

Answer: VARICELLA

additional information:

Social hx: pt is an immigrant from Honduras and lives with his parents and his 1 year old child; in USA for 4 years; unknown immunization history

ED Course •CXR performed... •Seen by Infectious Disease... •Reported to Department of Public Health... •Advised to stop all medications except Benadryl... •Discharged with acyclovir Rx...

Differential Diagnoses:

Smallpox

Herpes simplex

bullous pemphigoid

dermatitis herpetiformis

impetigo

drug eruptions

insect bites

erythema multiforme

syphilis (NB: secondary syphilis can be HIGHLY contagious and gloves should ALWAYS be worn for any diff dx involving secondary lues)

emedicine links:

[Bullous Pemphigoid](#)

[Herpes](#)

[Simplex](#)

[Dermatitis Herpetiformis](#)

[Impetigo](#)

[Drug Eruptions](#)

[Insect Bites](#)

[Erythema Multiforme](#)

[Syphilis](#)

note: (from emedicine, and also noted by our ID consult):

Countries with tropical and semitropical climates have a higher incidence of adult chickenpox compared with countries with a temperate climate (eg, United States, Europe).

Chickenpox (varicella) vx Smallpox (variola)

from CDC (<<http://www.cdc.gov/vaccines/pubs/pinkbook/downloads/smallpox.pdf>>)

Modified Smallpox Modified smallpox refers to the character of the eruption and the rapidity of its development. This form of smallpox occurs mostly in previously vaccinated patients. The prodromal illness occurs but may be less severe than in ordinary-type smallpox. Fever during evolution of the rash is usually absent. The skin lesions tend to evolve more quickly, are more superficial, and may not show the uniformity characteristic of more typical smallpox. The lesions are often few in number, but even when they are numerous, or even confluent, they usually evolve rapidly. Modified smallpox is rarely, if ever, fatal. This form of variola major is more easily confused with chickenpox.

Images: Helpful poster we all saw after bioterrorism alerts took off with anthrax attacks:
http://www.lapublichealth.org/media/tph/Smallpox_Poster.pdf

Dx:

Rash (from mdconsult<Cohn & Powderly: Infectious Diseases):

Lesions begin as papules but progress within hours to superficial, clear vesicles surrounded by a variable halo of erythema. Vesicles are often oval, with the long axis parallel to skin creases, and are commonly pruritic. New lesions appear progressively over 5–7 days. The head and upper trunk are affected first and most densely, whereas the limbs have fewer lesions and these appear later. The rash is exaggerated and appears earlier in hot areas of skin, for instance under a diaper or occlusive dressing. The vesicular fluid opacifies and in 2 or 3 days a central dimple appears. A crust then forms from this center outward and falls away after about 5 days. Unless secondary infection has occurred, scarring is limited to faint, pale outlines. The rash is accompanied by variable fever. Secondary cases in households are often more severely ill than the index case.

Rash (from emedicine<chickenpos<dermatology):

The characteristic chickenpox vesicle, surrounded by an erythematous halo, is described as a **dewdrop on a rose petal** (see [Media File 1](#)).

Chickenpox is clinically characterized by the presence of active and healing lesions, in all stages of development, within affected locations.

Lesions characteristically heal without scarring, though excoriation or secondary bacterial superinfection predispose to scar formation.

Key management points:

usually a clinical dx (as in our case), but one can do:

Tzanck preparations from the base of the lesion
Antibody-linked fluorescent microscopy testing

In non-sick person, do CXR; if no resp sx and o/w not immuno-compromised and CXR neg, may be discharged home on antivirals (see below)

Testing for complications as directed by history and exam:

Labs for hepatitis, soft tissue infection –CSF for meningitis/encephalitis

Remainder of discussion from excellent presentation by Hitesh Shah on 5/19/09:

Varicella Background

Varicella -Zoster virus or Human Herpes Virus 3 –Etiology for both varicella (chickenpox) AND herpes zoster (shingles) • Highly contagious –More than 90% household contact transmission rates –Aerosolized droplets from nasopharyngeal secretions of infected patient or direct contact with vesicular fluid –Airborne transmission reported –AIRBORNE PRECAUTIONS

Varicella Background • 4 million children/year in USA • 60 million/year world-wide • Most cases in children less than 9 (3 to 6) • Late winter/early spring • Prior to vaccine... – 10,000 hospitalizations/year in the USA –100 to 150 deaths/year • Since vaccine introduction in 1995, significant decrease in infection, hospitalization rates, and mortality

Clinical Presentation •Sudden onset of: –Fever, Malaise, Headache, Pharyngitis, Anorexia – loss of appetite –Skin eruptions •Adults may have severe constitutional symptoms and skin eruption may be delayed 1 to 2 days

