

Practical



Editing File



♥ Special thanks to Sarah Alquwayz, Leen Almadhyani, Rand Alrefaei and Mona Alomiriny ♥



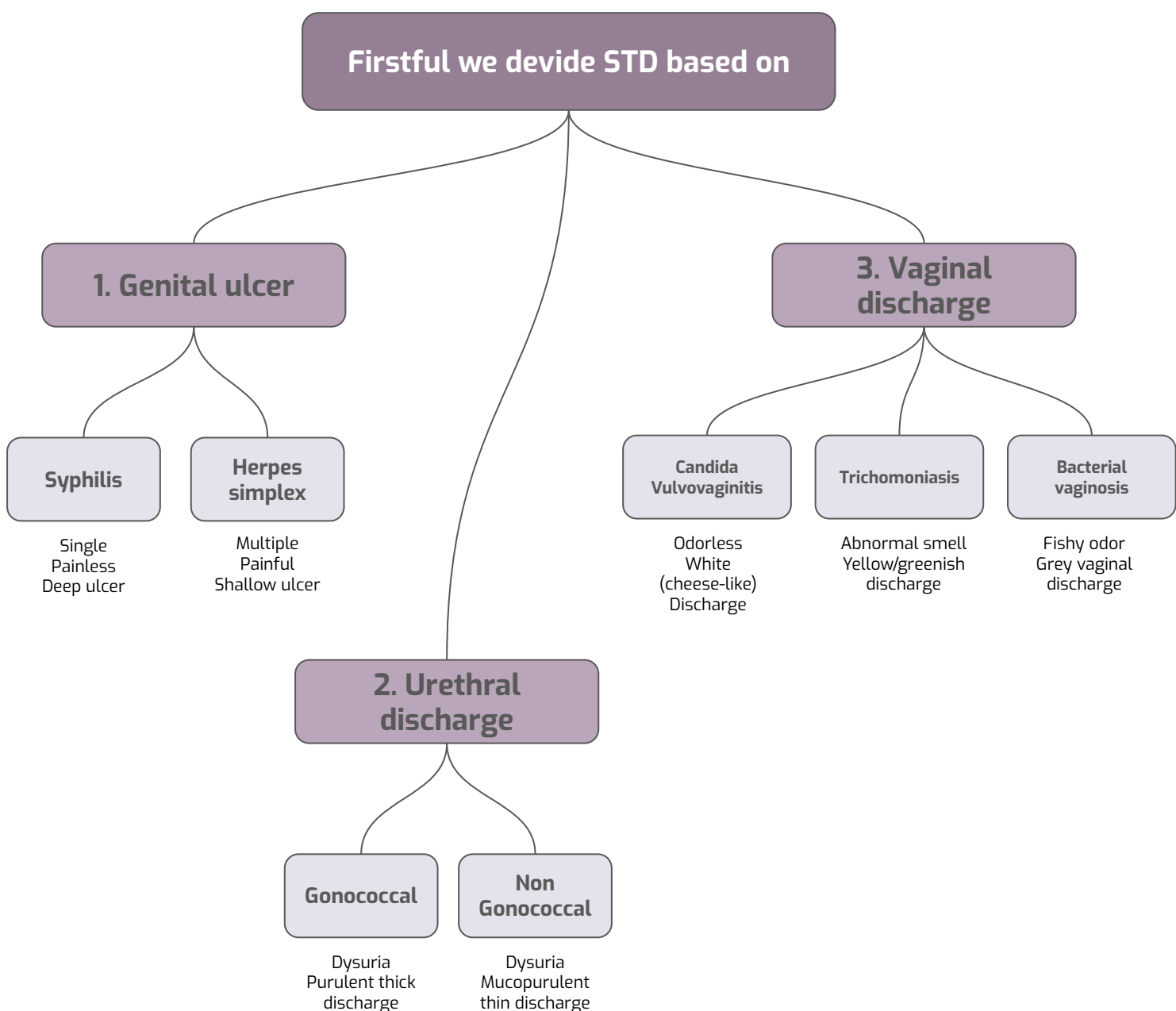
Color index

- Girls' slides
- Main content
- Important
- 438 Drs' notes
- Boys' slides
- Extra
- 439 Drs' notes



Objectives:

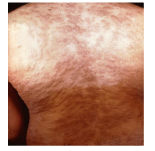
- Name various etiological agents causing localized STD. (Genital ulcers, Urethritis and Urethral vaginal discharge)
- Describe the clinical presentation of localized STD.
- Discuss the microbiological methods used for Dx of localized STD.
- Outline the management of localized STD.



