

**TABLE 207e-1 COMPARISON OF THE TREPONEMES AND ASSOCIATED DISEASES**

Feature	Venereal Syphilis	Yaws	Endemic Syphilis	Pinta
Organism	<i>T. pallidum</i> subsp. <i>pallidum</i>	<i>T. pallidum</i> subsp. <i>pertenue</i>	<i>T. pallidum</i> subsp. <i>endemicum</i>	<i>T. carateum</i>
Common modes of transmission	Sexual, transplacental	Skin-to-skin	Mouth-to-mouth or via shared drinking/eating utensils	Skin-to-skin
Usual age of acquisition	Sexual maturity or in utero	Early childhood	Early childhood	Late childhood
Primary lesion	Cutaneous ulcer (chancre)	Papilloma, often ulcerative	Mucosal papule, rarely seen	Nonulcerating papule with satellites, pruritic
Common location	Genital, oral, anal	Extremities	Oral	Extremities, face
Secondary lesions	Mucocutaneous lesions; condylomata lata	Cutaneous papulosquamous lesions; condylomata lata, osteoperiostitis	Mucocutaneous lesions (mucous patch, split papule, condylomata lata); osteoperiostitis	Pintides, pigmented, pruritic
Infectious relapses	~25%	Common	Unknown	Unknown
Late complications	Gummas, cardiovascular and central nervous system involvement <sup>a</sup>	Destructive gummas of skin, bone, cartilage	Destructive gummas of skin, bone, cartilage	Nondestructive, dyschromic, achromic macules

<sup>a</sup>Central nervous system involvement and congenital infection in the endemic treponematoses have been postulated by some investigators (see text).

and possible CNS manifestations, or a low rate of symptomatic CNS disease. Some published evidence supports congenital transmission as well as cardiovascular, ophthalmologic, and CNS involvement in yaws and endemic syphilis. Although the reported studies have been small, have failed to control for other causes of CNS abnormalities, and in some instances have not included serologic confirmation, it may be erroneous to accept unquestioningly the frequently repeated belief that these organisms fail to cause such manifestations.

**Yaws** Also known as *pian*, *framboesia*, or *bouba*, yaws is characterized by the development of one or several primary lesions (“mother yaw”) followed by multiple disseminated skin lesions. All early skin lesions are infectious and may persist for many months; cutaneous relapses are common during the first 5 years. Late manifestations, affecting ~10% of untreated persons, are destructive and can involve skin, bone, and joints.

The infection is transmitted by direct contact with infectious lesions, often during play or group sleeping, and may be enhanced by disruption of the skin by insect bites or abrasions. After an average of 3–4 weeks, the first lesion begins as a papule—usually on an extremity—and then enlarges (particularly during moist warm weather) to become papillomatous or “raspberry-like” (thus the name “framboesia”) (Fig. 207e-2A). Regional lymphadenopathy develops, and the lesion usually heals within 6 months; dissemination is thought to occur during the early weeks of infection. A generalized secondary eruption (Fig. 207e-2B), accompanied by generalized lymphadenopathy, appears either concurrent with or after the primary lesion; may take several forms (macular, papular, or papillomatous); and may become

secondarily infected with other bacteria. Painful papillomatous lesions on the soles of the feet result in a crablike gait (“crab yaws”), and periostitis may result in nocturnal bone pain and polydactylitis. Late yaws is manifested by gummas of the skin and long bones, hyperkeratoses of the palms and soles, osteitis and periostitis, and hydrarthrosis. The late gummatous lesions are characteristically extensive. Destruction of the nose, maxilla, palate, and pharynx is termed *gangosa* and is similar to the destructive lesions seen in leprosy and leishmaniasis.

**Endemic Syphilis** The early lesions of endemic syphilis (*bejel*, *siti*, *dichuchwa*, *njovera*, *skerljevo*) are localized primarily to mucocutaneous and mucosal surfaces. The infection is reportedly transmitted by direct contact, by kissing, by pre-mastication of food, or by sharing of drinking and eating utensils. A role for insects in transmission has been suggested but is unproven. The initial lesion, usually an intraoral papule, often goes unrecognized and is followed by mucous patches (Fig. 207e-2C) on the oral mucosa and mucocutaneous lesions resembling the condylomata lata of secondary syphilis. This eruption may last for months or even years, and treponemes can readily be demonstrated in early lesions. Periostitis and regional lymphadenopathy are common. After a variable period of latency, late manifestations may appear, including osseous and cutaneous gummas. Destructive gummas, osteitis, and gangosa are more common in endemic syphilis than in yaws.

**Pinta** Pinta (*mal del pinto*, *carate*, *azul*, *purupuru*) is the most benign of the treponemal infections. This disease has three stages that are characterized by marked changes in skin color (Fig. 207e-2D), but pinta does not appear to cause destructive lesions or to involve



**FIGURE 207e-2 Clinical manifestations of endemic treponematoses. A.** Papillomatous initial lesion of early yaws. **B.** Disseminated lesions of early yaws. **C.** Mucous patches of endemic syphilis. **D.** Pigmented macules of pinta. (Photos published with permission from Dr. David Fegan, Brisbane, Australia [A and B]; and from PL Perine et al: *Handbook of Endemic Treponematoses*, Geneva, World Health Organization, 1984 [C and D].)