

CLINICAL VIGNETTE

Gingivostomatitis in an adult: More than meets the eye

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Case Report

A 22-year-old male Asian student presented to the emergency room for evaluation of eye and mouth pain and discharge. The patient's symptoms first began 10 days prior when he noticed a small sore on his inner lip. Over the next few days the sore got worse and started to spread to his gingiva and palate. At this time he also noted bilateral eye dryness. Five days prior to presentation he started experiencing subjective fevers. He had no chills or night sweats, and the fevers were relieved with the use acetaminophen. Three days prior to presentation his symptoms progressed with worsening oral and ocular pain, dryness and oozing. He developed severe photophobia, periorbital edema, and noted increased difficulty opening his eyes.

His past medical history was significant for eczema, predominantly of the hands. He used Vaseline and other over the counter moisturizers as treatment for the eczema. He took no other medications.

The patient reported mild sleep deprivation over the prior two weeks due to his course workload. With this he had noted worsening fatigue. He denied recent arthralgias, diarrhea, nausea or vomiting. He had no recent illnesses and reported neither he nor his girlfriend had a history of oral herpes lesions or aphthous ulcers. He denied ever having penile-vaginal intercourse but did report oral-genital intercourse with his current girlfriend. He had no past sexual partners. The patient was born in urban China and had been in the United States as an engineering student for two years.



Figure 1

Physical examination demonstrated bilateral blepharitis with yellow crusted discharge. The conjunctiva were injected. There were red subcentimeter crusted papules surrounding both eyes near the edges of the eye lids. Ophthalmological examination with fluorescein staining revealed right corneal dendritic lesions. He had crusted blood in his nares bilaterally with small crusted intranasal papules (Figure 1). Erythema, edema and ulcers were present on the anterior tongue, interior lip edges, and palate. There was mild cervical lymphadenopathy. There were erythematous lichenified plaques on the patient's neck, right antecubital fossa, web spaces of his fingers and periungual regions. Genital examination revealed no abnormalities. The rest of the examination was normal.

Initial white blood cell count (WBC) was normal at $5.54 \times 10^3/\mu\text{L}$ with a normal differential. Erythrocyte sedimentation rate was mildly elevated at 36mm/hr. Basic metabolic panel and liver function tests were normal.

Herpes gingivostomatitis was suspected. Given the patient's age, and the severity of the presentation, there was concern for an underlying immunocompromised state.

Acyclovir was started at 10mg/kg intravenous (IV) every eight hours along with Cefzolin 1gm IV every six hours due to concern for superimposed bacterial infection. The patient also received topical compresses with saline and Burow's solution. He required intravenous opioid analgesics to treat the severe pain he was experiencing secondary to his oral lesions.

Further immunological studies revealed HSV immunoglobulin M (IgM) was positive, with negative HSV-1 and HSV-2 immunoglobulin G (IgG) assays. Tests for human immunodeficiency virus (HIV)1/HIV2, rapid plasma regain (RPR), antinuclear antibody (ANA) and cytomegalovirus (CMV) were negative. Mycoplasma pneumoniae and coxackie titers were negative. HSV-1 IgG was positive when repeated one month later in follow-up.

After one day of intravenous acyclovir therapy, the patient's symptoms improved, and he was able to tolerate oral intake. He was discharged with a 5-day course of valacyclovir 1gm by mouth three times daily and cephalexin 500mg by mouth twice daily.

Ultimately, the severity of the patient's presentation was thought to be due not to immunosuppression but concomitant eczema (he likely had a component of eczema herpeticum). It is also possible that the patient's late age of onset of primary HSV-1 infection contributed to the severity of his infection (see discussion below).

Discussion

Herpes simplex virus infections are prevalent across the United States. Epidemiological research shows that the seroprevalence of HSV-1 in the United States is decreasing¹. Serosurveys performed by the National Health and Nutrition Examination Surveys (NHANES) demonstrate these trends. Results of the two most recent surveys (1988-1994 and 1999-2004) found decreased seroprevalence of HSV-1 between the first and second survey period (a mean of 10.5 years)¹. Among individuals born in the United States, there was a 10% decrease in the seroprevalence of HSV-1 possibly secondary to improvements in living conditions and hygiene. One study done in the United Kingdom showed a reduction in seroprevalence in pre-adolescent populations from 63% in 1953 to 23% in 1995². Other developed countries, including the

Netherlands and Japan, have published data demonstrating similar trends^{3,4}.

With this decrease in overall seropositivity, there is a trend towards later onset of primary infection^{1,5,6}. Many clinicians have observed that primary infection may be more severe when it occurs in adults^{5,7,8}, as in our patient. In the past, primary HSV-1 infections most commonly presented in adults as either subclinical infections or pharyngitis with fevers and lymphadenopathy⁹. On the other hand, herpetic gingivostomatitis has always been thought of as a classic manifestation of primary HSV-1 infection in children aged 1-3 years. However, there is a recent trend in developed countries for some primary infections in the adult population to now present with gingivostomatitis⁸. Some smaller studies are now even documenting gingivostomatitis as being more commonly seen in young adults than children⁷.

Decreasing prevalence of HSV-1 infection in childhood combined with changing sexual practices, notably oral-genital exposure and the use of condoms for intercourse, is increasing the rate of genital herpes infection caused by HSV-1^{10,11}. One study done in Sweden looking at 108 individuals with genital herpes found that almost half (44%) were culture positive for HSV-1 not HSV-2¹². It is thought that if the primary exposure to the HSV-1 virus is via genital mucosa, the lack of any immune recognition against the virus will leave the host susceptible to primary and recurrent genital infections. Appropriate viral typing and diagnosis has significant implications in clinical care and sexual health counseling. It is also a factor to be considered in prevention and treatment of vertical transmission of the virus to neonates.

With the decrease in prevalence of HSV-1 infection, there are important implications regarding HSV-2 transmission that should be considered. HSV-1 seropositivity plays a role in the clinical impact of HSV-2 infection. Compared with HSV-1 seropositive individuals, a person who lacks HSV-1 antibodies is up to 3 times more likely to be symptomatic if they acquire an HSV-2 infection¹. It is important to note that while the seroprevalence of HSV-1 is decreasing, that of HSV-2 is staying the same.

This case highlights an extreme presentation of a common illness (HSV-1 infection). Further exploration of the literature revealed significant

epidemiological trends that this patient exemplifies. As less of the population is exposed to HSV-1 during infancy and childhood more young adults are presenting to healthcare professionals with signs and symptoms of primary HSV-1 infection. There is some evidence that adults may have more severe symptoms than children at the time of presentation. Finally, as more cases of primary HSV-1 infection are seen in adults, many of them can present with gingivostomatitis, which was once thought to be a manifestation of primary infection in young children. Reviewing such a case also re-emphasizes the importance of the physician's role in appropriately diagnosing herpes simplex virus infections, rapidly initiating appropriate treatment to prevent significant organ damage and providing counseling in order to limit further spread of this disease.

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Submitted on August 22, 2013