Case 1

Scenario

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 an **ulcer⁽¹⁾** on his penis which disappeared completely. A full physical notes a **rash on both his palms and his soles.** ⁽⁵⁾



- What are the possible causes for genital ulcer ?

Chancroid	Chancre (in primary syphilis)	Ulcerated Vesicles
<ul style="list-style-type: none"> Haemophilus Ducreyi (Gram Negative Coccobacillus) 	<ul style="list-style-type: none"> Treponema Pallidum (Causes Syphilis) 	<ul style="list-style-type: none"> Herpes Simplex Virus 2 (Causes Genital Herpes)

How could you differentiate between them based on s/s of the patient?

Ulcer	Etiology	Ulcer	Lymphadenopathy (Bubo)	Systemic
Chancroid ⁽²⁾	Haemophilus Ducreyi	<ul style="list-style-type: none"> - Wet - Painful - Superficial with irregular borders - Multiple 	<ul style="list-style-type: none"> - Inguinal area involvement - Tender 	Present
Chancre	Treponema Pallidum (syphilis)	<ul style="list-style-type: none"> - Dry - Painless - Raised margin - Deep ulcer with regular borders - Single 	<ul style="list-style-type: none"> - Inguinal area involvement - not painful 	Depends on stage
Ulcerated Vesicles ⁽³⁾	Herpes Simplex Virus 2	<ul style="list-style-type: none"> - Multiple - Painful - Shallow 	<ul style="list-style-type: none"> - Occasionally present 	In primary

1- When you see the word "ulcer" in this block, you must think of syphilis & HSV. The difference between them is that syphilis is painless while HSV is painful.

2- Painful ulcer, and the organism can involve inguinal lymph node and it is common cause of secondary infection.

3- Started as multiple Vesicle, Then replaced by painful ulcer. (Vesicular type with painful ulcer).

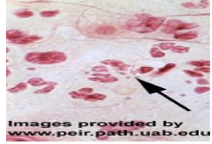
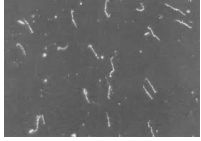
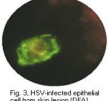
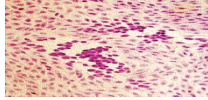
4- a quick recap of Syphilis stages:

- Primary: Painless genital ulcer.
- Secondary: Rash in palms and soles, Feeling unwell in general, and may come with hepatitis.
- Tertiary: Not important for ospe
- Latent: patient has no symptoms

5- Very important for clue for the diagnosis of secondary syphilis

Case 1

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

Ulcer	Microscopy	Culture ⁽¹⁾	DFA direct fluorescent antibody	Serology ⁽²⁾	Picture
Haemophilus Ducreyi	Gram stain: gm-ve small coccobacilli & pus cell	Selective media because it's fastidious and dies rapidly outside the human host	NA	NA	 Images provided by www.peir.path.uab.edu Gram Stain
Treponema Pallidum	Dark Field M: ⁽⁵⁾ Motile Spirochetes	Not grown in routine artificial culture, it requires specific culture	+	-Non specific (Non-treponemal tests)⁽³⁾: <ul style="list-style-type: none"> RPR⁽⁶⁾ VDRL -Specific (treponemal tests)⁽⁴⁾: <ul style="list-style-type: none"> TPHA⁽⁶⁾ FTA.ABS 	 Dark Field Microscopy
Herpes Simplex Virus 2	EM - NA	Produce cytopathic effect⁽⁷⁾ in cell culture	+	IgM IgG -IgM & IgG +ve → current infection (but it doesn't mean primary infection) -IgM +ve & IgG -ve → primary infection	 Fig. 3. HIV-infected mononuclear cell from skin lesion (DFA)  Cytopathic effect in cell culture

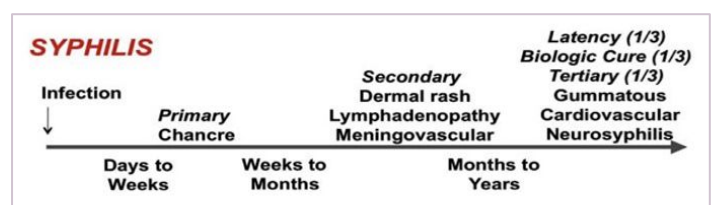
- What is the likely diagnosis and the stage of the disease in this case?

