

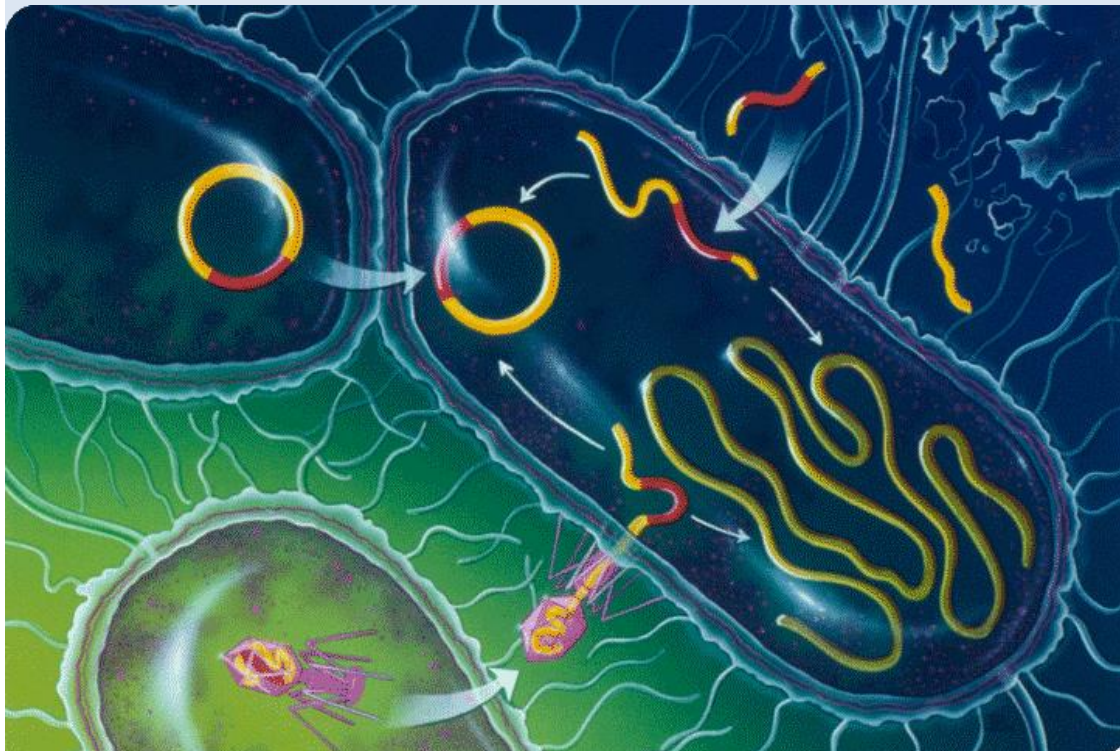
431

Microbiology Team

Microbiology practical
Sexually transmitted diseases

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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.



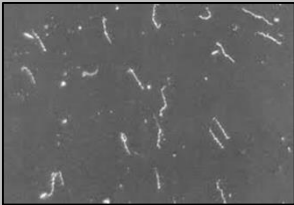
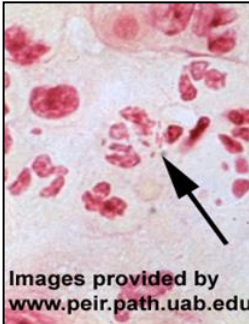
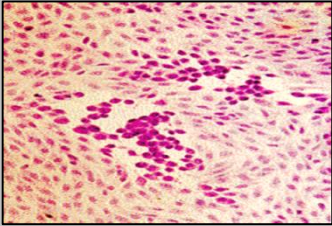
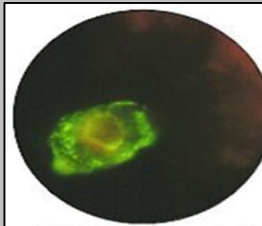
Q1: What are possible causes (organisms) for his presentation [Genital Ulcer]?

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 (Bubo)	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 (Dark Fluorescence Assay)	Serology
Treponema Pallidum	Dark Field microscopy. <u>Motile Spirochetes</u> 	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)  <p>Images provided by www.peir.path.uab.edu</p>	Selective media	NA	NA
Herpes Simplex Virus 2	Electron microscope (not usually used)	Produce cytopathic effect in cell culture 	+  <p>Fig. 3. HSV-infected epithelial cell from skin lesion (DFA)</p>	IgM (acute 1ry infection if +ve alone) IgG (infected) [if both +ve: Reactivation of infection]

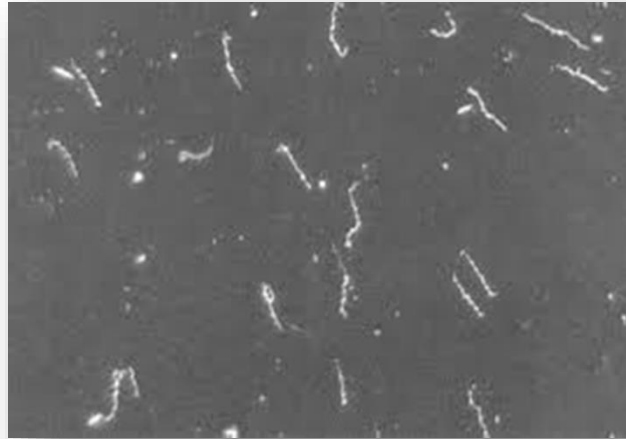
¹ **RPR**: rapid plasma reagin

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:

