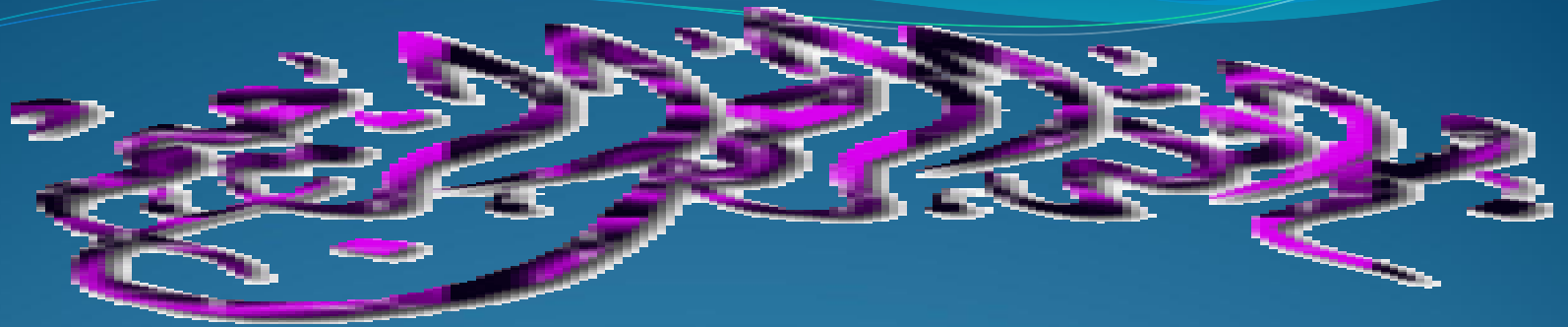




# **MICROBIOLOGY PRACTICAL**

*Reproductive block*

**2020**



*Sexually Transmitted Diseases*  
*Practical*

# Objectives

- Name various **etiological agents** causing localized STD.

(Genital ulcers, Urethritis and Urethral vaginal discharge)

- Describe the **clinical presentations** of localized STD.
- Discuss the **microbiological methods** used for Dx of localized STD.
- Outline the **management** of localized STD.

# Case 1

- 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.





Seattle STD/HIV Prevention Training Center  
Source: Connie Celum, Walter Stamm

What are the possible causes for his presentation?

## Genital ulcer

- *Treponema Pallidum*
- *Herpes Simplex Virus 2*
- *Haemophilus Ducreyi*



# Genital ulcer



**Chancroid**  
*H Ducreyi*



**Chancre**  
*T Pallidum*



**Ulcerated Vesicles**  
*HSV 2*

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

Ulcer	Etiology	Ulcer	Lymphadeno pathy (Babo)	Systemic
<b>Chancroid</b>				
<b>Chancre</b>				
<b>Ulcerated Vesicles</b>				



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

Ulcer	Etiology	Ulcer	Lymphadenopathy (Bubo)	Systemic
Chancroid	<i>Haemophilus Ducreyi</i>	Wet, painful	Inguinal tender	Present

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

Ulcer	Etiology	Ulcer	Lymphadeno pathy (Babo)	Systemic
Chancroid	<i>Haemophilus Ducreyi</i>	Wet, painful	Inguinal tender	Present
<b>Chancre</b>	<i>Treponema Pallidum</i>	Dry, painless and raised margin	Inguinal	Depends on stage

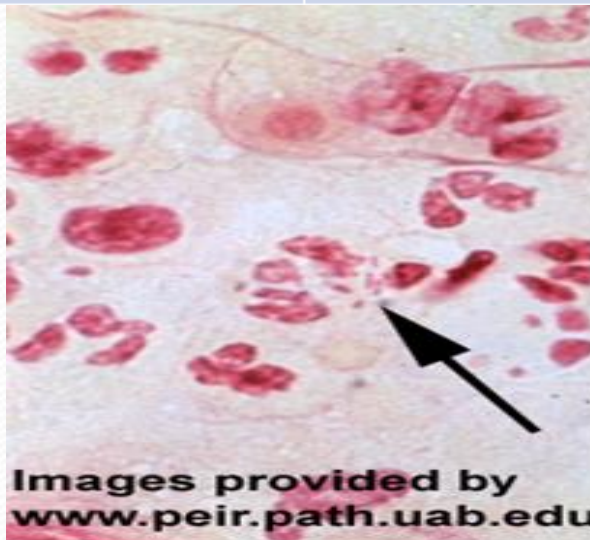
# How could you differentiate between them based on s/s of the patient?

Ulcer	Etiology	Ulcer	Lymphadeno pathy (Babo)	Systemic
Chancroid	<i>Haemophilus Ducreyi</i>	Wet , painful	Inguinal tender	Present
<b>Chancre</b>	<i>Treponema Pallidum</i>	Dry, painless and raised margin	Inguinal	Depends on stage
Ulcerated Vesicles	<i>Herpes Simplex Virus 2</i>	Multiple shallow painful	Occasionally present	In primary



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

Ulcer	Microscopy	Culture	DFA	Serology
<i>Haemophilus Ducreyi</i>	Gram stain; gm-ve small bacilli & pus cell	Selective media	NA	NA



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

Ulcer	Microscopy	Culture	DFA	Serology
<i>Haemophilus Ducreyi</i>	Gram stain; gm-ve small bacilli & pus cell	Selective media	NA	NA
<i>Treponema Pallidum</i>	Dark Field M; Motile Spirochetes	Not grown	+	RPR TPHA FTA.ABS

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

Ulcer	Microscopy	Culture	DFA	Serology
<i>Haemophilus Ducreyi</i>	Gram stain; gm-ve small bacilli & pus cell	Selective media	NA	NA
<i>Treponema Pallidum</i>	Dark Field M; Motile Spirochetes	Not grown	+	RPR TPHA FTA.ABS
<i>Herpes Simplex Virus 2</i>	EM -NA	Produce cytopathic effect in cell culture	+	IgM IgG



