

What Should I Do?

Reproductive Block, PBL; Case 3



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Color Guide:

- **Red:** Relatively important & mentioned in case tutorials.
- **Black:** Questions.
- **Blue:** Answers (mentioned in case tutorials).
- **Green:** Additional answers/notes.
- **Orange:** Explanation.

Learning Objectives:

- 1) Discuss the microbiology, pathology and pathogenesis of HS-2 infection in pregnant women.
- 2) Interpret symptoms, signs and laboratory results of a patient with HS-2 infection.
- 3) Discuss perinatal and transplacental transmission of infection during pregnancy.
- 4) Discuss the pharmacology of antiviral drugs.
- 5) Design a management plan for a patient with HS-2 infection during pregnancy.

Reproductive Block, PBL; Case 3

"What Should I Do?"

New Terms

Word	Meaning
Primigravida	A woman who is pregnant for the first time.
Gestation	The period of development in the uterus from conception until birth; pregnancy.
Stinging pain	A sharp tingling or burning pain or sensation.
Vaginal discharge	Is a term given to biological fluids contained within or expelled from the vagina. It can be of various colors.
Loin	Are the sides between the lower ribs and pelvis, and the lower part of the back.
Vaginal introitus	Introitus is an entrance that goes into a canal or hollow organ. The vaginal orifice is an introitus.
Cephalic presentation	It is a situation at childbirth where the fetus is in a longitudinal lie and the head enters the pelvis first.
Longitudinal lie	An anatomical relationship in which the long axis of the fetus is longitudinal and roughly parallel to the long axis of the mother.
Fetal heart sounds	A sound produced by the heart of a fetus, as detected by auscultation or by electronic fetal monitoring. The heart begins beating at about 14 days of intrauterine life.
Perineum	The portion of the body in the pelvis occupied by urogenital passages and the rectum, bounded in front by the pubic arch, in the back by the coccyx, and laterally by part of the hipbone.
Swab	A small piece of cotton, gauze, etc. for use in applying medication, cleansing a wound, or obtaining a specimen of a secretion, etc.
Scraping	Material scraped especially from diseased tissue (as infected skin) for microscopic examination.
Sexually transmitted diseases (STD)	Any of various diseases or infections that can be transmitted by direct sexual contact including some (as syphilis, gonorrhea, chlamydia, and genital herpes) chiefly spread by sexual means and others (as hepatitis B and AIDS) often contracted by nonsexual means—called also STD.

Reproductive Block, PBL; Case 3 "What Should I Do?"

Word	Meaning
PCR	Is a biochemical technology in molecular biology used to amplify a single or a few copies of a piece of DNA across several orders of magnitude, generating thousands to millions of copies of a particular DNA sequence.
Treponema pallidum	The cause of syphilis, a worm-like, spiral-shaped bacterium called a spirochete that wiggles vigorously when viewed under a microscope.
Chlamydia	A Gram-negative bacteria of the genus Chlamydia, which are obligate intracellular parasites and are responsible for such diseases as trachoma, psittacosis, and some sexually transmitted diseases.
Neisseria gonorrhoea	The bacterium that causes gonorrhoea. It cannot survive for any length of time outside the human body.
Immuno- fluorescent	Any of various techniques that use antibodies chemically linked to a fluorescent dye to identify or quantify antigens in a tissue sample.

Case Scenario

Key information:

Female, 26 years old and primigravida (32 weeks gestation).

Presenting problems:

1. Fever.
2. Fever and feeling unwell.
3. Pain on passing urine (dysuria).
4. Feeling uncomfortable in her genital area.

History:

- 1) She is feeling unwell for the last 3 days.
- 2) Stinging pain in her genital region > gradually becomes severe.
- 3) Decreased in her appetite.
- 4) She noticed some vaginal discharge.

- Past Medical History: Nil
- Family History: Nil
- Medication and Allergy: Nil
- Alcohol and Smoking: Nil
- Social history: her husband travels a lot and he is a smoker.

Clinical Examination:

She looks a little distressed and unable to sit comfortably.

- **Vital signs:**
 - Increase in her temperature (38 C)
 - Increase in her respiratory rate (24)
- **External genital and pelvic examination:**
 - Vulva and labia are edematous, (**tender to touch**, looks reddish).
 - **Vesicles** are present on the vulva and vaginal introitus & they contain **clear fluid**.
 - Spec examination: vaginal discharge. **Cervix shows 2-3 vesicles**.
 - 2 to 3 inguinal lymph nodes are **palpable** and **tender**.
- **Cardiovascular and respiratory examination:** Normal.