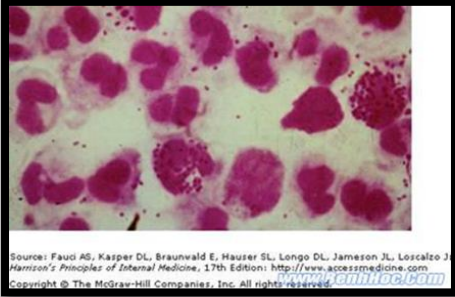
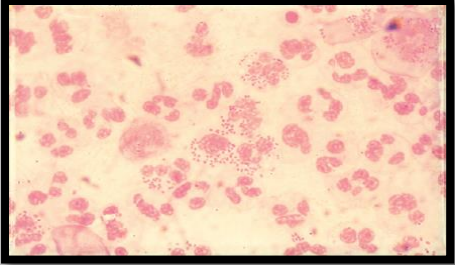
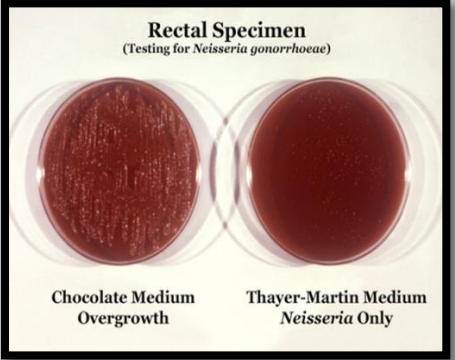
A 35-year-old Filipino married male presented to the emergency room complaining of dysuria for the last 24-hour and noted some "pus-like" drainage in his underwear and the tip of his penis.



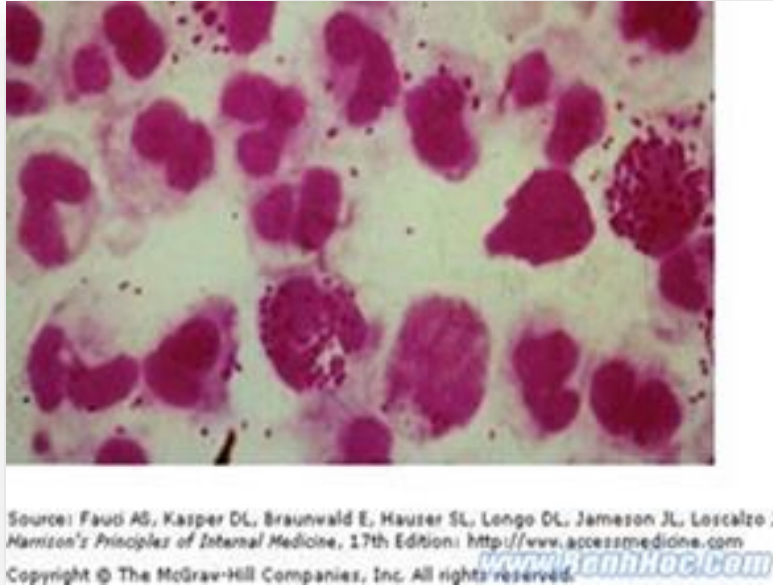
Q1: What are the possible causes for his presentation?

	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	<u>Smear/Culture</u>	<u>Immunological tests</u>	<u>Molecular testing</u>
GCU	Neisseria gonorrhoeae	<p>Gram -ve (intracellular) diplococci with pus cells:</p>  <p>Source: Fauci AS, Kasper DL, Braunwald E, Hauser SL, Longo DL, Jameson JL, Loscalzo J. <i>Harrison's Principles of Internal Medicine</i>, 17th Edition! http://www.accessmedicine.com Copyright © The McGraw-Hill Companies, Inc. All rights reserved.</p>  <p>Selective media:</p> <ul style="list-style-type: none"> - Chocolate medium - Thayer-Martin Medium (for neisseria only)  <p>Rectal Specimen (Testing for <i>Neisseria gonorrhoeae</i>)</p> <p>Chocolate Medium Overgrowth Thayer-Martin Medium <i>Neisseria</i> Only</p>	---	+ve (Gold Standard)
NGCU	Chlamydia trachomatis	Pus cell/McCoy Cell culture (but not used because it's expensive)	DFA (dark fluorescence assay)	+ve (Gold Standard)
	Others:	Wet mount:	EIA (enzyme immunoassay)	+ve
	-Trichomonas vaginalis (TV)	pus & TV/ <u>Culture</u>		
	-Mycoplasma	Pus cell: <u>Special media culture</u>	EIA	+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 diplococci with pus cells

Diagnosis: Gonococcal urethritis.