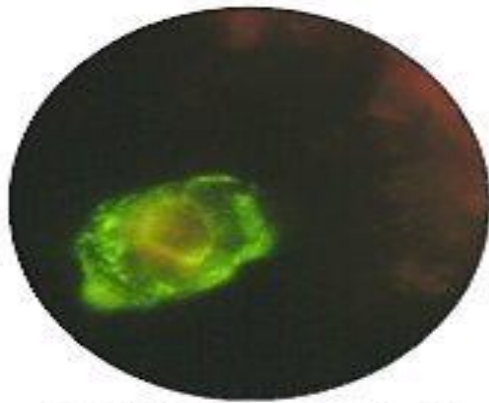
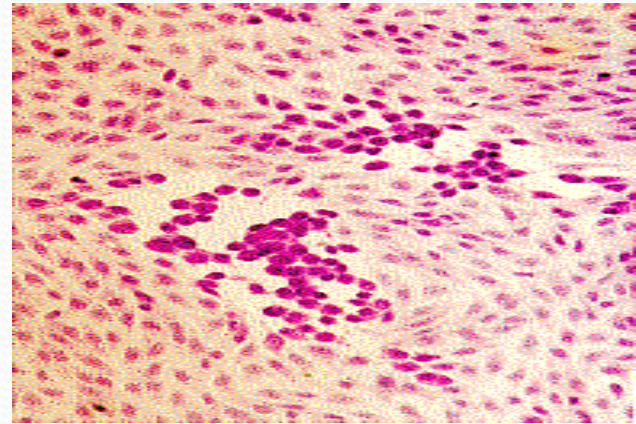
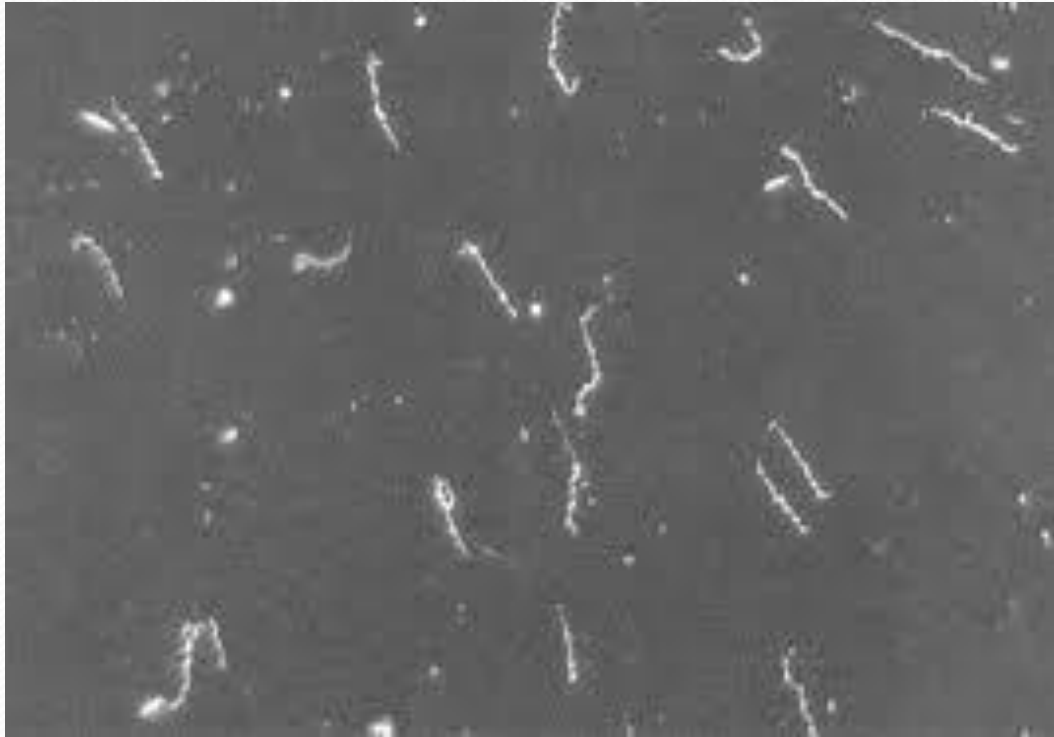


Fig. 3, HSV-infected epithelial cell from skin lesion (DFA)



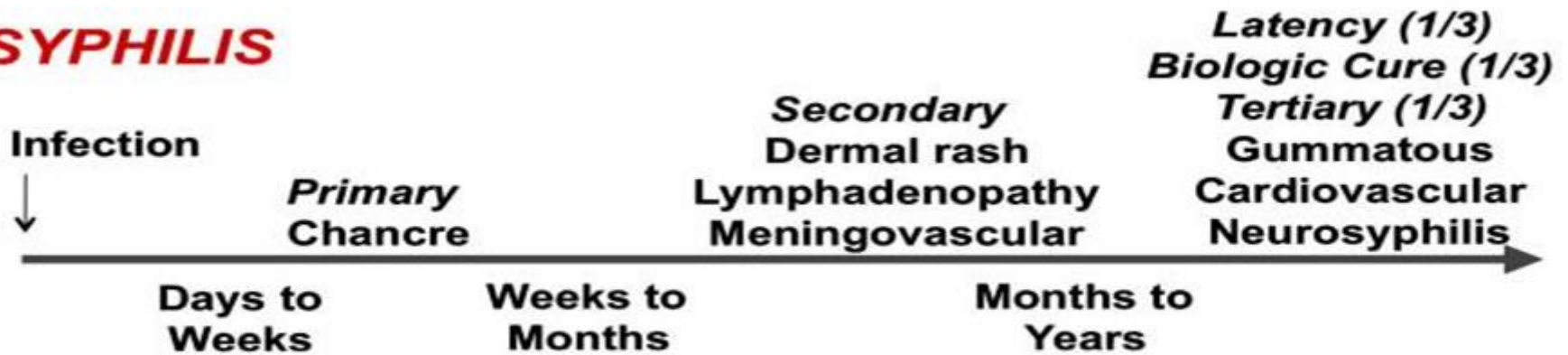
Cytopathic effect of HSV in cell culture

- The lesion is sampled and examined by dark-field microscopy;





# ***SYPHILIS***







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

## Briefly outline the management of this patient?

Patient      Benzathine penicillin IM---allergy-- Doxycycline  
                 Counseling and Education  
                 tested for other STD especially HIV

Partner



## *Case 2*

- 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?

