CHAPTER 10

NON-VENEREAL TREPONEMATOSES

Endemic treponematosis (pinta, yaws, endemic syphilis)
have in common some characteristic aspects:
they are all caused by spirochetes and can all be observed
in rural regions of countries with very hot climates.
The transmission of these diseases is non-venereal and by direct contact.
Children and adolescents are more frequently affected.
Lesions occur in extra-genital localizations.
They are chronic diseases and evolve in successive clinical stages.
There are no congenital manifestations.
Treponematosis are seroresistant in advanced stages.
Concerning geographic distribution, we can observe important differences:
yaws is present in all the hot-humid tropical countries;
pinta is endemic in the hot-humid areas between Mexico and Amazonia;
endemic syphilis is usually present in small areas with arid climate in Africa and Asia,
while it has been completely eradicated from Europe and Australia.

10.1
Yaws

Synonyms: Framboesia, buba, parangi, epian, gangosa, rynopharyngitis mutilans, pian , frambosie.
Definition: chronic contagious treponematosis, endemic, caused by the epidermotropic agent Treponema pertenue. It is characterized by three stages: primary, with an ulcer or an initial granuloma (mother yaws); secondary, with hypertrophic granulomatous lesions; tertiary or late stage, with destructive lesions.
Distribution: frequent in all the tropical humid regions; it is considered a childhood disease.
Incubation period: about 3-4 weeks; initial lesions occur in correspondence of the site of infection.
Clinical features: Primary yaws is characterized by an erythematous, papillomatous, vegetant lesion, covered by a thin yellow crust, and accompanied by regional adenopathy, with low general symptomatology (mother yaws). The lesion persists for several months and heals spontaneously.
Secondary stage develops about 6–12 weeks after the initial lesion has appeared, with a generalized cluster eruption and systemic symptomatology. The number and characteristic of clinical lesions are very variable. Lesions can be macular, papular, papillomatous, papulo-quamous or rupioid; generally they are symmetrically distributed. The mucocutaneous regions of the mouth, of the nose, of the anogenital areas, are also very frequently involved. Lesions localized on the plantar surface are very painful (crab yaws).
Secondary stage bone lesions are very common in children: osteoperiostitis with tibial deformation and polydactylia. The hypertrophy of the nasal bone is the cause of goundou. Contractures of fifth, fourth, and later of the third finger of the hand are to be attributed to secondary yaws.
The third stage concerns the skin, bones and joints. Cutaneous lesions can be nodular, tubercular or, in proximity of the extremities, gummatous. Palmoplantar keratodermia is a very frequent clinical feature. The most frequent osteo-articular alterations are: periostitis, osteitis, and osteoperiostitis gummatous. Gangosa or mutilant rhinopharyngitis, which causes the destruction of the central part of the face, are today rarely observed. Articular lesions characterized by infiltrated nodular lesions, localized in the elbow and knees, may also be observed.
Diagnosis: endemic area, dark background examination of the lesion's exudates, serological tests for syphilis and, eventually, biopsy, give an easy diagnosis.

Figure 10.1.1 Yaws: leukoderma due to T.pertenue action.