Management:

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

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.

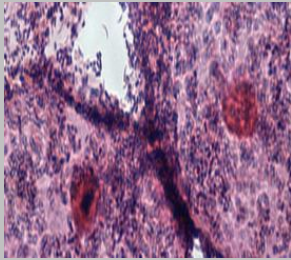
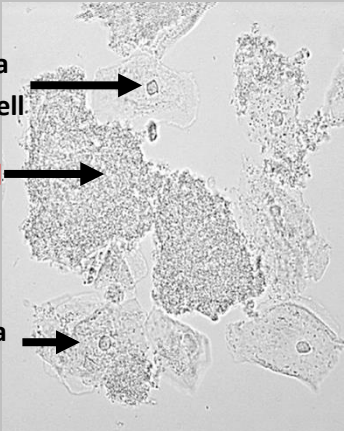
Q1: What are the possible causes for her presentation?

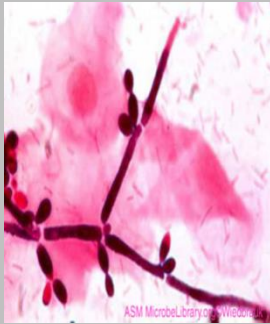
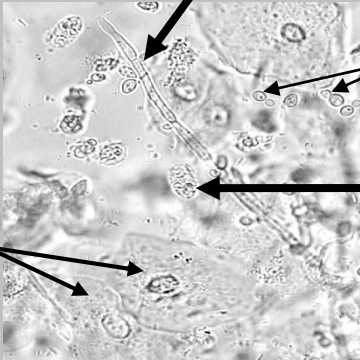
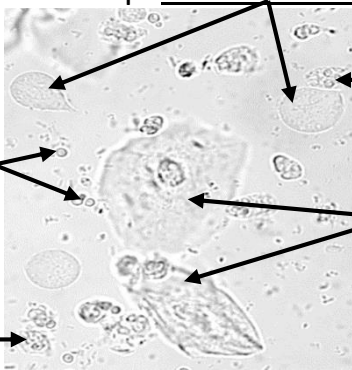
1. Bacterial vaginosis (vaginosis: infection without inflammation)
2. Candida vaginitis (vaginitis: infection with inflammation)
3. Trichomoniasis
4. Allergic vaginitis
5. Chlamydia trachomatis
6. Neisseria gonorrhoeae

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 cells² [IMP!!!] in Gram Stain: 	Not helpful	DNA Probe (gardnerella vaginalis)
			Wet Prep: 		

Cont....	PH	Whiff test ¹	Gram stain / Wet prep	Culture	Immunologic/ molecular test
Candida vaginitis	<4.5 (acidic)	---	<p>Yeast and <u>pseudohyphae</u></p>  <p>Saline: 40x objective</p> <p>Wet Prep: <u>Yeast psuedohyphae</u></p>  <p>Yeast Buds</p> <p>PMNs</p> <p>Sq. Epithelial cells</p>	Candida (Large Gram +ve yeast in gram stain)	DNA Probe
Trichomonas vaginalis	>4.5 (alkaline)	++	<p>Wet Prep: <u>Trichomonas</u></p>  <p>PMN</p> <p>Yeast buds</p> <p>Sq. epithelial cells</p> <p>PMN</p>	Motile Trophozoites	EIA ³ DNA Probe

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

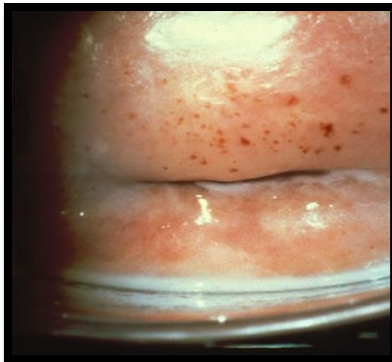
² **Clue cells:** epithelial cells covered by organism

³ **EIA:** Enzyme Immunoassay

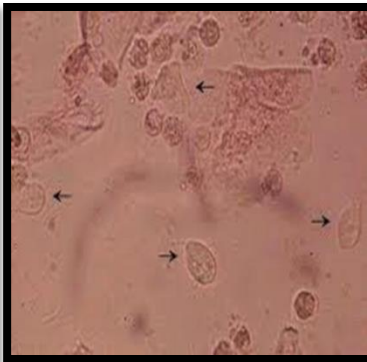
Case 3: Cont....

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.

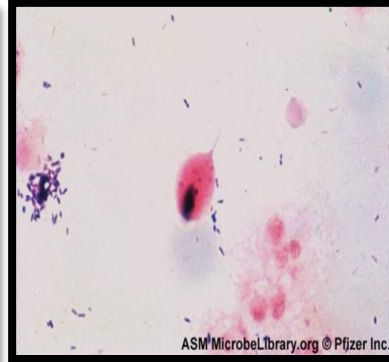


"Strawberry Cervix"



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
- Chlamydia
- Hepatitis B, Hepatitis C
- Gonorrhea