431
Microbiology Team

Microbiology practical

Sexually transmitted diseases

Leaders:

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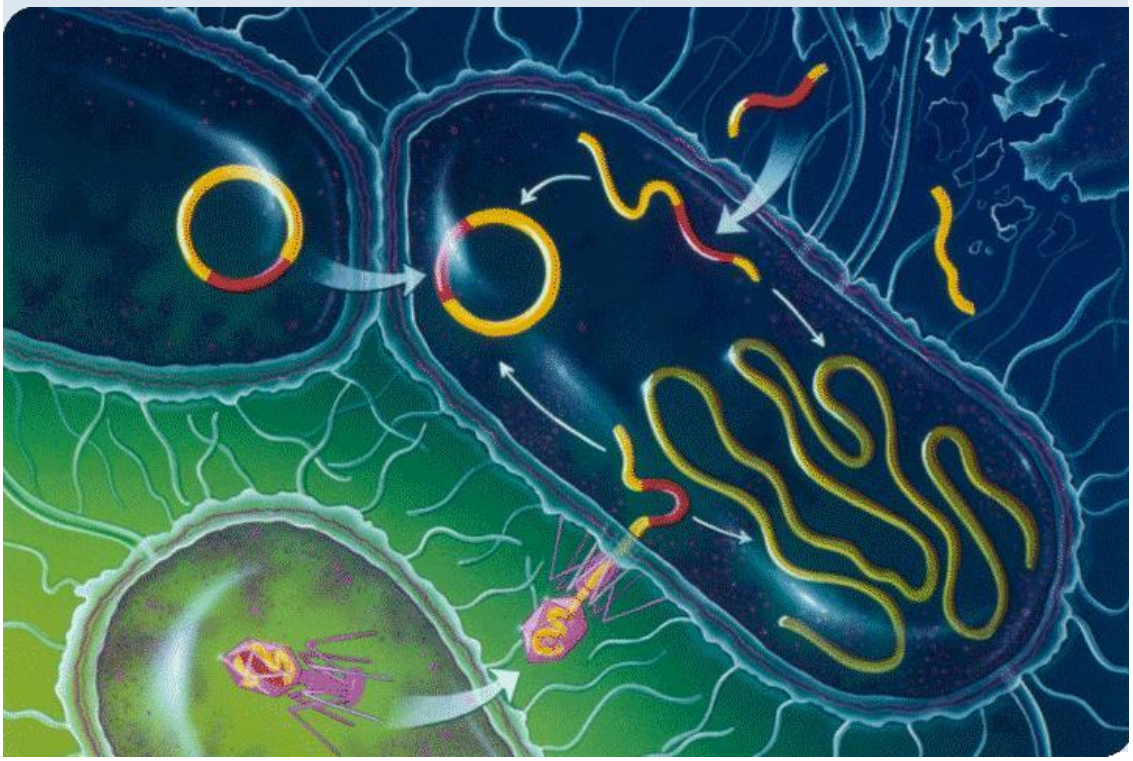
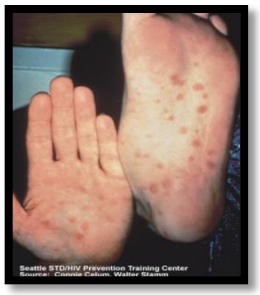
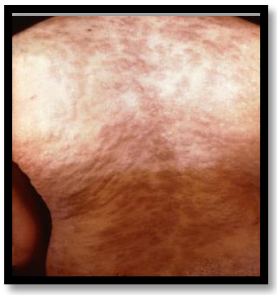
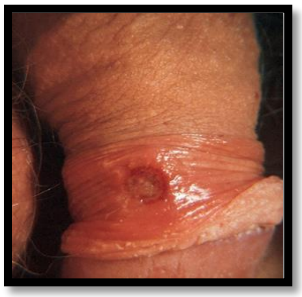


Case 1:

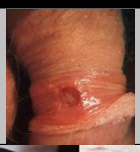
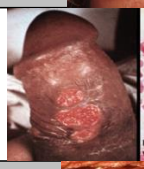
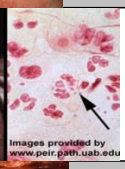
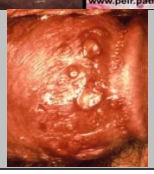
● Important ● Less important ● Additional

A 23-year-old alcoholic and drugs (cocaine) addict single male arrived from his trip to South East Asia four months ago. He gave history of multiple sexual partners. Two months ago, he developed ulcer on his penis which disappeared completely. A full physical notes a **rash on both his palms and his soles**.



