

Clinical education:

Syphilis

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MSHC

MELBOURNE SEXUAL HEALTH CENTRE

Part of **AlfredHealth**

Syphilis

Treponema pallidum

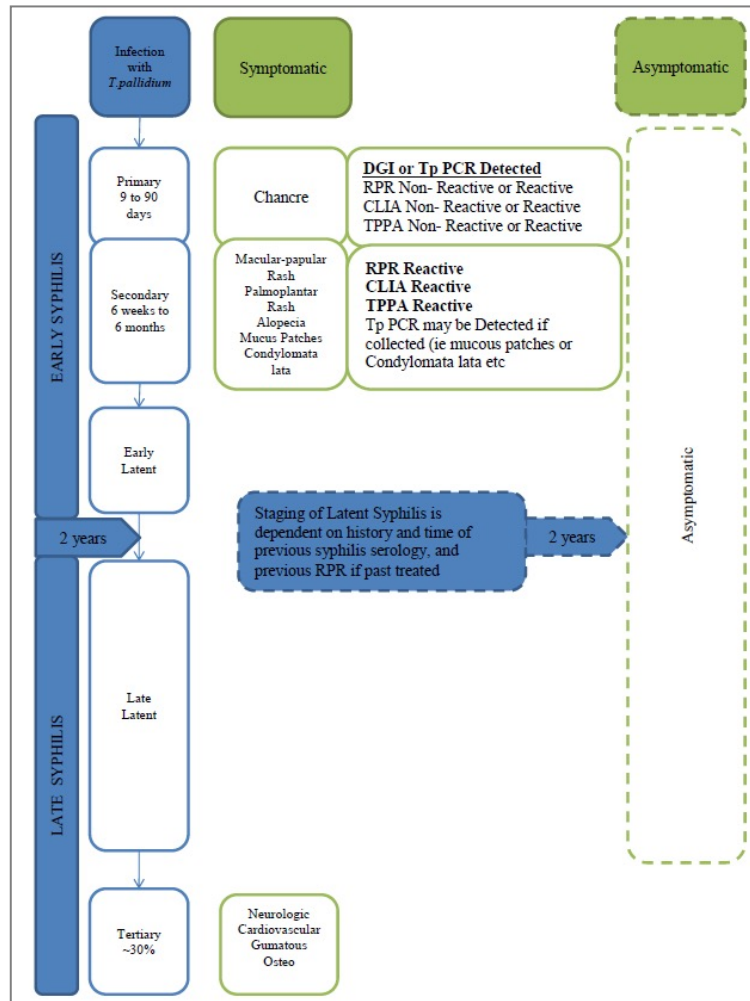


Syphilis Staging

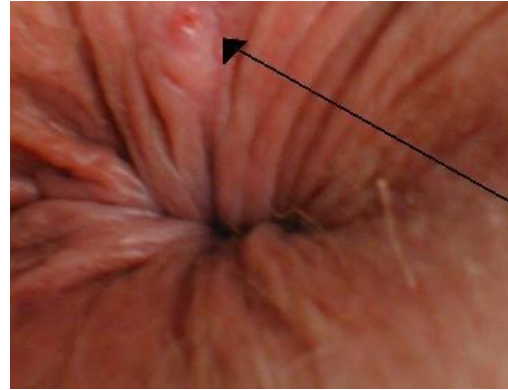
- Early syphilis (< 2 years)
 - Primary
 - Secondary
 - Early Latent
- Late syphilis (>2 years)
 - Late latent syphilis-serology available but greater than 2 years old
- Latent syphilis of unknown duration-no previous serology available

Syphilis Staging

- Tertiary Syphilis (10-20 years)
 - Neurosyphilis
 - Cardiovascular Syphilis
 - Gumatous Syphilis
- Congenital Syphilis



Primary Syphilis



Secondary Syphilis



Secondary Syphilis



Diagnosis – Serologic

- *Treponemal Specific Tests*
 - Chemiluminescence Immunoassay (**CLIA**)
 - IgM/IgG
 - *T.pallidum* Particle Agglutination Assay (**TPPA**)
 - *T.pallidum* Haemagglutination Assay (**TPHA**)
 - Fluorescent *Treponemal* Antibody Absorbed (**FTA-ABS**)



