

A Case of Neonatal Herpes in the Setting of Maternal Herpes Mastitis

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Objectives

- Outline a unique case of neonatal Herpes Simplex Virus (HSV) infection
- Provide the pediatrician with history taking questions to ask about HSV, especially when a unique mode of transition is being considered
- Define key physical exam features that warrant a further work-up for HSV infection
- Review background information on neonatal HSV infection
- Discuss the basic framework for an outpatient work-up of a patient with this presentation and mode of HSV transmission

Initial Presentation

- **Chief Complaint:** Vesicles in the oral cavity and weak latch on breastfeeding
- **Brief History:** 2 week-old full term female born with no complications
 - Strictly breast-fed
 - Presented to PCP for
 - Weak latch
 - Mild decrease in urine output
 - Maximum temperature of 100.1F at home.
 - Vesicles found throughout the oral cavity
 - Ulcerated lesion to the patient's head
 - Sent to the ER at Children's Hospital, New Orleans.

Presentation to ER

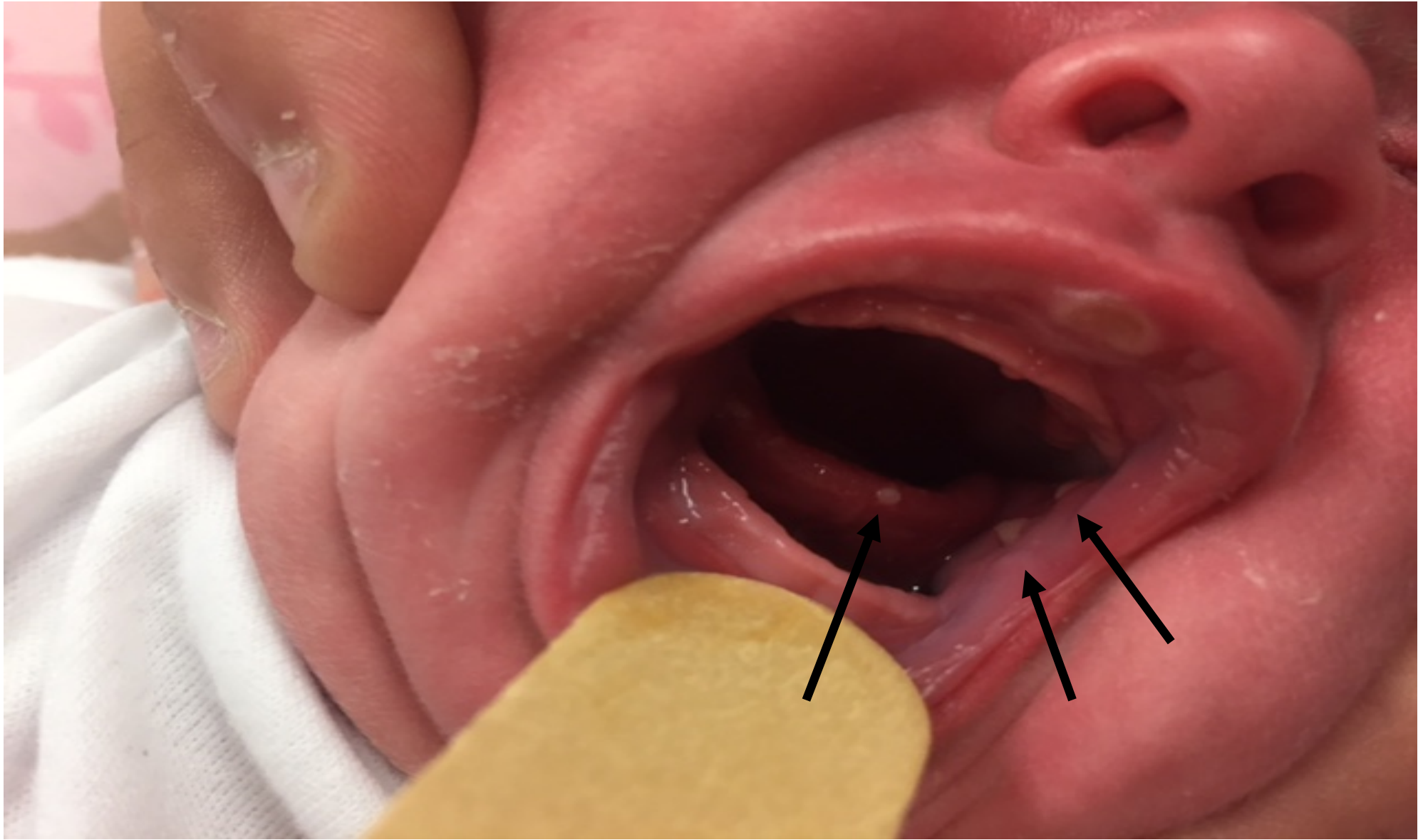
- **Additional History:**
 - No known history of HSV infection in family members or contacts
 - Mother began a course of Augmentin 3 days prior to presentation – for mastitis
- **Physical Examination:**
 - Vitals: T 99.4, HR 139, RR 40, pulse ox 99%
 - General: nontoxic, alert, active, and without meningeal signs.
 - HEENT: Oral cavity with fluid filled vesicles on tongue, buccal mucosa, and inside of upper lip; 1 cm ulcerated lesion on scalp