Clinical Presentation • Pruritus • Rash –Initially macules...papules...characteristic vesicles (2 - 3 mm) on erythematous border several hours to days... pustular component...granular scab/crusting that fall off in 5 to 20 days –Lesions in different crops on trunk (highest density) and on scalp, face, extremities –Several stages present at once –Anywhere on the skin and mucus membranes

Management • In children, NO ASA because of risk of Reyes' syndrome
• Acetaminophen for fever • Antihistamines for pruritis • Keep fingernails trimmed short
• Calamine lotion and Aveeno® (oatmeal) baths may help relieve some of the itching


Antiviral Therapy: Acyclovir • Synthetic nucleoside analog that inhibits replication of human herpesviruses • Proven effectiveness in randomized studies – Recommended for children with chronic illness, steroids, immuno-suppression and all adults – 20 mg/kg/dose up to 800 mg five times daily for seven days – Best within 24 hours of rash – Intravenous in pneumonia, immuno-suppressed – 10 mg/kg/dose q 8 hours for seven days • Adverse effects – GI upset, headache – IV form can cause reversible renal failure

Management • Infection control – Recommend airborne precautions – Very contagious, pts should avoid immunocompromised – Incubation is 13 to 17 days, contagious 5 days before vesicles and 5 days after... – Susceptible people contagious 10 to 21 days after exposure – Susceptible health care workers avoid pts with varicella/zoster – Until all vesicles are crusted and dried – Check titers in pregnant women, immunocompromised pts, if negative, VZ immunoglobulin should be given w/in 96 hours

AIRBORNE PRECAUTIONS AT HH:

TRANSMISSION-BASED ISOLATION POLICY

Section: 02
 Policy #: 002
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Type of Transmission- Based Precaution	Description
<p style="text-align: center;">Airborne Precautions</p>  <p>Personal Protective Equipment Required</p> <ul style="list-style-type: none"> • Airborne Precautions require the use of an N95 respirator or a PAPR (positive air purified respirator) 	<p>Patients who have or may have an infectious disease that is spread by the airborne route must be placed on Airborne Precautions (formerly respiratory isolation) in addition to Standard Precautions.</p> <p>See IC Manual Policy 02-003 Placing a Patient on Airborne Precautions Policy for details regarding Airborne Precautions.</p> <p>Diseases Requiring Airborne Precautions</p> <ul style="list-style-type: none"> • Tuberculosis, Pulmonary (or laryngeal) <ul style="list-style-type: none"> • Suspected or confirmed • Varicella (chickenpox) • Herpes Zoster (shingles) disseminated or in an immunocompromised patient • Rubeola (Measles)

Complications • High Risk groups –Immuno-suppressed, especially children with leukemia •Increased risk of disseminated disease •Mortality rate of 5% –Neonates less than 10 days old –Mothers in perinatal period –5 days before and 2 days after delivery > disseminated herpes in newborn –Fetal infection after 1st/early 2nd trimester – varicella embryopathy – limb atrophy, scarring on extremities, CNS, ocular manifestations

Complications • Bacterial super-infection – staph/strep cellulitis – Up to 5% of pediatric cases, most pediatric hospitalizations • Pulmonary – Most adult hospitalizations are for pneumonia • Neurologic • Sepsis – usually children • Thrombocytopenia • Arthritis • Hepatitis • Glomerulonephritis

Pulmonary complications • Pneumonia –1/400 adults with varicella –Mortality between

10 to 30 percent! –1 to 6 days after rash with tachypnea, dry cough, dyspnea • Risk factors –Smokers –Male gender –Immuno-suppression –Pregnancy

Neurologic complications • Encephalitis –Acute cerebellar ataxia •Usually limited course with full recovery –Diffuse encephalitis •Delirium •Seizures •Focal neurologic signs • Aseptic meningitis • Reyes' syndrome has virtually disappeared

Disposition • Home –Healthy children can be discharged home –Healthy adults without complications • Admission criteria –Immuno-suppressed –Immuno-competent adults with complications i.e. pneumonia, encephalitis

References • Albrecht, MA. Clinical features of varicella-zoster virus infection: Chickenpox. In: UpToDate, Basow, DS (Ed), UpToDate, Waltham, MA, 2009. • Albrecht, MA. Treatment of varicella-zoster virus infection: Chickenpox. In: UpToDate, Basow, DS (Ed), UpToDate, Waltham, MA, 2009. • Lichenstein R. Pediatrics, Chickenpox or varicella. In: eMedicine, 2008 Sept. <<http://emedicine.medscape.com/article/800546-overview>> • Marx JA, Hockberger RS, Walls RM et al., eds. Rosen's Emergency Medicine Concepts and Clinical Practice. 6th ed. Philadelphia, PA: Elsevier; 2006: 1858-1859, 2042-2043. • Tintinalli JE, Kelen GD, Stapczynski JS., eds. Emergency Medicine: A Comprehensive Study Guide. 6th ed. New York, NY: McGraw Hill; 2004: 873.