METHODS

We examined the incidence of asymptomatic cervical and vaginal HVH shedding in a group of 100 pregnant women with normal and high risk pregnancy, without genital herpes in their history. The swabs were taken from the patients

Table 1. - *Asymptomatic herpesvirus hominis cervical and vaginal infection in normal and high risk pregnancy. (The swabs were taken from the same patients).*

IF* test	Normal prgenancy vagina	cervix	High risk pregnancy vagina	cervix
HVH type 1 positive	1	3	4	1
HVH type 1 negative	45	43	36	39
HVH type 2 positive	2	6	4	4
HVH type 2 negative	44	40	36	36

IF* = immunofluorescence test

one day before the elective cesarean section was performed and immediately prepared for the indirect immunofluorescence test (3). The slides were viewed in the dark field using IF microscope "Zeiss". Only intracellular yellow-green immunofluorescence, with negative controls, was taken as a positive result. HVH antigens were found more in cytoplasm than in the nucleus of the infected cells. The statistical significance of the difference between the findings of the groups was determined by X^2 test (modified by Fisher).

RESULTS

The HVH infection in the vagina and cervix of pregnant women with normal and high risk pregnancy is not always present at the same time, i.e. the positive finding is possible in the vagina, with the negative one in the cervix, and the other way round. There was no statistically significant difference ($X^2 = 2.19$; $p > 0.05$ for normal pregnancy; $X^2 = 1.92$; $p > 0.05$ for high risk pregnancy).

Vaginal HVH type 1 infection in the two groups showed a statistically significant difference ($X^2 = 5.89$; $p < 0.05$). A detailed analysis showed that more often positive HVH type 1 finding in high risk than in normal pregnancy was responsible for this difference.

Positive or negative HVH type 2 finding in the vagina did not depend on the type of pregnancy ($X^2 = 0.04$; $p > 0.05$).

Vaginal HVH type 1 infection was diagnosed in 1.89% of pregnant women with normal pregnancy; HVH type 2 vaginal shedding was diagnosed in 15.22%

Table 2. - *Asymptomatic herpesvirus hominis vaginal infection in normal and high risk pregnancy.*

Pregnancy (no. of patients)	HVH type 1 IF*		HVH type 2 IF*	
	positive	negative	positive	negative
Normal	1 (1.89%)	52 (98.11%)	4 (7.55%)	49 (92.45%)
High risk	7 (15.22%)	39 (84.78%)	4 (8.70%)	42 (91.30%)
Total	8 (8.08%)	91 (91.92%)	8 (8.08%)	91 (91.92%)

IF* = immunofluorescence test

of the examined pregnant women, while HVH type 2 infection was discovered in 8.70% of the cases in high risk group.

Table 3. — *Asymptomatic herpesvirus hominis vaginal infection in high risk pregnancy.*

IF* test	High risk pregnancy (no. of patients)			
	Graviditas pro-longata	Diabetes mellitus in pregnancy	EPH gestoses	Rh isosensibilisation
HVH type 1 positive	2	1	2	2
HVH type 1 negative	4	16	13	7
HVH type 2 positive	0	2	1	2
HVH type 2 negative	6	15	14	7

IF* = immunofluorescence test

No statistically significant difference between the groups with different types of high risk pregnancy appeared in the presence of HVH type 1 and type 2 vaginal infection ($X^2=3.11$; $p>0.05$; $X^2=1.28$; $p>0.05$).

Cervical HVH type 2 shedding was diagnosed in 13.64% of pregnant women with normal, and 9.09% of patients with high risk pregnancy. The incidence of HVH type 1 cervical infection was lower: 6.88% and 2.27% in the group of normal and high risk pregnancy respectively. There was no statistically significant difference ($p 0.05$).

No statistically significant difference between the groups with different types of high risk pregnancy appeared in the presence of HVH type 1 and type 2 cervical infection.