# What is the most likely diagnosis?

## Urethritis



**Gonococcal  
Urethritis**



**Non-gonococcal  
urethritis**

## What are the possible causes for his presentation?

	Organisms	Urethritis
Gonococcal Urethritis	<i>Neisseria gonorrhoeae</i>	Purulent discharge
Non-gonococcal urethritis	<i>Chlamydia trachomatis</i>	Mucopurulent
	<u>Others</u> <ul style="list-style-type: none"><li>• <i>Trichomonas vaginatis</i></li><li>• <i>Mycoplasma</i></li></ul>	



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

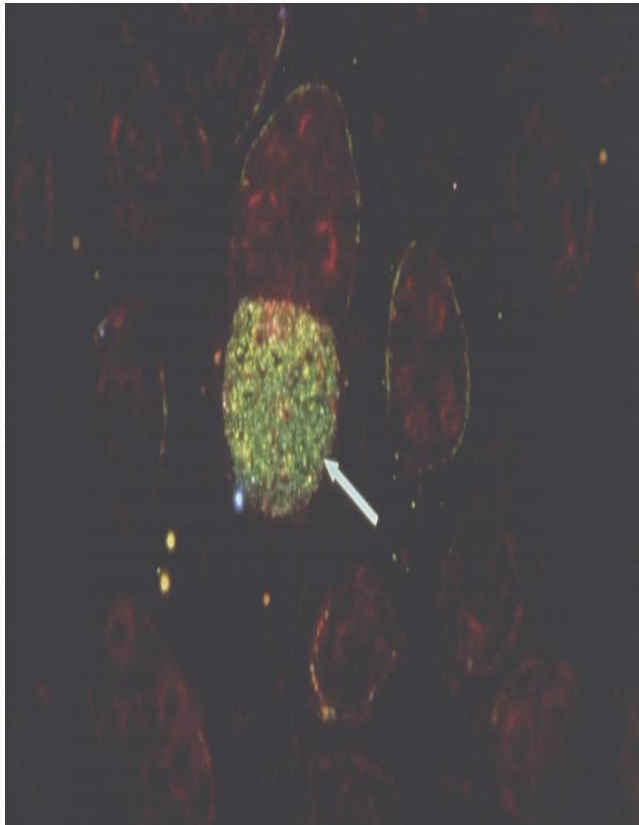
	Organisms	Smear/ <b>Culture</b>	Immunological tests	Molecular testing
GCU	<i>Neisseria gonorrhoeae</i>	Gram-ve diplococci & pus cell / <b>Selective media</b>		+ve (Gold Standard)
NGCU	<i>Chlamydia trachomatis</i>			

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

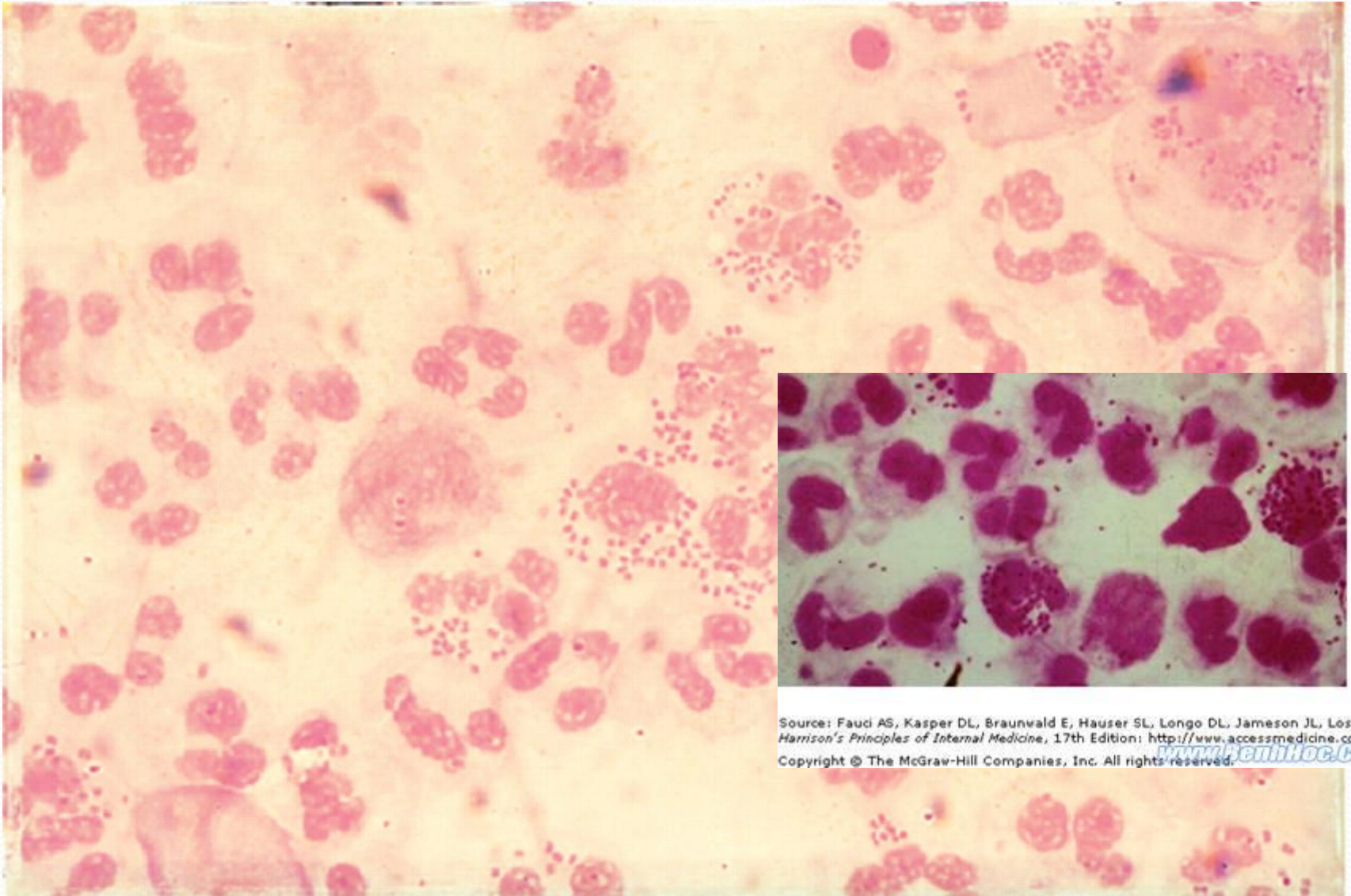
	Organisms	Smear/ <b>Culture</b>	Immunological tests	Molecular testing
GCU	<i>Neisseria gonorrhoeae</i>	Gram-ve diplococci & pus cell / <b>Selective media</b>		+ve (Gold Standard)
NGCU	<i>Chlamydia trachomatis</i>	Pus cell/ <b>McCoy Cell culture</b>	DFA ELISA Rapid test	+ve(Gold Standard)
	<u>Others</u> <i>Trichomonas vaginalis</i> <i>Mycoplasma</i>	➤ Wet mount; pus &TV/ <b>Culture</b> ➤ Pus cell / <b>Special media culture</b>	EIA  EIA	+ve  +ve