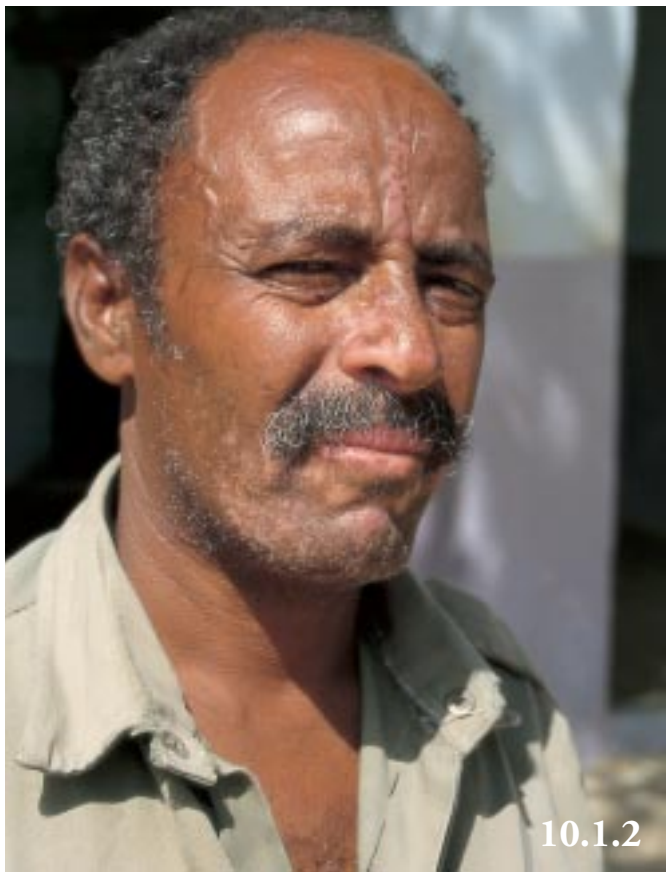

Figure 10.1.2 Leukodermic manifestations on the face of a patient from Central Africa.

10.1 Yaws

Differential diagnosis: has to be made in confrontation with vegetant pyoderma, tropical phagedaena ulcer, cutaneous carcinoma tuberculosis, sporotrichosis, leishmaniasis, tungiasis, pytiriasis rosae, psoriasis, leprosy, palmoplantar keratoma and Dupuytren's disease.
Histopathology: the primary form shows acanthosis and papillomatosis. The epidermis is oedematous with neutrophil exocytosis. The derma presents a plasma-cellular infiltrate of leukocytes, lymphocytes, histiocytes, fibroblasts. The secondary form has substantially equal alterations.
The third form is characterized by ulcer lesions similar to the tertiary syphilis. The early bone lesions show an inflammatory reaction. The articular nodules have a central necrotic zone, an intermediate tissue granulation zone, and a peripheral fibrotic layer.
Therapy: Identical to endemic syphilis. People with yaws generally are treated with penicillin G, given in various doses depending on the stage of the disease and the age of the patient. In case of allergy to penicillin treatment, tetracycline hydrochloride or erythromycin can be used as alternatives, as these have also proven to be effective.

Figure 10.1.3 Leukoderma due to a T. pertenue in correspondence of the hands.

10.2 Pinta

Synonyms: azul, carate, cative, cute, lota, mal de pinto, piquite, purù-purù, quiriqua, tina, tinna, tinta.
Definition: endemic non-venereal treponematosis, chronic, contagious, caused by the epidermotropic agent Treponema carateum. It is characterized by three stages: an early pinta, with initial lesions and secondary manifestations; a late pinta, which presents a partial or complete pigment loss, hyperkeratosis and atrophy.
Distribution: a childhood endemic disease typical of the New World, between Mexico and the Amazons, particularly in rural areas with hot-humid climates.
Incubation period: after contagion it varies between 1 and 3 months, experimentally about 3 weeks.
Clinical features: the primary lesion appears like a small papule that in a few months will grow into a psoriasis-form plaque, rounded or oval; this is followed by a lichenification process and by pigment alterations, that in the end leave a leukoderma patch. Usually the face, the extremities and the abdomen are affected.
The secondary lesions – pintid – appear in variable number, after two months or more. At first they appear erythematous and later become dyschromic with hyperpigmentation and leukoderma areas, forming a pattern of polychromatic patches and of keratotic lesions, especially on the knees and elbows.
The late pinta (third stage) is characterized by multicoloured and atrophic lesions. Adenopathy is present in the early and late stages of the dermatosis.
Diagnosis: the dark background examination, serological tests for syphilis and an eventual biopsy allow an easy diagnosis.
Differential diagnosis: has to be made in confrontation with tinea corporis, psoriasis, eczema, erythema discromicus

Figure 10.2.1 Pinta: cutaneous lesions in Ethiopian child due to a T. carateum.

10.2 Pinta

perstans, leprosy, pityriasis alba, yaws, vitiligo, pellagra and onchocerciasis.

Histopathology: the early pinta presents a moderate hyperkeratosis, acanthosis and exocytosis of lymphocytes and neutrophils. In the older lesions we can notice quantitative alterations of the melanin content in the cells of the basal layer.