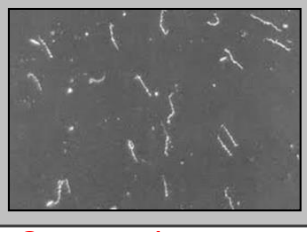
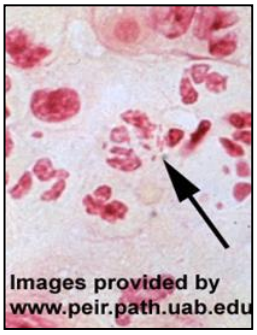
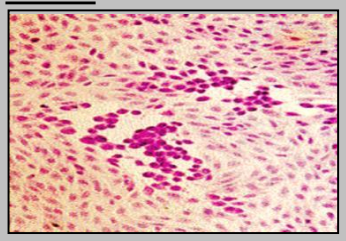
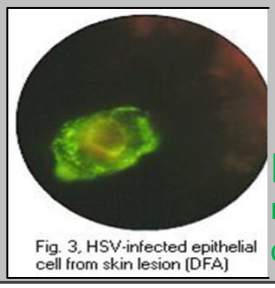
Q1: What are possible causes (organisms) for his presentation [Genital Ulcer]?

The organism causing genital ulcer	Presentation	Picture
1. Treponema Pallidum which causes syphilis	**Chancre**	
2. Haemophilus Ducreyi	**Chancroid**	 
3. Herpes Simplex Virus 2	**Ulcerated Vesicles**	

Q2: How can you differentiate between them based on signs and symptoms?

Ulcer	Etiology	Description of the ulcer	Lymphadenopathy (Babo)	Systemic manifestations
Chancre (hard chancre)	Treponema Pallidum	Dry, **painless**, has raised margins, clean base, and **hard**	Inguinal (non-tender lymph nodes)	Depends on stage
Chancroid (soft chancre)	Haemophilus Ducreyi	Wet , **painful**, irregular borders	Inguinal tender	Present
Ulcerated Vesicles	Herpes Simplex Virus 2	Multiple, shallow, **painful**	Occasionally present	In primary

Q3: What investigations would you like to order for him? Explain how those investigations would help you?

Etiology causing the Ulcer	Microscopy	Culture	DFA (Direct Fluorescence Antibody Assay)	Serology
Treponema Pallidum	Dark Field microscopy. Motile Spirochetes 	Not grown	+	**Most common in diagnosing syphilis** - RPR [1] - VDRL - TPHA [2] - FTA.ABS [3]
Haemophilus Ducreyi	Gram stain; Gm-ve small bacilli with pus. (coccobacilli) 	Selective media	NA	NA
Herpes Simplex Virus 2	Electron microscope (not usually used)	Produce **cytopathic effect** in cell culture 	+ 	IgM (acute 1ry infection +ve alone) IgG (infected) [if both +ve: reactivation of infection]

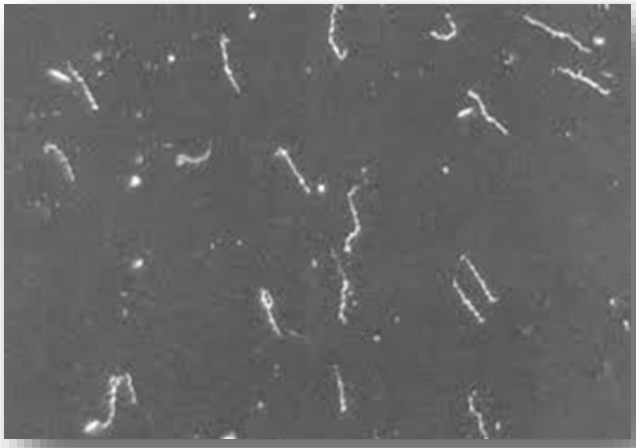
[1] **RPR**: rapid plasma reagin

[2] **TPHA**: treponema pallidum hemagglutination assay

[3] **FTA.ABS:** Fluorescent Treponemal Antibody Absorption

Case 1: cont….