# Chlamydia

## Direct Fluorescent Antibody (DFA)



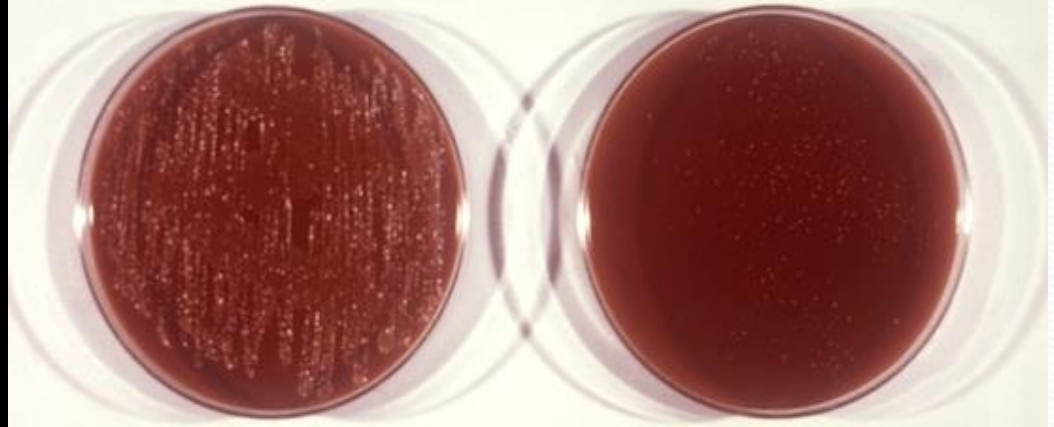




Source: Fauci AS, Kasper DL, Braunwald E, Hauser SL, Longo DL, Jameson JL, Loscalzo J. *Harrison's Principles of Internal Medicine*, 17th Edition: <http://www.accessmedicine.com>  
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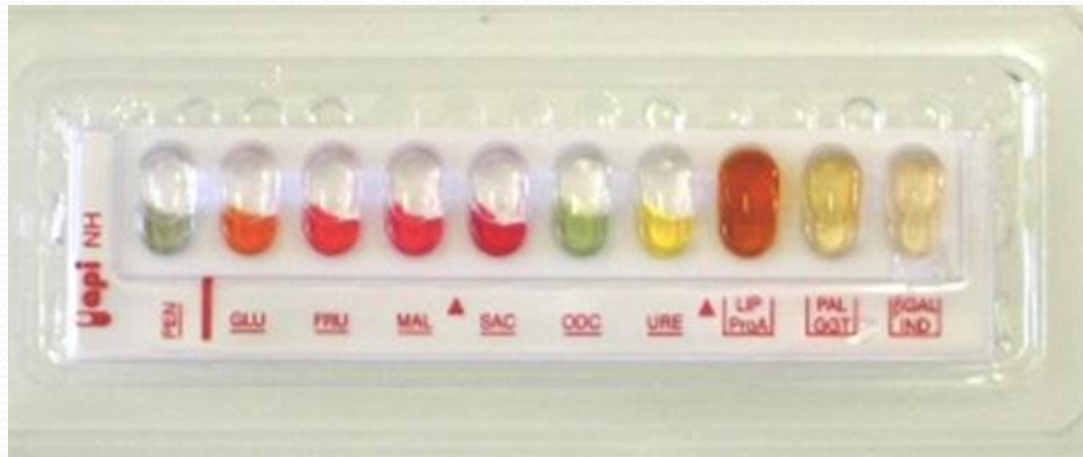


## Rectal Specimen (Testing for *Neisseria gonorrhoeae*)



**Chocolate Medium  
Overgrowth**

**Thayer-Martin Medium  
*Neisseria* Only**







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



## *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.

# What are the possible causes for her presentation?

- ***Bacterial vaginosis***
- ***Candida vaginitis***
- ***Trichomoniasis***
- ***Allergic vaginitis***
  