Diagnosis:

- Syphilis

Stage:

- Secondary syphilis



- [Click here](#) for a table showing the clinical manifestations for the other stages (extra , from theoretical lecture)

- Briefly outline the management of this patient?

Patient:

- Benzathine **penicillin** IM (Single dose penicillin)
- If allergic? Doxycycline
- Counseling and Education
- Test for other STDs ⁽⁸⁾ especially HIV, Hepatitis

Partner:

should be checked

1- need very selective media, and it is very fragile bacteria, so diagnosis based on clinical presentation and direct gram stain.

2- Main diagnostic tool for syphilis (You have to know how to interpret the results, check theoretical lecture for more info), [click here to save time](#) :)

3- Used for screening, follow up and staging

4- Used for confirmation.

5- because it's too thin to be stained by gram stain. Dark Field M (Mainly use in primary syphilis), but it's less useful than serology.

6- In treated patients, RPR: -ve, TPHA: +ve. Thus, RPR indicates resolution



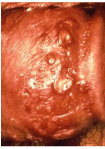
7- Changes that we notice in the cell like: cell swelling, glassy appearance.

8- as a rule when person come with one STD, check for the rest.

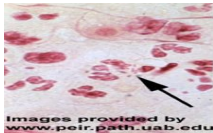
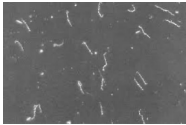

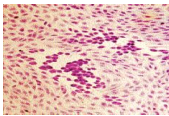
Case 1

Summary

Types of Ulcers

Ulcer	Chancroid 	Chancre 	Ulcerated Vesicles 
Etiology	Haemophilus Ducreyi	Treponema Pallidum	Herpes Simplex Virus 2
Ulcer	- Wet - Painful	- Dry - Painless - Raised margin	- Multiple - Painful - Shallow
Lymphadenopathy (Bubo)	- Inguinal - Tender	- Inguinal	- Occasionally present
Systemic	Present	Depends on stage	In primary

Investigations

Microscopy	Gram stain: gm-ve small bacilli & pus cell	Dark Field M: Motile Spirochetes	EM - NA
Culture	Selective media	Not grown	Produce cytopathic effect in cell culture
DFA	NA	+	+
Serology	NA	RPR TPHA FTA.ABS	IgM IgG
Picture	 Images provided by www.petr.path.uab.edu Gram Stain	 Dark Field Microscopy	 Fig. 3. HSV-2-infected epithelial cell from skin lesion (DFA)  Cytopathic effect in cell culture

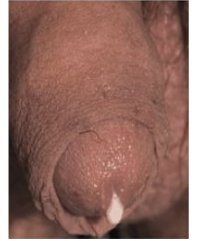
Management

Treatment	Azithromycin	Benzathine Penicillin IM If allergic? Doxycycline	Acyclovir
Prevention	-	Counseling	-

Case 2

Scenario

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



- What is the most likely diagnosis ?

Urethritis

- Gonococcal Urethritis

Urethritis

- Non-Gonococcal Urethritis

- What are the possible causes for his presentation ?

Type of urethritis	Gonococcal Urethritis	Non-gonococcal urethritis	
Organisms	Neisseria gonorrhoeae	Chlamydia trachomatis ¹	Others: - Trichomonas vaginatis - Mycoplasma
Discharge	Purulent discharge (watery)	Mucopurulent	

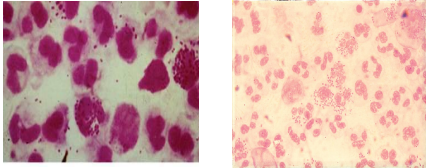
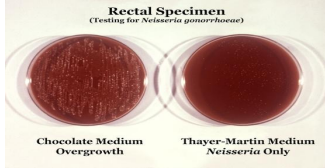

¹- the most common cause of non-gonococcal urethritis

Case 2

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

Type of urethritis	Gonococcal Urethritis	Non-gonococcal urethritis	
Organisms	<i>Neisseria gonorrhoeae</i>	<i>Chlamydia trachomatis</i>	Others: - <i>Trichomonas vaginalis</i> - <i>Mycoplasma</i>
Discharge	Purulent discharge	Mucopurulent	
Smear / Culture ¹	- Gram-ve diplococci & pus cell (Important, especially in males) - Selective media (Thayer-Martin)	- Pus cell only without an organism. (because it's intracellular very tiny bacteria). - McCoy Cell culture (difficult to culture unlike gonorrhoeae)	Trichomonas vaginalis: - wet mount; pus & TV / culture Mycoplasma - Pus cell / Special media culture
Immunological tests	-	- DFA - ELISA - Rapid test (bedside)	Molecular test: EIA (ELISA)
Molecular testing (PCR)	+ve (Gold Standard)	+ve (Gold standard)	