The lesion is sampled and examined by dark-field microscopy. (Motile Coils)



Add Specific Antisera: If motility stops → Syphilis. If Motility did not stop → other Spirochete.

For Serology: Start with non-specific (VDRL, RPR), if Positive → **Confirm using specific** serology (FTA-ABS).

Non Specific Tests: (VDRL, RPR) → for **screening** and **follow up**

Congenital (Transplacental) Syphilis Diagnosis → Measure IgM

Q4: Based on the finding, what is the most likely diagnosis? Briefly outline the management of this patient?

The Finding: thin, motile under dark field microscopy

Diagnosis: Secondary stage Syphilis.

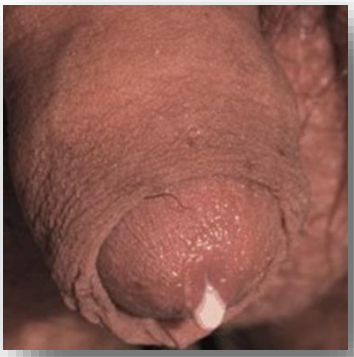
Management:

1. Benzyl Penicillin.
2. Screen for other STDs
3. Screen partner and manage accordingly
4. Counseling.

You can Write any other Anti-biotic for Treponema e.g. Penicillin G.
If patient is Hypersensitive: Tetracycline or Clarithromycin.

Case2:

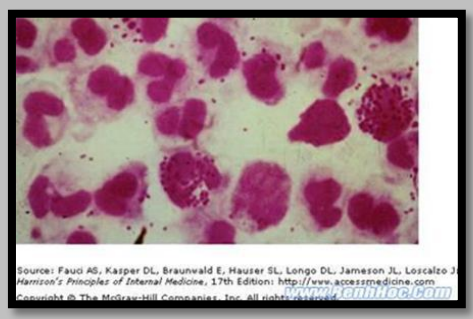
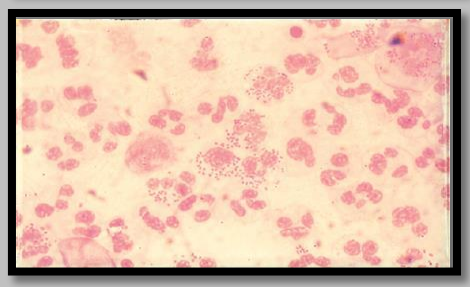
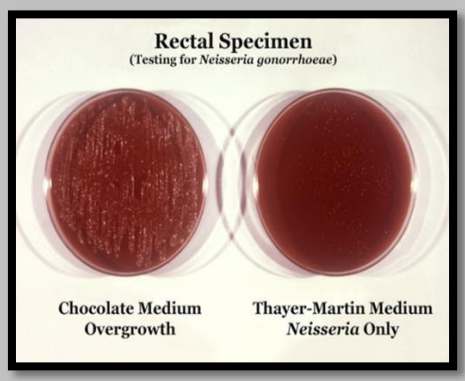
A 35-year-old Philipino married male presented to the emergency room complaining of dysuria for the last 24-hour and noted some "pus-like" drainage in his underwear and the tip of his penis.



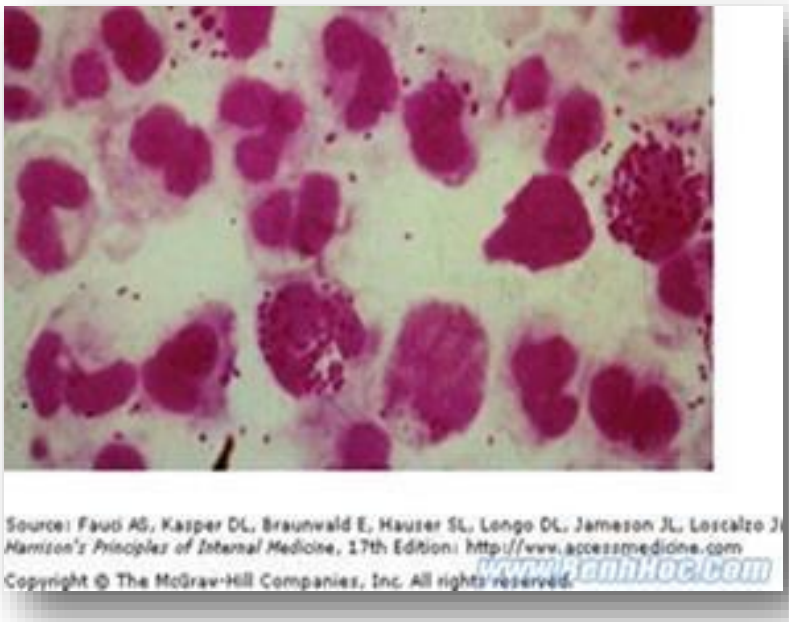
Q1: What are the possible causes for his presentation?