- *Chlamydia trachomatis*
- *Neisseria gonorrhoeae*



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

**PH**

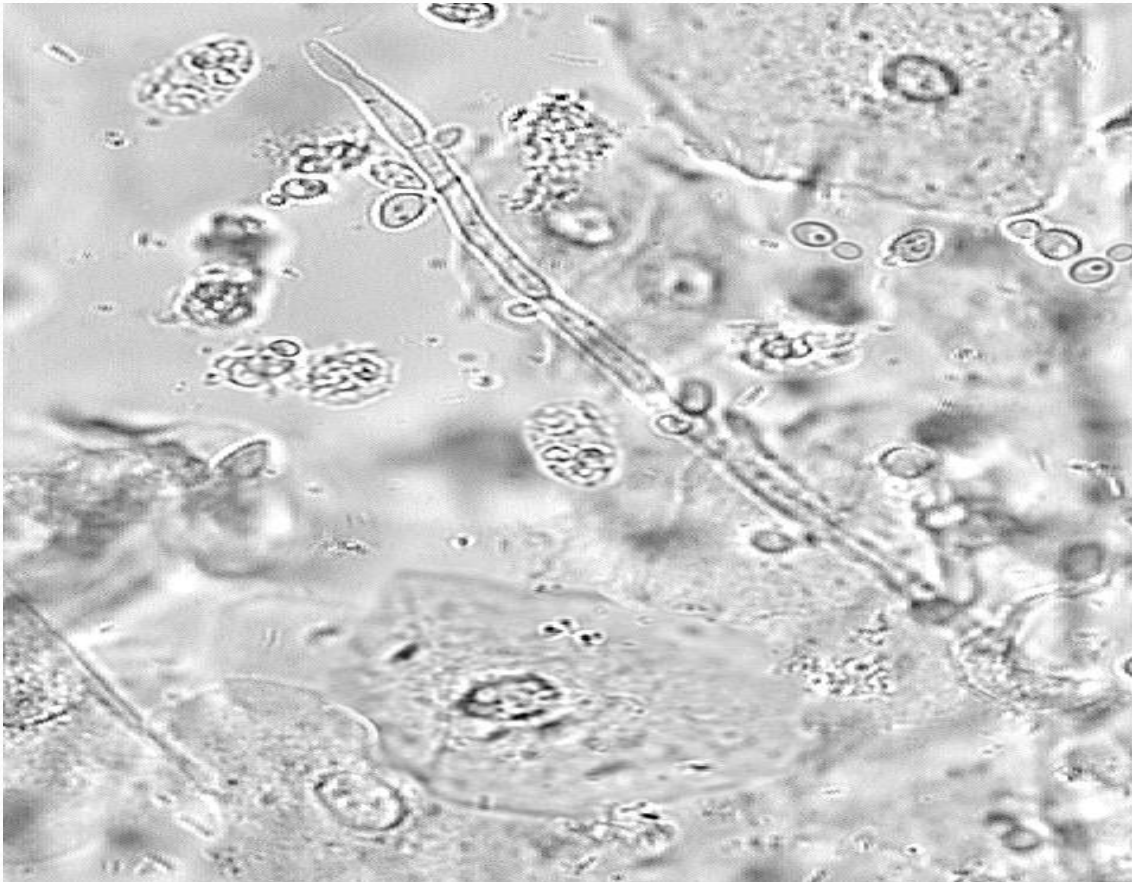


**Whiff  
test**





# Wet Prep:



**Saline: 40X objective**

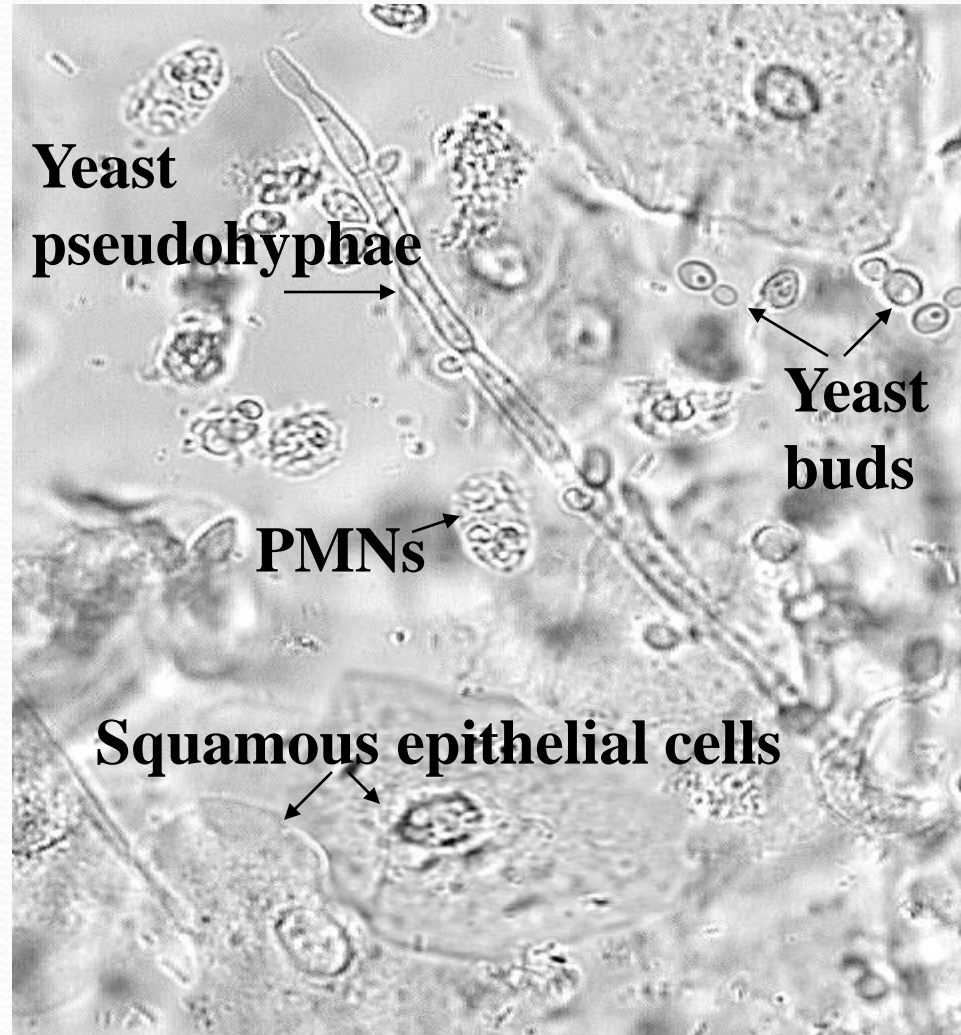


*Source:* Seattle STD/HIV Prevention Training Center at the University of Washington