- Findings Of *Neisseria Gonorrhoeae*

★ Gram Stain	Culture ⁽¹⁾	Fermentation Test ⁽²⁾
<ul style="list-style-type: none"> ○ Gram Negative diplococci within the pus cell 	<ul style="list-style-type: none"> ○ Chocolate Medium ○ Thayer-Martin Medium 	<ul style="list-style-type: none"> ○ Only Ferment Glucose
		

- Base on the finding, what is the most likely diagnosis? Briefly outline the management of this patient?
- **Diagnosis:**
 - Gonococcal urethritis by (*Neisseria gonorrhoeae*).
- **Management:**
 - **Ceftriaxone** (Combination with **Azithromycin** is recommended)(Single dose).

1- If there is growth on the plate then you have to confirm by **Glucose fermentation or Co-agglutination test.**

2- we use **glucose fermentation test to differentiate between different Neisseria species.**

2- Treatment for Non-gonococcal urethritis (in case of chlamydia which is the most common cause):

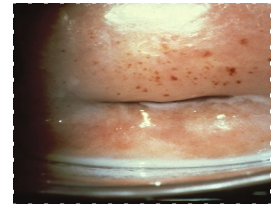
- Non-LGV infection: Azithromycin
- Pregnant women: Azithromycin or Erythromycin
- LGV infections: Doxycycline

Case 3

Scenario

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.

She presented to her family physician for management. On examination there is a **bad odor⁽³⁾** along with a **frothy discharge and strawberry cervix**. Swab of the secretions was taken in order to perform tests.



Strawberry Cervix

★ EXTRA (from theoretical lecture) **but imp to help you with the diagnosis**

	Candida Vulvovaginitis	Trichomoniasis ⁽¹⁾	Bacterial vaginosis ⁽²⁾
Caused by	Candida albicans is the most common.	Trichomonas vaginalis	Floral imbalance , usually the overgrowth of Gardnerella vaginalis
Discharge	<ul style="list-style-type: none"> ○ Odorless ○ Thin and watery or thick and white (cheese-like) 	<ul style="list-style-type: none"> ○ Abnormal vaginal odor ○ Yellow or greenish in color 	<ul style="list-style-type: none"> ○ Fishy odor ○ Grey vaginal discharge
Irritation , redness and inflammation	✓	✓ (strawberry cervix)	Minimal or absent
Treatment	Fluconazole	Oral metronidazole	Oral metronidazole



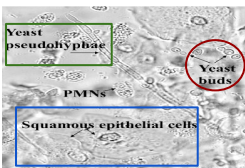
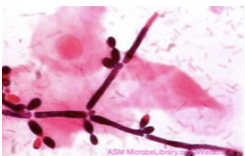

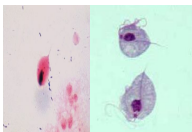
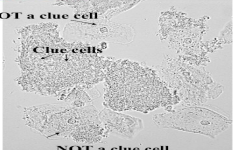
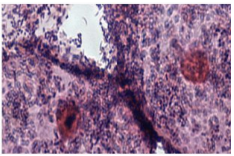
1- More common in **female** with STD.

2- alteration of PH causing alteration in normal flora and overgrowth of bacteria.

3- Makes you think of Trichomonas vaginalis and bacterial vaginosis because candida doesn't produce bad odor it's odorless

Case 3

- What are the possible causes for her presentation?
 - Bacterial vaginosis
 - Candida vaginitis (Check risk factors in theoretical lecture), [click here](#)
 - Trichomoniasis
 - Allergic vaginitis
 - Chlamydia trachomatis
 - Neisseria gonorrhoeae
- What investigations would you like to order for her ?
- Explain how those investigations would help you