Table 4. — *Asymptomatic herpesvirus hominis cervical infection in normal and high risk pregnancy.*

Pregnancy (no. of patients)	HVH type 1 IF*		HVH type 2 IF*	
	positive	negative	positive	negative
Normal	3 (6.82%)	41 (93.18%)	6 (13.64%)	38 (86.36%)
High risk	1 (2.27%)	43 (97.73%)	4 (9.09%)	40 (90.91%)
Total	4 (4.54%)	84 (95.46%)	10 (11.36%)	78 (88.64%)

IF* = immunofluorescence test

Table 5. — *Asymptomatic herpesvirus hominis cervical infection in high risk pregnancy.*

IF* test	High risk pregnancy (no. of patients)			
	Graviditas pro-longata	Diabetes mellitus in pregnancy	EPH gestoses	Rh isosensibilisation
HVH type 1 positive	0	0	1	0
HVH type 1 negative	6	14	12	8
HVH type 2 positive	0	3	0	1
HVH type 2 negative	6	11	13	7

IF* = immunofluorescence test

DISCUSSION

We examined the incidence of asymptomatic HVH cervical and vaginal shedding in pregnant women with certain types of high risk pregnancy, for the following reasons:

The changes appearing as a physiological phenomenon in normal pregnancy could be aggravated in high risk pregnancy.

It was shown that there was a reduction of IgG in diabetes mellitus, EPH gestation and prolonged pregnancy⁽¹⁰⁾.

There is also the well known fact of the sensitivity of diabetics to various infections, especially of urogenital organs.

The results of cervical and vaginal swabs taken from the same patients, showed that in both groups of examined pregnant women (normal and high risk pregnancy) the presence of HVH infection in the vagina and the cervix was not always simultaneous. It is possible that the shedding of HVH is discovered only in the vagina or the cervix, or the other way round. Because of this the findings of both vaginal and cervical swabs should be included in the diagnostics of genital herpes. Vontver referred to similar findings in 1982 ⁽¹²⁾.

Asymptomatic vaginal HVH type 1 infection was found more often in high risk pregnancy, and the difference in reference to the normal pregnancy was statistically significant. The presence of positive or negative HVH type 2 findings in the vagina did not depend on the type of pregnancy.

The distribution of positive and negative HVH type 1 and type 2 vaginal shedding in different types of high risk pregnancy did not shew a statistically significant difference.

Cervical infections represent a very dangerous locality of disease in connection with their possible influence on pregnancy. The special importance of virus infections is attributable to complicated diagnostic treatments on the one hand and the lack of antiviral drugs on the other. Therapeutic possibilities are limited especially during pregnancy. Most researchers engaged in genital HVH infection emphasize the need for paying special attention to the cervix during the checkup not only in the third, but also in the first trimester, because the danger of ascendant infection and chorioamnionitis is always present. It is necessary to make regular cervical checkups from week 32 of gestation in "risk" groups of pregnant women ⁽⁴⁾ Laboratory methods are necessary in the diagnostics of cervical HVH infection, because clinical symptoms are not clearly

pronounced or are lacking. Apart from this, the changes may also look like invasive carcinoma ⁽⁷⁾.

In all the pregnant women examined in our study, cervical asymptomatic HVH type 2 infection was discovered in 11.36% of swabs; HVH type 1 infection was present in 4.54% of pregnant women.

Similar results were published in 1972 by Pettay *et al.* ⁽⁸⁾. They discovered cervical HVH infection in 10% of pregnant women by the immunofluorescence test. Vesterinen *et al.* ⁽¹¹⁾ applying the same technique found cervical HVH infection in 14% of pregnant women in the first and third trimester.

Statistical analyses of differences in the frequency of the positive and negative findings of cervical HVH infection which we did during our study, showed that those differences were not caused by a certain type of high risk pregnancy. The comparison of all mentioned types of high risk pregnancy in connection with cervical HVH infection did not show a significant difference, which means that it was not caused by a specific type of high risk pregnancy.

CONCLUSION

Our results obtained during the examination of asymptomatic cervico-vaginal HVH infection in pregnant women with normal and high risk pregnancy, showed that asymptomatic vaginal HVH type 1 infection was more frequent in high risk than in normal pregnancy. Asymptomatic cervical infection was more often caused by HVH type 2, both in normal and high risk pregnancy.

The results of examinations of the cervical and vaginal swabs taken from the same patients showed that the examinations of vaginal and cervical swabs should always be included in diagnostic procedures of genital herpes.

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