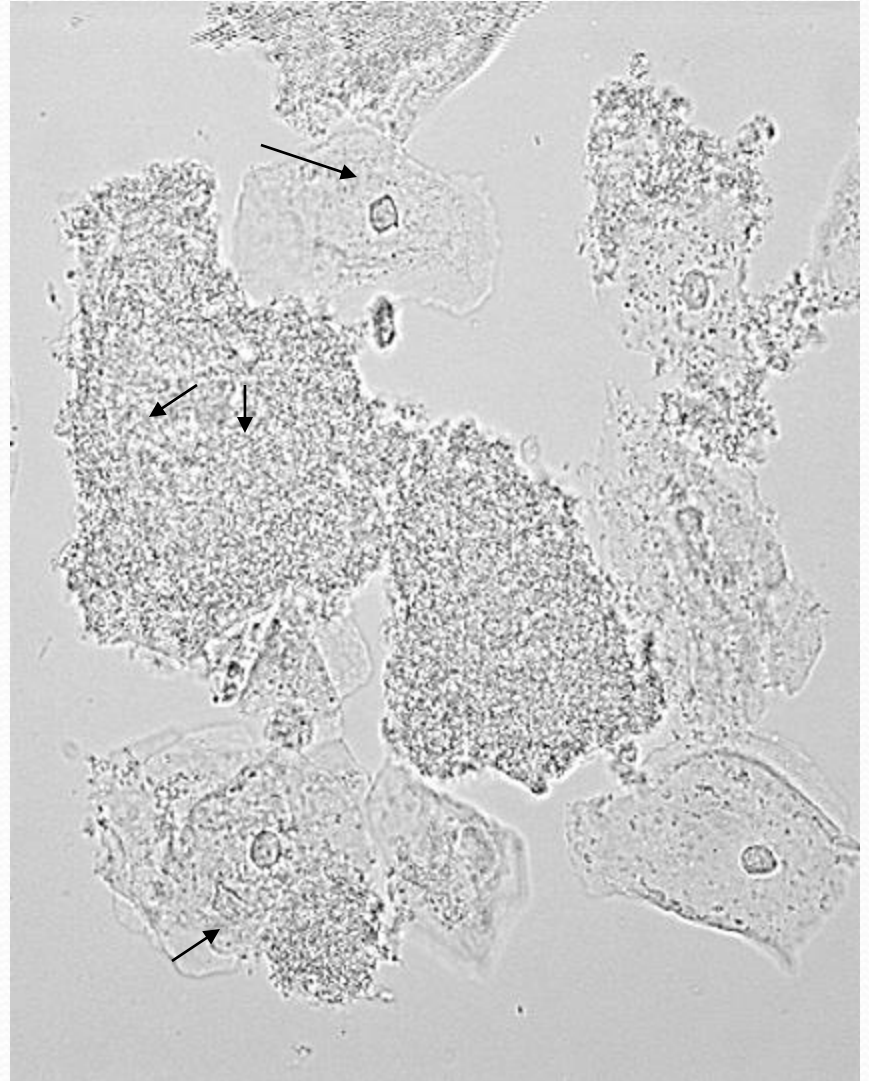
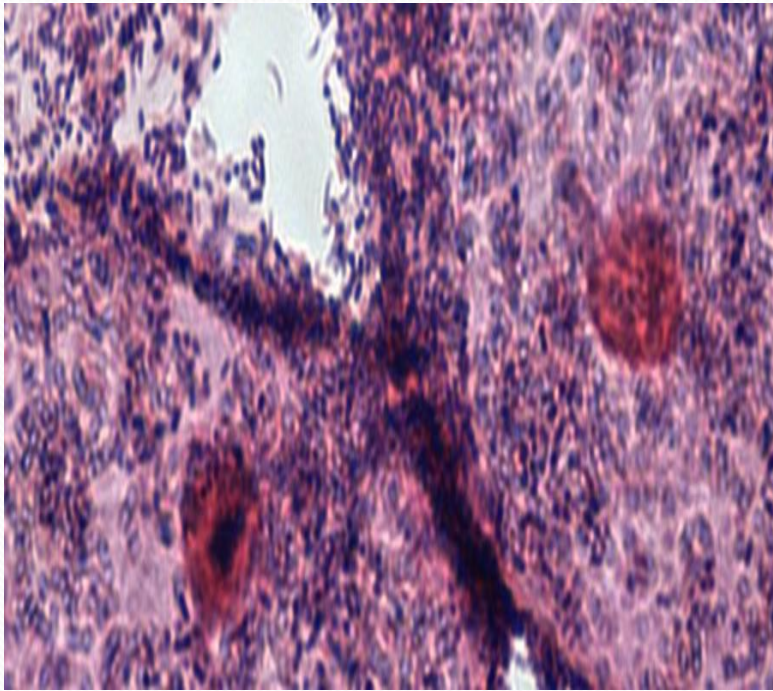
# PMNs and Yeast Pseudohyphae

**Saline: 40X objective**



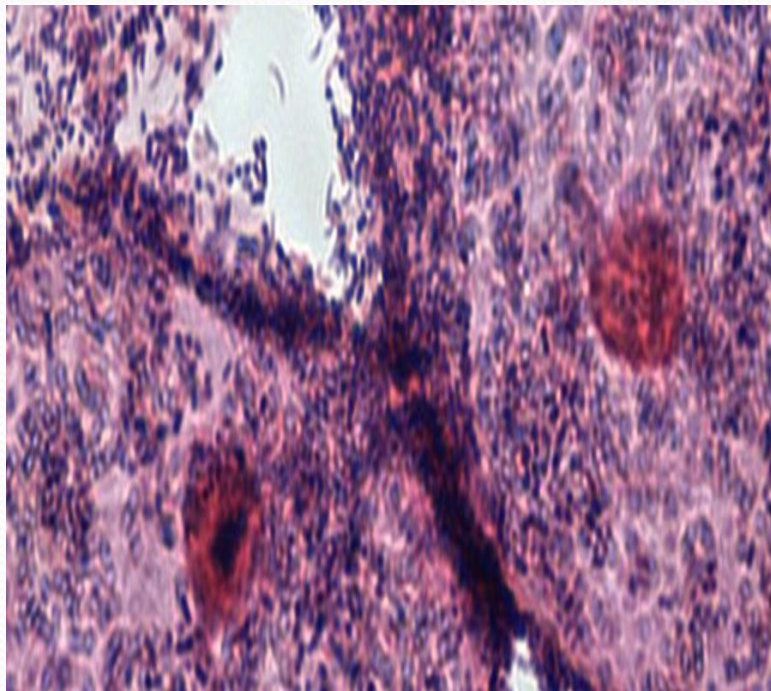
*Source:* Seattle STD/HIV Prevention Training Center at the University of Washington