	Organisms	Urethritis
Gonococcal Urethritis (GCU)	Neisseria gonorrhoeae	Purulent discharge
Non-gonococcal urethritis (NGCU)	Chlamydia trachomatis	Mucopurulent
	Others: Trichomoniasis Mycoplasma	

Q2: What investigations do you like to order for him? Explain how those investigations would help you?

	Organisms	Smear/Culture	Immunological tests	Molecular testing
GCU	Neisseria gonorrhoeae	**Gram -ve (intracellular) diplococcic with pus cells**:   Selective media: - Chocolate medium - Thayer-Martin Medium (for neisseria only)  	---	**+ve (Gold Standard)**
NGCU	Chlamydia trachomatis	Pus cell/McCoy Cell culture (but not used because it's expensive)	DFA (direct fluorescence Ab. assay)	**+ve (Gold Standard)**
	Others: -Trichomonas vaginalis (TV) -Mycoplasma	Wet mount: pus &TV/ Culture Pus cell: Special media culture	EIA (enzyme immunoassay) EIA	+ve +ve

Case2: cont.....



Q3: Base on the finding, what is the most likely diagnosis? Briefly outline the management of this patient?

Finding: Gram –ve intracellular diplococcic with pus cells

Diagnosis: Gonococcal urethritis.

Management:

1. Ceftriaxone or azithromycin.
2. Screen for other STDs.
3. Screen the partner and treat accordingly.

We use azithromycin in gonococcal urethritis because there's usually co-infection with chamydia

Case 3:

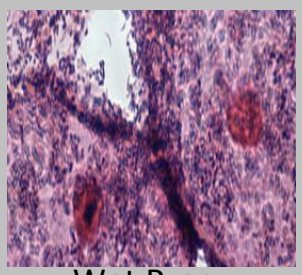
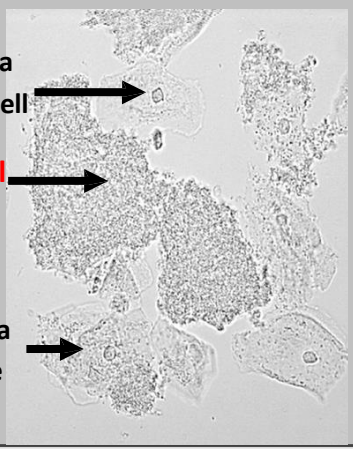
A 24-year-old female noted vaginal itching and irritation with a discharge. Previously, she developed a yeast infection that was treated with over-the-counter medications and resolved. Thinking that this was recurrence, she again self-treated. This time, however, the symptoms did not resolve.

Q1: What are the possible causes for her presentation?

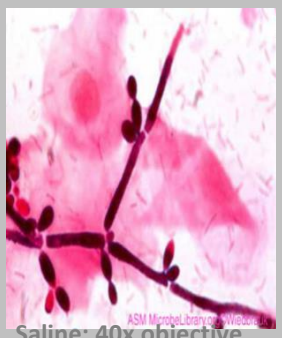
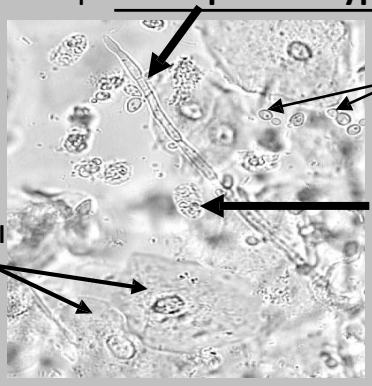
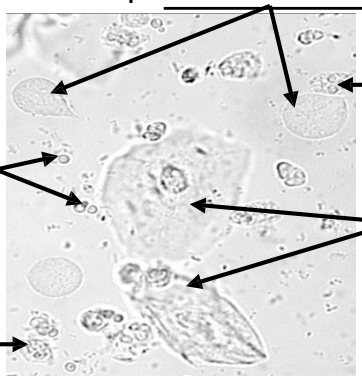
1. **Bacterial vaginosis** **(vaginosis: infection without inflammation)**
2. **Candida vaginitis** **(vaginitis: infection with inflammation)**
3. **Trichomoniasis**
4. Allergic vaginitis
5. Chlamydia trachomatis
6. Neisseria gonorrhoeae

Itching is mainly caused by:
1. Trichomoniasis (offensive and common).
2. Lice (Scabies).
3. Candidiasis (Less offensive).

