

220e Molluscum Contagiosum, Monkeypox, and Other Poxvirus Infections

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The poxvirus family includes a large number of related DNA viruses that infect various vertebrate hosts. The poxviruses responsible for infections in humans, the geographic locations in which these infections are found, the host reservoirs, and the main manifestations are listed in [Table 220e-1](#). Infections with orthopoxviruses—e.g., smallpox (variola major) virus ([Chap. 261e](#)) or the zoonotic monkeypox virus—can result in systemic, potentially lethal human disease. Other poxvirus infections cause primarily localized skin disease in humans.

MOLLUSCUM CONTAGIOSUM

Molluscum contagiosum virus is an obligate human pathogen that causes distinctive proliferative skin lesions. These lesions measure 2–5 mm in diameter and are pearly, flesh-colored, and umbilicated, with a characteristic dimple at the center ([Fig. 220e-1](#)). A relative lack of inflammation and necrosis distinguishes these proliferative lesions from other poxvirus lesions. Lesions may be found—singly or in clusters—anywhere on the body except on the palms and soles and may be associated with an eczematous rash.

Molluscum contagiosum is highly prevalent among children and is the most common human disease resulting from poxvirus infection. Swimming pools are a common vector for transmission. Atopy and compromise of skin integrity increase the risk of infection. Genital lesions are more common in adults, to whom the virus may be transmitted by sexual contact. The incubation period ranges from 2 weeks to 6 months, with an average of 2–7 weeks. In most cases, the disease is self-limited and regresses spontaneously after 3–4 months in immunocompetent hosts. There are no systemic complications, but skin lesions may persist for 3–5 years. Molluscum contagiosum can be associated with immunosuppression and is frequently seen among HIV-infected patients ([Chap. 226](#)). The disease can be more generalized, severe, and persistent in AIDS patients than in other groups. Moreover, molluscum contagiosum can be exacerbated in the immune reconstitution inflammatory syndrome (IRIS) associated with the initiation of antiretroviral therapy.

The diagnosis of molluscum contagiosum is typically based on its clinical presentation and can be confirmed by histologic demonstration of the cytoplasmic eosinophilic inclusions (*molluscum bodies*) that are characteristic of poxvirus replication. Molluscum contagiosum



FIGURE 220e-1 Molluscum contagiosum is a cutaneous poxvirus infection characterized by multiple umbilicated flesh-colored or hypopigmented papules.

virus cannot be propagated *in vitro*, but electron microscopy and molecular studies can be used for its identification.

There is no specific systemic treatment for molluscum contagiosum, but a variety of techniques for physical ablation have been used. Cidofovir displays *in vitro* activity against many poxviruses, and case reports suggest that parenteral or topical cidofovir may have some efficacy in the treatment of recalcitrant molluscum contagiosum in immunosuppressed hosts.

MONKEYPOX



Although monkeypox virus was named after the animal from which it was originally isolated, rodents are the primary viral reservoir. Human infections with monkeypox virus typically occur in Africa when humans come into direct contact with infected animals. Human-to-human propagation of monkeypox infection is rare. Human disease is characterized by a systemic illness and vesicular rash similar to those of variola. The clinical presentation of monkeypox can be confused with that of the more common varicella-zoster virus infection ([Chap. 217](#)). Compared with the lesions of this herpesvirus infection, monkeypox lesions tend to be more uniform (i.e., in the same stage of development), diffuse, and peripheral in distribution. Lymphadenopathy is a prominent feature of monkeypox infection.

The first outbreak of human monkeypox infection in the Western Hemisphere occurred during 2003, when more than 70 cases were reported in the midwestern United States. The outbreak was linked to contact with pet prairie dogs that had become infected while being housed with rodents imported from Ghana. Patients presented most

TABLE 220e-1 POXVIRUSES AND HUMAN INFECTIONS

Genus	Species	Geographic Location	Host Reservoir	Human Disease
<i>Orthopoxvirus</i>	Variola ^a	Extinct	Humans	Smallpox, systemic
	Monkeypox	Africa	Rodents	Smallpox-like, systemic
	Cowpox	Europe	Rodents	Local pox lesion, occasionally systemic
	Buffalopox	Indian subcontinent	Water buffalo	Local pox lesion, mild illness
	Cantagalo and Araçatuba	South America	Cattle	Local pox lesion, mild illness
	Vaccinia	—	—	Local pox lesions (smallpox vaccine)
<i>Molluscipoxvirus</i>	Molluscum contagiosum	Worldwide	Humans	Multiple cutaneous lesions
<i>Parapoxvirus</i>	Orf	Worldwide	Sheep, goats	Local pox lesions (contagious pustular dermatitis)
	Pseudocowpox (paravaccinia)	Worldwide	Cattle	Local pox lesions (milker's nodule)
	Bovine papular stomatitis	Worldwide	Cattle	Local pox lesions
	Deerpox	Deer herds	Deer	Local pox lesions
	Sealpox	Seal colonies	Seals	Local pox lesions
<i>Yatapoxvirus</i>	Tanapox	Africa	Monkeys	Local pox lesions

^aSee [Chap. 261e](#).