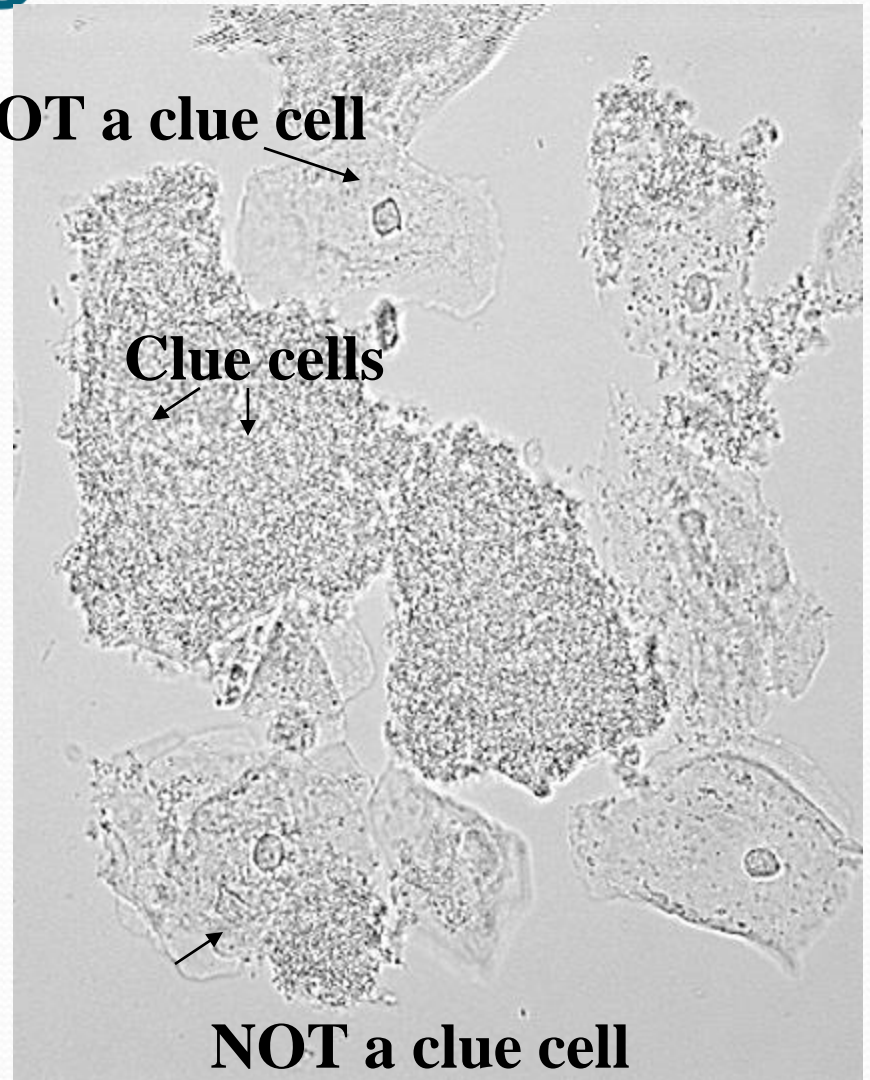




# Bacterial Vaginosis



**NOT a clue cell**



**Clue cells**

**NOT a clue cell**

**Saline: 40X objective**

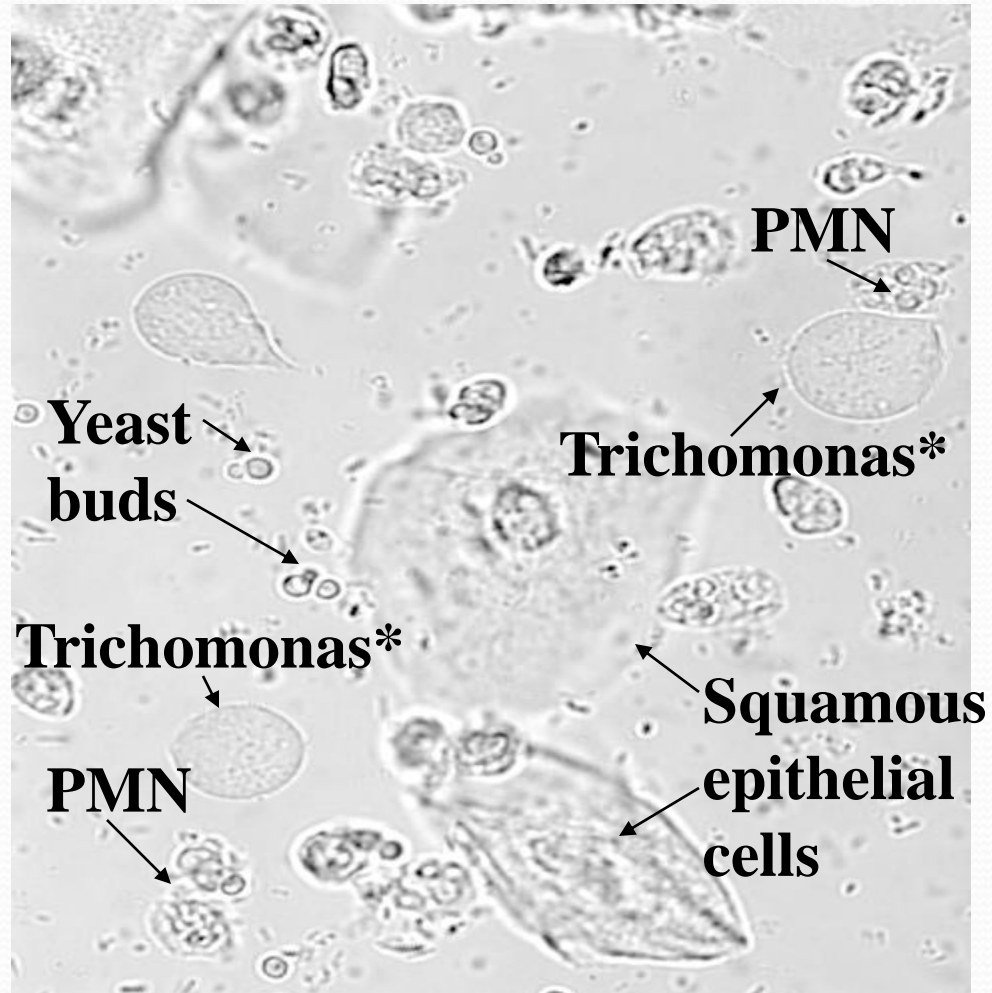


*Source:* Seattle STD/HIV Prevention Training Center at the University of Washington