In the late pinta it is possible to observe irregular acanthosis atrophy of the epidermis. In the hyperchromic lesions malanophores may be observed in the epidermis and derma; in the achromic patches it is possible to notice a melanin deficiency in the cells of the basal layer.

The epidermis in the early pinta appears rich in treponemata, while they are scarce or absent in the late form. Enlarged lymph nodes show a chronic aspecific inflammation.

Therapy: Pinta is treated with benzathine penicillin G (Bicillin), given as a single injection. After penicillin therapy, lesions become non-infectious within 24 hours. Primary and secondary lesions usually heal slowly within 6 – 12 months.

Figure 10.2.2 Pinta: dyschromatic late lesions in a patient from Senegal.

10.3 Endemic syphilis

Synonyms: bejel, dichuchwa, njovera, skerljevo, rewan, syphilis endémique, endemische syphilis.

Definition: Endemic syphilis, non-venereal, chronic, contagious treponematosis, caused by the epidermotropic agent Treponema pallidum, principally acquired during childhood. Generally, we can distinguish three stages of the disease, in the absence of the primary lesion. The secondary phase is usually located in the mucocutaneous regions and the tertiary phase presents destructive lesions.

Distribution: localized especially in some small arid climate zones in Africa and Asia. It has already been eradicated in Europe and Australia.

Incubation period: many weeks; secondary lesions appear 2 – 3 months after contagion.

Clinical features: the initial ulcer is usually a papular mucocutaneous lesion, located on the lips, on the oral mucous lining of the cheeks and on the tongue.

The secondary lesions appear generally on the mouth, in small number, or in the perianal and genital regions. They can manifest themselves as papules with papillomatous or condylomatous aspect; in the intertriginous areas they assume papular hypertrophic or circinate plaque characteristics. The dry skin lesions are rare and can be represented by macular, papular or papulo-scaly manifestations.

Figure 10.3.1 Endemic syphilis: secondary lesions, located on the forehead region, in a child from Eritrea. A hypochromatic lesion on the neck is evident.

10.3
Endemic syphilis

The "moth-like" alopecia is observed occasionally. Lymphadenopathy is common.
Latency period can last between 5 and 10 years. Late endemic syphilis lesions may be observed on the non treated patient's skin, and appear as tuberous, tubero-squamous or ulcerative of third syphilis type. Gummous lesions evolve towards necrosis and form perforating ulcers. Joint nodules can be especially observed on the elbows. Pigment alterations can develop leukomelanodermic lesions.
Diagnosis: dark background examination, clinical manifestations, complete serology for syphilis and eventual biopsy suggest diagnosis.
Differential diagnosis: there are many dermatoses with which endemic syphilis needs to be confronted: yaws, syphilis, pityriasis rosea, psoriasis, lichen planus, keratotic eczema, epidermomycosis, impetigo, pèrlèche, condyloma acuminatum, bromoderma, lupus volgaris, Bowen disease, rosacea, lupus erithematosus, mycosis fungoides.
Histopathology: primary lesions show epidermis atrophy with perivascular plasmacells and lymphocytes infiltrate. Treponema pallidum is present. In the secondary endemic syphilis, the derma contains dense perivascular plasmocytes infiltrates. Numerous spirochetes are present in the late condyloma. Late endemic syphilis (third stage) is characterized by granulomatous infiltrates of lymphocytes, histiocytes and plasmacytes, fibroblasts, epithelial cells, giant foreign body cells. Nodules of the articulations present the same aspect of the yaws case.
Therapy: the chosen drug for all three endemic treponematosis is penicillin: injection of 2 400 000 units of penicillin G procain, or benzathine penicillin for adults; for children under 12 we use half the adult dose. In the general campaign for the eradication of endemic treponematosis the WHO recommends 1 200 000 units for adults and 600 000 for children under 12. In general campaigns it is not possible to perform more than one injection. Penicillin-hypersensitive patients can be treated with appropriate doses of tetracyclines and erythromycin.

Figure 10.3.2 Endemic syphilis: secondary lesions in an Ethiopian child.

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Suggested Readings

Endemic Treponematoses

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Pinta

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