Syphilis

Microorganism

- ***Treponema pallidum***, a bacterium of the spirochete family
- Does not stain well with Gram stain, hence its name (pale treponema)
- Not cultivated in standard laboratory media; the diagnosis is primarily made through **serology**

Pathologies and Complications

The average **incubation** period is **3 weeks** (ranging from 2 to 12 weeks)
Early and **late** syphilis are distinguished based on a **one-year course.**

EARLY	Primary [C]	• Characterized by a **painless chancre** associated with **satellite lymphadenopathy**, persisting for 3 to 8 weeks. Sometimes transient, it may go unnoticed
	Secondary [C]	• Associated with the **hematogenous dissemination** of treponemes • **Systemic symptoms** are common: low-grade fever, asthenia • It can present in several forms: - **Syphilitic roseola**: A non-pruritic macular or maculopapular rash, 5 to 15 mm in diameter, affecting the entire body, sometimes more pronounced on the palms and soles. The lesions, which can be very pale, may go unnoticed. - **Syphilids**: Papules distributed across the body. Scales and ulcers may be observed. - **Other manifestations**: Polyadenopathy, hepatitis, nephritis, mucosal involvement, etc
	Early neurosyphilis	• The manifestations are varied: meningitis, cranial nerve involvement, ocular or auditory damage. • It may remain asymptomatic or paucisymptomatic in approximately 1/3 of patients or progress to late neurosyphilis.
	Early latent	• A completely **asymptomatic** form of the disease. • It may follow primary or secondary syphilis. • It may be interrupted by recurrences of secondary syphilis in approximately 1/4 of patients.
LATE	Tertiary	• The manifestations of **late neurosyphilis** are varied: - **Meningovascular involvement** (after 5 to 15 years of progression): hemiplegia, aphasia, meningomyelitis. - **Parenchymal involvement** (after >15 years of progression): general paresis, irritability, cognitive and memory impairment, emotional lability, paranoid delusions. - **Tabes dorsalis**: characterized by ataxia, lightning pains, and incontinence. □ **Syphilitic gummas**: A proliferative granulomatous process that can occur in any tissue, primarily the skin, but also bones and the brain. □ Other manifestations are possible: ocular, otic, cardiovascular, etc
	Late latent	• Asymptomatic form, affecting approximately 2/3 of patients

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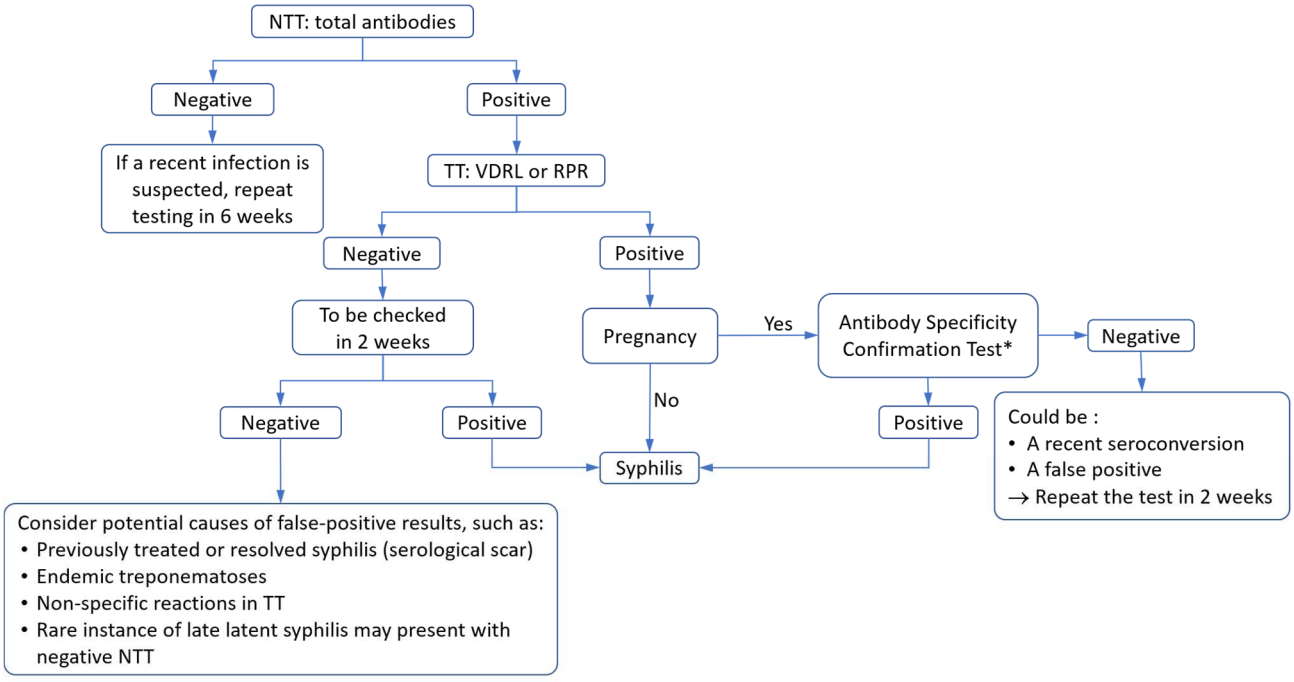
Syphilis and pregnancy