Diagnosis – Serologic

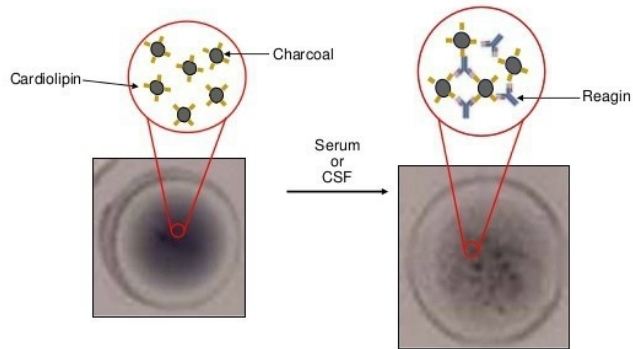
- non-treponemal serologic tests
 - Rapid Plasma Reagin (RPR) Test
 - provide a titre, index of disease activity
 - 1:2; 1:4; 1:8; 1:16; 1:32; 1:64; 1:128; 1:256...
 - biologic false positives
 - autoimmune disease, pregnancy, viral infections

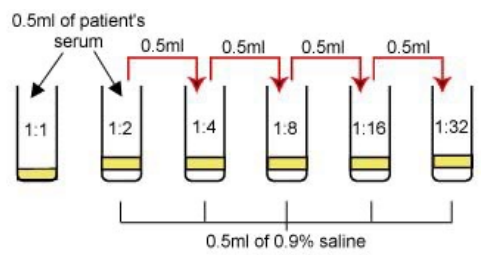
Non-Treponemal Tests

- Rapid Plasma Reagin Test (RPR)

Non-Treponemal Assays

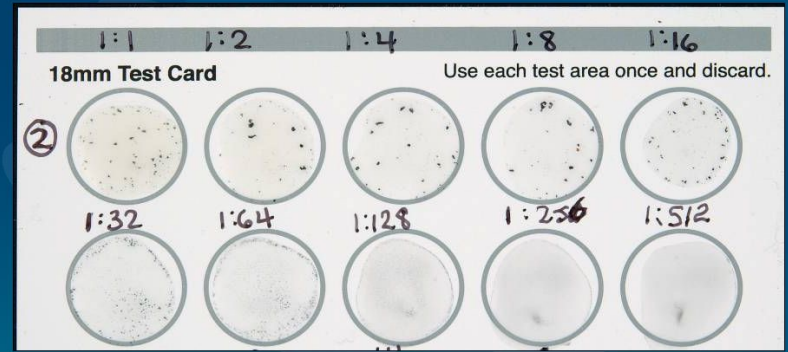
- RPR and VDRL are agglutination assays





Laboratory
learning
links

Quantitative RPR Test



↑ End-Point Titer
(1:64)





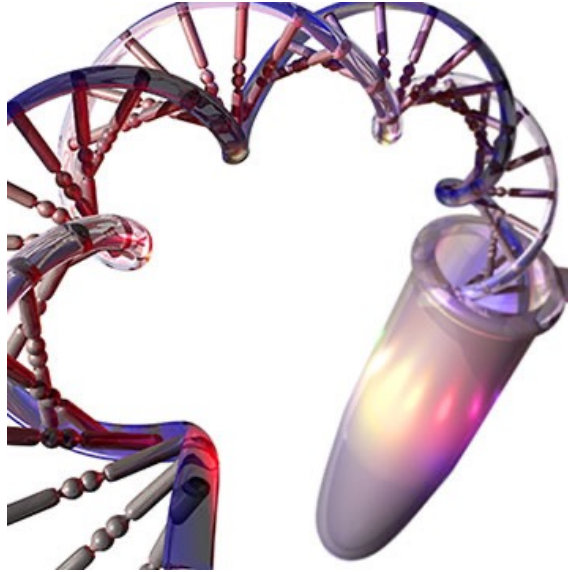
Diagnosis- Direct Identification

- Dark Ground Microscopy



Diagnosis- Direct Identification

- Polymerase Chain Reaction (PCR)