Differential Diagnosis

- Hand, Foot, and Mouth Disease
- Oral Candidiasis
- Herpes Simplex Virus (HSV) Infection
- Varicella Zoster Infection
- Bacterial skin infection
 - Staphylococcal Pustolosis
 - Staphylococcal Scalded Skin Syndrome
 - Streptococcal Infection







Hospital Course: ER

- Vesicle was de-roofed and sent for HSV PCR and Viral culture
- Blood sample was sent for HSV PCR
- Patient was started on empiric Acyclovir and admitted for observation.
- Mother was instructed to stop breastfeeding at this time.

Hospital Course: Admission

- Viral cultures positive for HSV
 - Patient's CSF: HSV+
 - Mother's new breast lesions: HSV +
- Patient treated with Acyclovir x 21 days
- Mother started on Ganciclovir
- Repeat LP after 21 days of Acyclovir was HSV negative
- Discharged home with 6 months of oral Acyclovir

Diagnosics

- **12/4:** Blood culture – No growth X 5 days
- **12/4:** Blood HSV PCR - Negative
- **12/4:** HSV Lesion Swab PCR – **HSV 1 detected**
- **12/4:** Viral Culture Oral Lesion – **HSV 1 isolated**
- **12/7:** CSF- Colorless, **81 WBC**, 283 RBC, 5% N, 26%L, 69%M, **36 mg/dl glucose, 76 mg/dl protein**
- **12/7:** HSV PCR CSF – **HSV 1 detected**
- **12/7:** CSF culture – many WBC's, no growth for 3 days
- **12/7:** Maternal breast lesion viral culture – **HSV 1 detected**

HSV

- Neonatal infection with herpes simplex virus (HSV) occurs in 1 out of every 3200 to 10,000 live births
- Prevalence of symptoms peaks in the second week of life
- **Modes of Transmission**
 - Intrauterine (Rare)
 - Antepartum (85%)
 - Post-partum (10%)

HSV

- **Risk factors for transmission**
 - Primary vs. secondary outbreak
 - Maternal fever during partum
 - Prolonged rupture of membranes
 - Mode of delivery

Most neonates with HSV disease are born to mothers without a history of HSV infection or other identifiable risk factors

1) Flagg EW, Weinstock H. Incidence of neonatal herpes simplex virus infections in the United States, 2006. Pediatrics 2011; 127:e1.

2) Kimberlin DW. Herpes simplex virus infections of the newborn. Semin Perinatol 2007; 31:19.

What Came First?

Did the patient's mother have latent HSV, develop HSV mastitis (which is very rare) and inoculate the patient during breast-feeding?

Did the patient contract HSV perinatally, develop oral lesions and then inoculate her mother?

If the mother inoculated the child during breast-feeding, could this have been prevented?

HSV Characteristics

Type of Disease	% of cases	Clinical Symptoms	Viral Culture of Surface lesion	Viral Culture of Scraping	Blood HSV PCR	CSF PCR
SEM (Skin, Eye, Mouth)	45%	Vesicular lesions, conjunctivitis, oral lesions on the mouth palate and tongue	Positive	Positive	75% Positive	Negative
CNS Disease	30%	Seizures, lethargy, irritability, tremors, poor feeding, skin lesions in 70%	Positive	Positive if present	65% Positive	75-100% Positive
Disseminated	25%	Sepsis, fever/hypothermia, Hepatitis, DIC, Skin lesions in most cases and CNS disease	Positive	Positive if present	100% Positive	> 90% Positive

Adapted from: American Academy of Pediatrics. Herpes simplex. In: Red Book: 2015 Report of the Committee on Infectious Diseases, 30th ed, Kimberlin DW (Ed), American Academy of Pediatrics, Elk Grove Village, IL 2015. p.432

Suspect HSV?

- **Please obtain**
 - Surface swabs from conjunctivae, mouth, nasopharynx and rectum. Send for viral culture.
 - Scrapings of skin lesions for viral culture, HSV PCR. DFA can be sent but not as accurate
 - CSF for HSV PCR
 - Blood or plasma HSV PCR

Take Home Points

If a neonate presents to clinic with a weak latch, trouble breastfeeding, or is toxic appearing:

- Always look in the patient's mouth and do full body skin check for vesicular lesions.
- Question the mother about history of HSV (cold sores, vaginal lesions, etc.) and any history of mastitis or nipple lesions. If so, instruct to stop breast-feeding.
- If the patient's exam is concerning or if patient is well-appearing but vesicular lesions are found, send the patient to the nearest ER.

In the ER

- If the patient shows any signs of HSV infection (vesicular lesions, toxic appearing) an LP is warranted and empiric acyclovir should be started
- If this work-up is started and the patient's mother has mastitis, she should have her lesions cultured as well.

References

Flagg EW, Weinstock H. Incidence of neonatal herpes simplex virus infections in the United States, 2006. *Pediatrics* 2011; 127:e1.

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Thank You

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Any Questions?