Transmission	• The risk of transmission to the fetus **increases with gestational age** • It **decreases with the stage of infection**: >60% in the primary and secondary stages, 40% in early latent syphilis, and <10% in latent syphilis
During pregnancy	• **Intrauterine fetal death** in 40% of cases • **Prematurity** in 25% of cases
Newborn	Early and late syphilis are distinguished based on whether the first symptoms appear before or after **the age of 2 years.** • Early: Bullous palmoplantar skin lesions preceded by rhinorrhea. It may be associated with organ involvement (hepatomegaly, splenomegaly, jaundice, nephrotic syndrome, central neurological involvement, meningitis, etc.) • Late: Frontal and facial deformities, palatal deformities, and rhagades (periorificial skin clefts), dental lesions (Hutchinson's teeth), interstitial keratitis, etc.

Diagnostic

- At the chancre stage: A sample of the lesions may be taken for dark-field microscopy or specific PCR. These tests require specific expertise and are performed by only a few laboratories. They are not reimbursed.
- At all other stages , the diagnostic strategy relies on **serology** with two sequential tests:
  - A treponemal test (TT): measurement of total antibodies
  - A non-treponemal test (NTT): VDRL or RPR
- In case of localized involvement, serology on CSF or PCR on biopsy may be useful.



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Antibiotic susceptibility

Treponema pallidum is **naturally susceptible** to penicillins, cephalosporins, and tetracyclines.
To date, there is **no acquired resistance** to these antibiotics

Treatment and follow-up

The treatment of syphilis is based on **penicillin** as the first-line therapy. The duration of treatment depends on the stage of the infection.

Stadium	Antibiotic therapy	TNT

Early syphilis	• Benzathine penicilin G: 2.4 MU IM → 1 injection
	• In case of allergy or refusal of IV/IM administration
	  - Doxycycline: 200mg PO daily → for 14 days
	• For patients with coagulation disorders:
	  - Ceftriaxone: 1g IV daily → for 10 days
	  - Doxycycline: 200mg PO daily → for 14 days
		3, 6 and 12 months

Late syphilis	• Benzathine penicilin G: 2.4 MU IM on Days 1,8, and 15
	• In case of allergy or refusal of IM administration:
	  - Doxycycline: 200mg PO daily → 21-28 days
	  - Desensitization
		6, 12 and 24 months

Neurosyphilis	• Benzathine peniciline G: 18-24 MU daily (3-4 MU every 4 hours) → 10-14 days • In case of allergy - Ceftriaxone: 1-2 g IV daily →10 to 14 days	6, 12 and 24 months
Pregnancy	• Benzathine penicillin G: dosage and administration depend on the stage of syphilis.	Depends on the stage

Treatment of syphilis may be accompanied by a reaction whose pathophysiology is still poorly understood. It could be due to lysis of treponemes**.**

Jarish-Herxheimer reaction
• Occurs within 24 hours following antibiotic administration • Characterized by a flu-like syndrome that may be accompanied by a feeling of malaise • Typically lasts 24 to 48 hours • Treatment is symptomatic: paracetamol • There is no established prevention strategy: systematic administration of paracetamol or only in cases of high VDRL titers has been proposed.

The effectiveness of the treatment is evaluated based on clinical and serological criteria.

Serological criteria for cure
• A significant decrease in TNT titer (4-fold decrease) in 3 to 6 months • Negativization of the NTT at 1 year (early syphilis) or 2 years (late syphilis) after treatment. The NTT may remain weakly positive in patients treated after several years of infection.

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Prevention

The prevention of syphilis is integrated into a **diversified prevention strategy**. Due to the transient nature of the primary stage, the non-specific symptoms of the secondary stages, and the high frequency of asymptomatic latent stages, **syphilis screening** is recommended for **at-risk populations**.

Recommendations for Syphilis Screening

- Men who have unprotected sex with men
- Pregnant women in the first trimester of pregnancy
- Individuals who engage with sex workers and sex workers who have unprotected sex (including fellatio)
- Upon diagnosis of another sexually transmitted infection (STI)
- Individuals with multiple sexual partners and unprotected intercourse (including fellatio)
- Migrants from endemic regions (Africa, Asia, Eastern Europe, South America)
- During incarceration
- After sexual assault

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