	PH	Whiff test	Gram stain/Wet prep	Culture	Immunologic / Molecular test
Candida Vaginitis ⁽¹⁾	< 4.5	-	Budding Yeast and pseudohyphae	Candida (more likely to culture than others)	DNA probe
Trichomonas vaginalis	> 4.5	+ -	Trichomonas (more likely used) Flagella size (we see flagellated protozoa)	Motile trophozoites	- DNA probe - EIA (enzyme immunoassays)
Bacterial Vaginosis	> 4.5	+++	- Gram stain: Clue cells - Gram stain is gold standard	Not helpful	DNA probe (gardnerella vaginalis)
PH			Whiff test ⁽²⁾ Rarely done		
					
Candida Vaginitis		Trichomonas Vaginalis		Bacterial Vaginosis ⁽⁴⁾	
 <p>Wet prep⁽³⁾</p>  <p>Gram stain Showing budding and pseudohyphae</p>		 <p>Wet prep</p> <p>A wet mount of the swab demonstrates "swimming" Motile Trophozoites . (tear-like)</p>  <p>Gram stain (flagellated protozoa)</p>		 <p>Wet prep</p>  <p>Gram stain : Clue cell (epithelial cell covered with bacteria)</p>	

1-Overgrowth of yeast in eg. Diabetic patient, Patient on antibiotics.


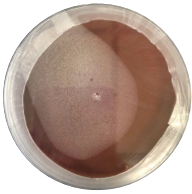
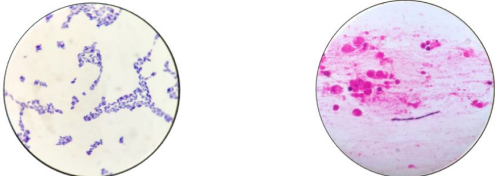

2-KOH put it in the sample from patient, and check the order usually fishy smell in bacterial vaginosis.

3-Direct microscopic sample.

4- Not a clue cell : normal epithelial cell, While clue cell: epithelial cell covered completely with bacteria.

Case 3

- Base on the finding, what is the most likely diagnosis?
 - **Trichomoniasis vaginalis**
- Briefly outline the management this case?
 - **Drug of choice: Metronidazole**
 - Sexual partner has to be treated as well.
- What organisms would you screen for in any patient presented with any STD?
 - **HIV**
 - **Hepatitis B & C**
 - Herpes simplex virus
 - Syphilis (*Treponema pallidum*)
 - *Neisseria gonorrhoeae* and *Chlamydia trachomatis*.
 - **HPV.**

Lab pictures from 437		
Gonococcal Urethritis: <i>Neisseria gonorrhoeae</i>	Gram Stain	
	Culture	 <p>Thayer-Martin</p>
Candida Vaginitis		 <p>Budding yeast Pseudohyphae</p>
		 <p>Flagellated protozoa</p>

Dr Khalifa's Quiz

Case1 : A 24-year-old single male who recently returned from his trip to Southeast Asia he gave history of multiple sexual partners. , he presented with painful suppurative ulcer on his penis , as well as fever, and the practitioner notice lymphadenopathy in his inguinal lymph node, after Gram-Stained performed to the sample appear as gm-ve small coccobacilli.

Q1: What is the most likely causative organism?

A-Treponema pallidum, B-Haemophilus Ducreyi, C-HSV , D-Chlamydia trachomatis.

Q2: What are the other organisms that can cause genital ulcer?

A-Neisseria&Chlamydia, B-HIV&Hepatitis, C- Treponema pallidum&HSV, D-Tricomonas&Neisseria.

Q3: If the bacteria was Treponema pallidum (Syphilis) what is the best method for diagnosis?

A-Serology(treponemal,non-treponemal test), B-Culture, C-DFA, D-Microscopy.

Answers: Q1:B | Q2:C | Q3:A

Case2 :.A 29-year-old married male presented to the emergency room complaining of dysuria for the last 24-hours and noted some "pus-like" drainage (Mucopurulent discharge) in his underwear and the tip of his penis. On microscope we see Pus cell only without an organism.

Q1: What is the most likely diagnosis?

A-Gonococcal urethritis, B-Non-gonococcal urethritis., C-Prostatitis , D-Orchitis.

Q2: What is the most likely causative organism?

A-Chlamydia trachomatis, B-Neisseria gonorrhoeae, C- Treponema pallidum, D-Haemophilus Ducreyi.

Q3- What is the management of this case in case of non LGV infection ?

A-Penicillin, B-Ampicillin, C-gentamicin, D-Azithromycin.

Answers: Q1:B | Q2:A | Q3:D

Case3 : A 26-year-old female noted vaginal itching and irritation with fishy odor gray vaginal discharge.

