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Viruses, Part 2: RNA Viruses

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Virus	Clinical Presentation	Diagnosis	Treatment	Miscellaneous
Flaviviridae				
Dengue virus	Transmitted via <i>Aedes</i> mosquitos; exanthem in 50% of cases: morbilliform or scarlatiniform eruption with islands of sparing; petechiae and mucosal bleeding; systemic: fever, headache, nausea, vomiting, retro-orbital pain, myalgia; severe cases may result in shock and cardiovascular collapse	PCR or EIA	Supportive care; prevention via control of and protection from mosquito bites (eg, DEET-containing insect repellents, mosquito nets)	Endemic to Southeast Asia and India, sub-Saharan Africa, and Central and South America
HCV	Primarily affects the liver; most cases are asymptomatic but may progress to chronic hepatitis, cirrhosis, or hepatocellular carcinoma; cutaneous manifestations of HCV include mixed cryoglobulinemia, polyarteritis nodosa, lichen planus, porphyria cutanea tarda, leukocytoclastic vasculitis, necrolytic acral erythema, pruritus	Serology followed by confirmatory nucleic acid test for HCV RNA	Combination pegylated interferon alfa and ribavirin for 24–48 wk; liver transplant for end-stage complications	Transmitted via intravenous drug use or tattooing or piercing using contaminated ink or improperly sterilized equipment; transmission in a health care setting via needlestick injury; risk from blood transfusion or organ transplantation is low in areas with universal screening
West Nile virus	Transmitted among wild birds; infection in humans via <i>Culex</i> mosquitoes and person-to-person contact; nonspecific exanthem in 25% of cases; nonspecific systemic symptoms include LAD, myalgia, meningitis, encephalitis	Serology; PCR and viral culture also are available	Supportive care; prevention via control of and protection from mosquito bites (eg, DEET-containing insect repellents, mosquito nets)	Endemic in temperate and tropical climates worldwide, recent epidemics in the United States; 80% of infections are asymptomatic; more common in warmer months
Paramyxoviridae				
Measles virus (rubeola)	Cutaneous: rash begins on face and behind ears, then spreads caudally; systemic: cough, coryza, conjunctivitis, fever; enanthem: Koplik spots (grey papules on the buccal mucosa)	Serology	Supportive care; vitamin A supplementation recommended in communities where vitamin A deficiency is common; MMR vaccine: 2 doses, one at age 12–15 mo and one at age 4–6 y	Spreads via respiratory droplets, highly contagious; complications include myocarditis, pneumonia, encephalitis, subacute sclerosing panencephalitis

(continued)

Virus	Clinical Presentation	Diagnosis	Treatment	Miscellaneous
Picornaviridae				
Coxsackievirus A16	Hand-foot-and-mouth disease: eruption of painful papules and vesicles that progress to football-shaped erosions on the palms, soles, face, and oral mucosa; prodrome of fever; presentation often variable	Usually clinical; viral culture, immunoassay, and PCR are available	Supportive care; usually resolves in 1–2 wk	Affects infants and toddlers; highly contagious, small epidemics in day cares
Type A coxsackieviruses (herpangina)	Painful erosions on posterior oropharynx, high fever, sore throat	Clinical	Supportive care; self-limited	Coxsackievirus A6 associated with more severe presentation and onychomadesis
Retroviridae				
Human immunodeficiency virus	Cutaneous: truncal morbilliform eruption in 20%–50%, after initial infection cutaneous manifestations related to opportunistic infections (eg, <i>Cryptococcus</i>) and neoplasms (eg, Kaposi sarcoma); primary infection: flulike prodrome, tender LAD	EIA followed by confirmatory Western blot analysis	HAART (combination drugs that inhibit multiple steps of viral replication); prevention techniques include safe sexual practices, needle exchange programs, preexposure prophylaxis in high-risk groups with daily tenofovir	Utilize reverse transcriptase to produce DNA from the virus' RNA genome, which is then incorporated into the host genome
Human T-lymphotropic virus 1 and 2	ATL: aggressive non-Hodgkin lymphoma; lytic bone lesions; hypercalcemia; solid organ involvement; nonspecific skin lesions; may progress to erythroderma	EIA followed by confirmatory Western blot analysis or PCR	Multidrug chemotherapy regimens (eg, CHOP); poor response to treatment	Endemic in Japan, Africa, the Caribbean, and Central and South America; onset of ATL typically occurs 20–30 y after infection; more common in males
Togaviridae				
Chikungunya virus	Arbovirus transmitted by <i>Aedes</i> mosquitoes; presentation similar to dengue; no hemorrhagic component	Serology	Supportive care	Common in India and islands in the Indian Ocean, increasingly reported in the Caribbean; sequela of severe low back pain and arthralgia may last for months
Rubella virus (German measles)	Cutaneous: rose-pink macules start on face then spread caudally; systemic: tender occipital and postauricular LAD; enanthem: Forchheimer spots (petechiae on the soft palate)	Serology or PCR	Supportive care; MMR vaccine: 2 doses, one at age 12–15 mo and one at age 4–6 y	Congenital rubella syndrome: results from intrauterine infection during first 20 wk of pregnancy; symptoms include congenital deafness, growth and mental retardation, extramedullary hematopoiesis (blueberry muffin baby)

Abbreviations: PCR, polymerase chain reaction; EIA, enzyme-linked immunosorbent assay; DEET, N,N-diethyl-meta-toluamide; HCV, hepatitis C virus; LAD, lymphadenopathy; MMR, measles-mumps-rubella; HAART, highly active antiretroviral therapy; ATL, adult T-cell leukemia/lymphoma; CHOP, cyclophosphamide, doxorubicin, vincristine, prednisone.

Practice Questions

- 1. Which virus is transmitted by *Culex* mosquitos?**
 - a. chikungunya virus
 - b. coxsackievirus A16
 - c. dengue virus
 - d. human T-lymphotropic virus
 - e. West Nile virus

- 2. Which virus causes an illness associated with an enanthem of grey papules on the buccal mucosa?**
 - a. Paramyxoviridae
 - b. Parvoviridae
 - c. Picornaviridae
 - d. Retroviridae
 - e. Togaviridae

- 3. Illness associated with which viral infection may be prevented via vaccination?**
 - a. coxsackievirus
 - b. dengue virus
 - c. enterovirus
 - d. hepatitis C virus
 - e. togavirus

- 4. Which virus is classically associated with retro-orbital pain and a morbilliform eruption with areas of sparing?**
 - a. chikungunya virus
 - b. dengue virus
 - c. human immunodeficiency virus
 - d. West Nile virus
 - e. yellow fever virus

- 5. Which of the following may be included in the treatment of hepatitis C virus (HCV) infection?**
 - a. doxorubicin
 - b. HCV vaccine
 - c. ribavirin
 - d. tenofovir
 - e. vitamin A

Fact sheets and practice questions will be posted monthly. Answers are posted separately on www.cutis.com.