Q2: What investigations would you like to order for her? Explain how those investigations would help you?

	PH	Whiff test[1]	Gram stain / Wet prep	Culture	Immunologic/ molecular test
Bacterial vaginosis	>4.52 (alkaline/ High pH)	+++	**Clue cells**[2] **[IMP!!!]** in Gram Stain:  Wet Prep: 	Not helpful	DNA Probe (gardnerella vaginalis)

Clinical diagnosis of bacterial vaginosis:
3 out of 4 of these criteria:
- o pH greater than 4.5.
- o Positive Whiff test.
- o Any clue cells.
- o Homogenous discharge.

Cont....	PH	Whiff test[1]	Gram stain / Wet prep	Culture	Immunologic/ molecular test
Candida vaginitis	<4.5 (acidic)	---	**Yeast and pseudohyphae**  Saline: 40x objective Wet Prep: **Yeast psuedohyphae** 	Candida (Large Gram +ve yeast in gram stain)	DNA Probe
Trichomo-nas vaginalis	>4.5 (alkaline)	-+	Wet Prep: **Trichomonas** 	**Motile Trophozoites**	EIA[3] DNA Probe

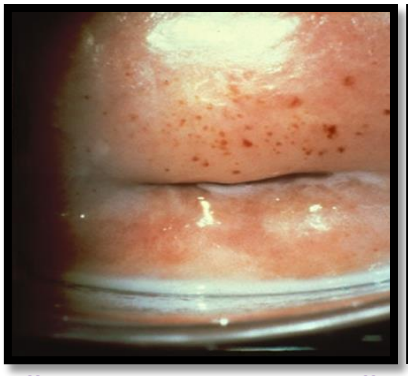
[1] **Whiff Test**: vaginal secretions mixed with KOH if there's fishy odor it indicates bacterial vaginosis.

[2] **Clue cells**: epithelial cells covered by organism

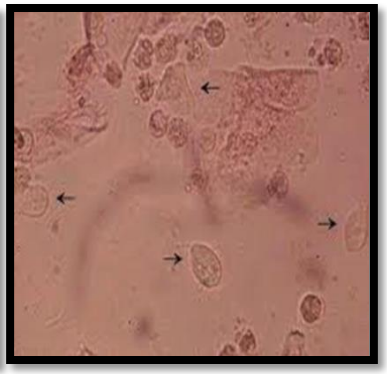
[3] **EIA:** Enzyme Immunoassay

Case 3: Cont....

She presented to her family physician for management. On examination there is a bad odor along with a frothy discharge and strawberry cervix.
Swab of the secretions was taken in order to perform tests.

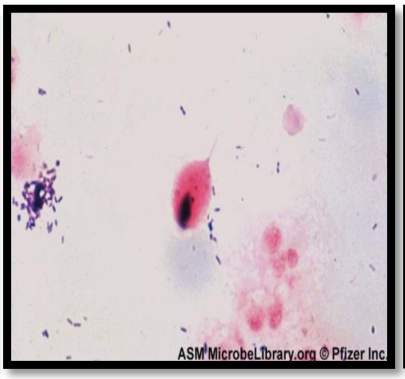


"Strawberry Cervix"



Wet Prep

A wet mount of the swab demonstrates "swimming" Motile Trophozoites



Gram Stain

Trichomonas vaginalis

Q3: Base on the finding, what is the most likely diagnosis? Briefly outline the management this case?

Diagnosis: Trichomoniasis.

Management:

1. Metronidazole (flagil)
2. Screen for other STDs.
3. Screen partner and treat accordingly.

Question: What organisms would you screen for in any patient presented with any STD?

- HIV
- Hepatitis B, Hepatitis C
- Chlamydia
- Gonorrhea