Q1: What is the most likely diagnosis?

A-Candida vulvovaginitis , B-Trichomoniasis, C-Bacterial vaginosis , D-Urethritis.

Q2: What is the gold standard diagnostic methods?

A-Wet prep/Gram stain, B-Culture, C-Molecular test , D-Whiff test.

Q3: Describe clue cell?

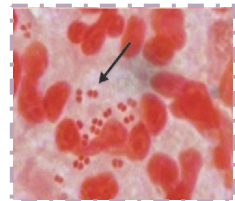
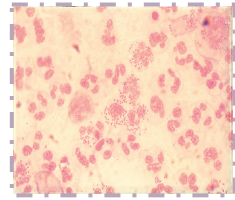
A-Normal epithelial cell, B-Epithelial cell covered with bacteria, C-Pus cell, D-PMN.

Answers: Q1:C | Q2:A | Q3:B

Dr Malak's Quiz

Q1 : What is the most likely organism ?

Neisseria Gonorrhoeae



Q2 : Which one of the following is correct ?

- A) Single Ulcer
- B) Multiple Ulcer
- C) Moist Ulcer
- D) Purulent Discharge



Answer: A

Q3 : Which one of the following is correct ?

- A) Single Ulcer
- B) Multiple Ulcer
- C) Deep Ulcer
- D) Dry Ulcer

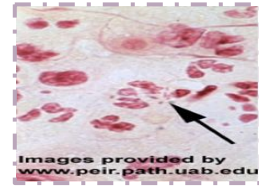


Answer: B

Dr Malak's Quiz

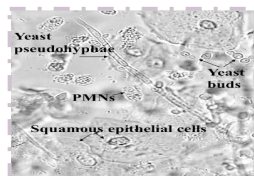
Q4 : Which one of the following is correct ?

- A) Gram -ve bacilli
- B) Gram +ve bacilli
- C) Gram +ve cocci
- D) Gram -ve cocci

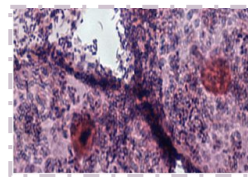


Answer: A

Q5 : What is the diagnosis?



Candida Vaginitis



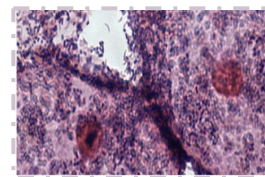
Bacterial vaginosis

Q6 : A patient presented with **discharge** and bad smell

- What is the most likely causative organism shown in the gram stain of the vaginal smear?

- A) Bacterial Vaginosis
- B) Syphilis
- C) Herpes

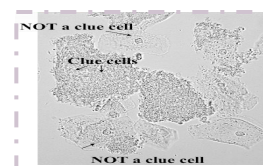
Answer: A



- What type of microscope is used?⁽¹⁾

- A) Light microscope
- B) Electron microscope
- C) Dark field immunofluorescence

Answer: A



1- Types of microscopes:

- Dark field microscope: Syphilis
- Immunofluorescence: Herpes

Dr Malak's Quiz

Q7 : What is the most likely organism ?

Treponema Pallidum



Q8 : Which one of the following is correct ?

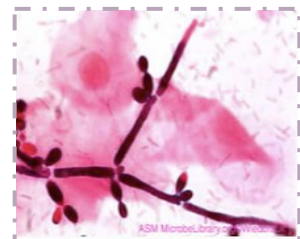
- A) Ferment Glucose
- B) Ferment Maltose
- C) Does not ferment Glucose
- D) Ferment Fructose



Answer: A

Q9 : What is the diagnosis ?

- A) Herpes
- B) Chlamydia
- C) Trichomonas Vaginalis
- D) Yeast (candida vaginitis)



Answer: D

Members Board

Team Leaders



Abdurahman Addweesh



Muneerah Alsadhan

Members

Sadeem Alhazmi

Muneerah Alsadhan

Organizer

Muneerah Alsadhan

Reviser

Shuaa Khdary

Note takers

Abdulaziz Alghuligah

Duaa Alhumoudi

This amazing lecture was originally done by 438's team

Team Leaders



Abdulaziz Alshomar



Ghada Alsadhan

Sub-leader



Mohammed Alhumud
(coolest sub leader ever)

Note takers

Meshal Abaalkhail

Members

Abdulaziz Alshomar

Ghada Alsadhan

Mohammed Alhumud