Reproductive Block, PBL; Case 3 "What Should I Do?"

Investigations:

- Complete blood count:
All are within normal range. However, WBCs show relative lymphocytosis.
- Vesicular fluid:
 - Cell culture for HS-2 → **Cytopathic Effect** in Sawsan's sample.
 - Immuno-flourescent HS-2 → **positive**.
 - PCR HS-2 → **Positive**.
- Serology (serum antibodies for HS-2):
 - **Ig M Antibodies to HS-2 → Reactive.**
 - **Ig G Antibodies to HS-2 → Reactive.**
- Urinalysis:
No pus, no bacteria, no RBCs.
- Other STDs:
All are -ve.

Reproductive Block, PBL; Case 3

"What Should I Do?"

Questions

Before answering the questions below, please read tutorials 1 and 2.

1) What are the differences between HS-1 and HS-2?

HS-1: - Causes 10% of genital herpes cases.

- Infection in the upper part of the body.
- Recurrence occurs in the same area.

HS-2: - Causes 90% of genital herpes cases.

- Infection in the lower part of the body, the genital area.
- Recurrence in the sexual area.

2) Which type of herpes virus causes multiple recurrent painful vesicular lesions in the genital area?

Herpes simplex virus type 2.

3) Which type of fluids is found in the herpetic vesicles?

Clear fluid.

4) Where do HSV-1 and HSV-2 commonly remain?

HSV-2 remains latent in the **sacral ganglia** while **HSV-1** remains latent in the **trigeminal route ganglion**.

5) Describe the structural and genetic characteristics of herpesvirus?

Enveloped, icosahedral capsid, with linear double stranded DNA genome.

6) In the serology investigation, why IgM Antibodies and IgG Antibodies to HS-2 are reactive?

Because Individuals with recent infections are more likely to test positive for both herpes IgG and IgM . If the test positive for herpes IgG but not IgM, then the herpes infection is probably not recent (maybe from the past 2 months).

Herpes IgM antibodies usually are detectable by herpes blood tests within 7-10 days after initial infection, and levels stay high for approximately two weeks.

Herpes IgG antibodies do not show up until slightly later after initial infection.

Reproductive Block, PBL; Case 3 "What Should I Do?"

7) How we take the swab from herpetic vesicles?

By scrapping from the base of the vesicles and we take it from the whole area (genitalia & anal area).

8) What were the management plans to this patient?

- 1- Giving her an antiviral drug (acyclovir).
- 2- Giving her an analgesic drug for pain (paracetamol).
- 3- Not having sexual intercourse at the present time.

9) What is the treatment of choice for HSV infections. Which enzyme is required to activate the drug?

Acyclovir and it's suitable for pregnant women. Thymidine kinase.

10) What is the drug that was prescribed to the patient as analgesic?

Panadol tablets (paracetamol).

11) According to 38 weeks examination which reveals the presence of a few vesicles on the cervix, which way of delivery the doctor decided?

The doctor decided to deliver the baby via lower segment Caesarian section.

12) What is APGAR score and when it's taken?

It's a score for assessment of newborn. It's taken on 1st minute and 5th minutes of life and later if necessary.

13) What does each letter in "APGAR" stand for?

- A = Appearance of skin color.
- P = Pulse (heart rate).
- G = Grimace (reflex irritability).
- A = Activity (muscle tone).
- R = Respiration.

14) Is there a need to do lab tests to the newborn? Explain.

Yes, we need to assess if the baby has been infected.

General Information

From Webmd.com:

- Genital herpes is an infection of the genitals, buttocks, or anal area caused by herpes simplex virus (HSV). Most genital herpes is caused by HSV type 2. Yet as people begin to have sex at younger ages the herpes type 1 virus has increasingly been shown to also cause genital herpes.
- Lots of risk factors can increase your risk of genital herpes. Stress, fatigue, and being a woman are herpes risk factors.
- STDs can increase the risk of HIV. People with genital herpes have at least twice the risk of becoming infected with HIV if exposed to it than those without it.
- Most sexually active people with genital ulcers have herpes, syphilis, or chancroid. But not all genital ulcers are caused by STDs.
- **Once a patient has become infected by herpes virus, the infection remains for life.**