Treatment

- Early Syphilis (<2 years)
 - Benzathine Penicillin 2.4 mlU imi once
 - Doxycycline 100mg BD for 14 days
- Late Syphilis (>2 years or Unknown Duration)
 - Benzathine Penicillin 2.4 mlU imi. weekly for 3 weeks
 - Doxycycline 100mg BD for 28 days
- It is always preferable to treat with Benzathine penicillin over Doxycycline due to compliance issues.
- Use Doxycycline only if has penicillin allergy and not pregnant



Jarish-Herxheimer Reaction

- transient flu-like reaction (headache, fever, chills, myalgia) following initiation antimicrobial therapy for syphilis. (within 24 hours)
- self-limiting (<24 hours)
- mainly in early syphilis (mostly in secondary)
- manage with rest, paracetamol
- potentially life threatening, inpatient syphilis treatment is recommended in cardiovascular, neurosyphilis, ocular syphilis, pregnancy

Successful Treatment

- resolution of symptoms
- four fold drop in RPR titre e.g.
- 1: 64 to 1: 16 or less
- drop usually occurs after 3-6 months after treatment
- serofast

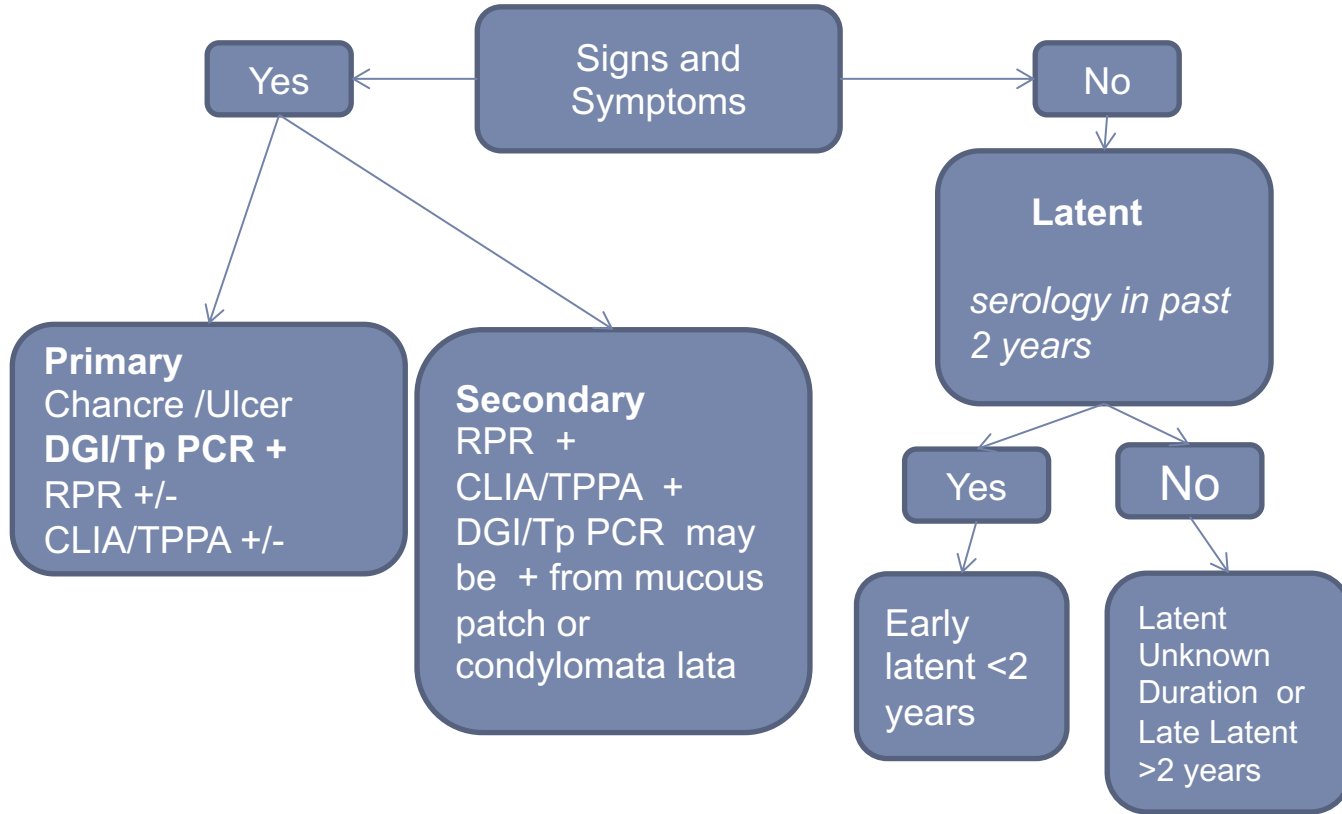


Indications for CSF Examination

- CNS involvement:
 - visual disturbances
 - hearing loss/changes
 - gait or balance changes
 - severe headache
- treatment failure



Basic Staging



Specific Serology

- TPPA and CLIA
- remain positive for the rest of life
- rare to lose these antibodies
- once positive cannot be used to determine reinfection

Reinfection

- presence of symptoms
- TpPCR positive
- DGI positive
- asymptomatic
- RPR ≥ 4 four fold rise in titre from baseline
- RPR = 2 fold rise
 - parallel testing may be requested from lab

Case 1

- 29 year old
- MSM
- No symptoms
- First STI screen

Date	CLIA	TPPA	RPR	DGI	PCR	Sx	Stage	Rx
27-10-17	Reactive	Reactive	Non-Reactive			ASx	?	?

Case 2

- 36 year old
- painless penile ulcer x 4 days
- regular STI screening every 3 months

Date	CLIA	TPP A	RPR	DGI	Tp PCR	Sx	Stage	Rx
12-08-17	Reactive	Reactive	Non- Reactive	Spirochetes Not Detected	Detected	Ulcer		
20-08-17	Reactive	Reactive	1:8					Day of Tx



Case 3

- 52 year old transgender female
- Multiple partners
- Regular STI screening
- On PREP
- p/h of syphilis
- No symptoms today

Case 3

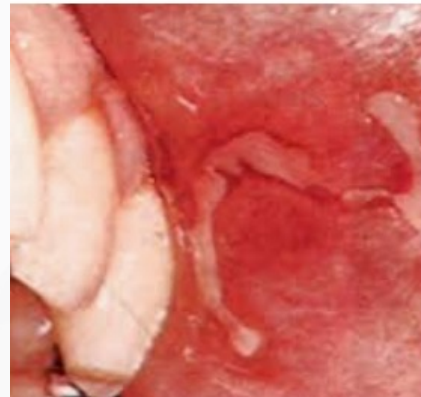
Date	CLIA	TPPA	RPR	DGI	PCR	Sx	Stage	Rx
23-04-16	Non-Reactive					ASx		
12-01-17	Reactive	Reactive	1:4	Spirochetes Detected	Positive	Genital Ulcer	?	?
14-05-17	Reactive	Reactive	Non-Reactive			ASx	?	
22-02-18	Reactive	Reactive	1:256			ASx	?	?
10-06-18	Reactive	Reactive	1:8			ASx	?	
15-2-19	Reactive	Reactive	1:16			ASx	?	?

Case 4

- 46 year old female
- Recently returned traveller
- Last STI screen 3 years ago
- Treated as a syphilis contact in UK

Case 4

- Very stressed
- No job and couch surfing
- Recurrent cold sores and mouth ulcers



Case 4



Date	CLIA	TPPA	RPR	DGI	Tp PCR	Sx	Stage
25-09-16	Reactive	Reactive	1:32			ASx	?
28-03-17	Reactive	Reactive	1:2			ASx	?
18-04-20	Reactive	Reactive	1:256		Detected	White Patches-Tongue	?