# Wet Prep: Trichomoniasis

Saline: 40X objective

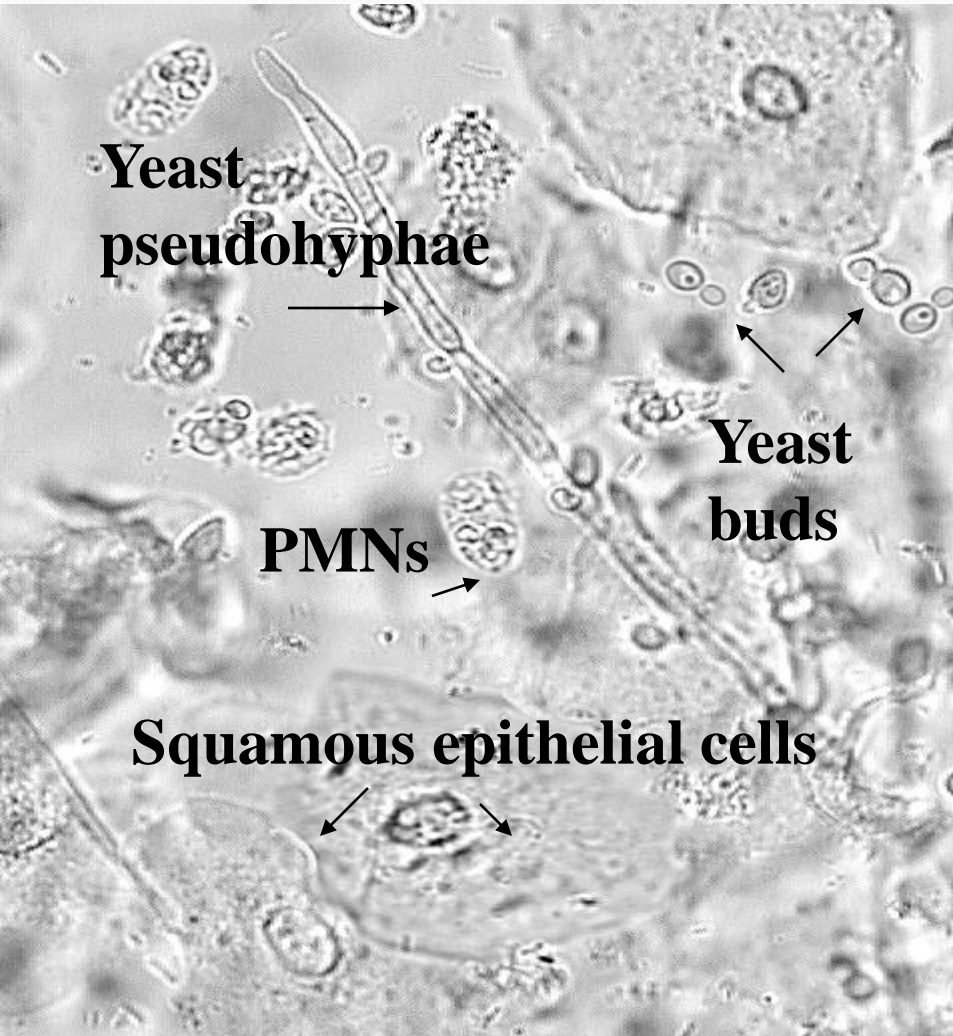


\*Trichomonas shown for size reference only: must be motile for identification

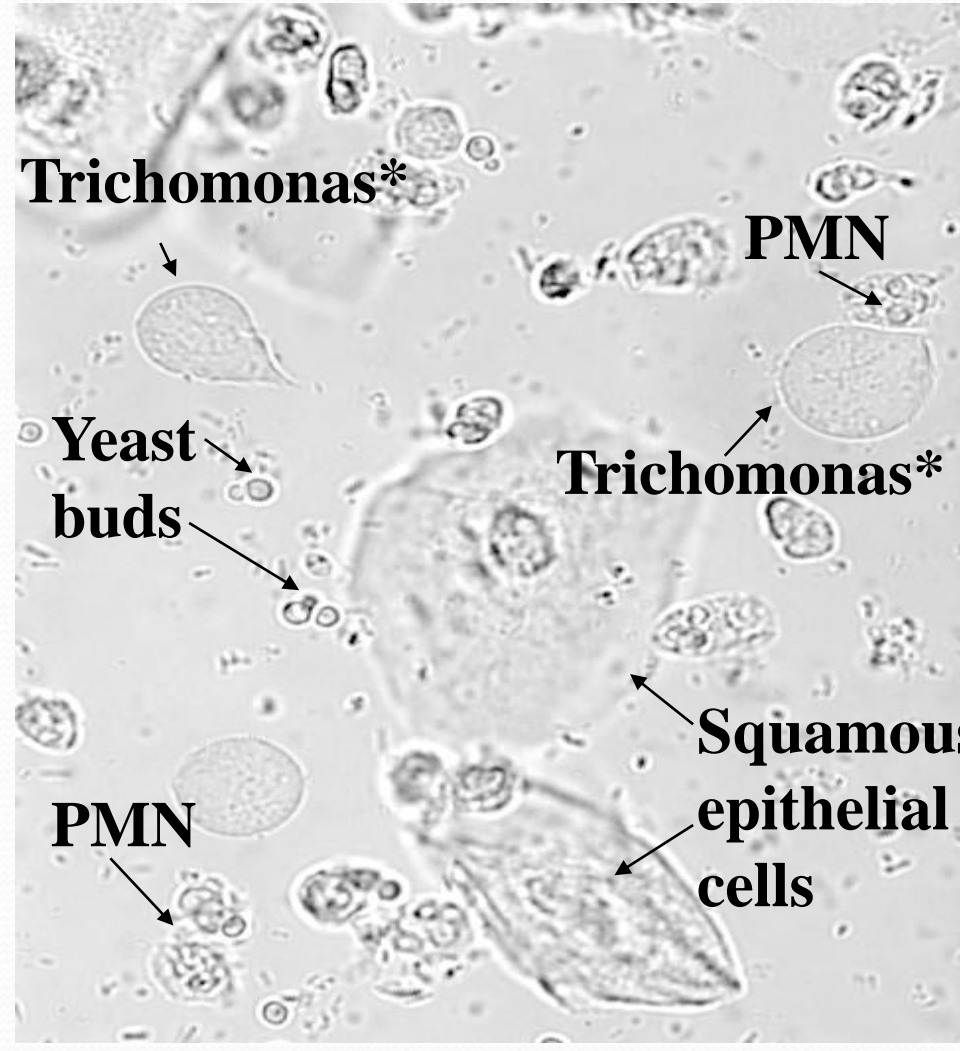
Source: Seattle STD/HIV Prevention Training Center at the University of Washington

# Wet Prep:

## Yeast Pseudohyphae



## Trichomoniasis





*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
Bacterial vaginosis	>4.5	+++	Clue cells	Not helpful	DNA Probe (gardnerella vaginalis)
Candida vaginitis					
Trichomonas vaginitis					



*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
Bacterial vaginosis	>4.5	+++	Clue cells	Not helpful	DNA Probe (gardnerella vaginalis)
Candida vaginitis	<4.5	-	Yeast and pseudohyphae	Candida	DNA Probe
Trichomonas vaginitis					

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

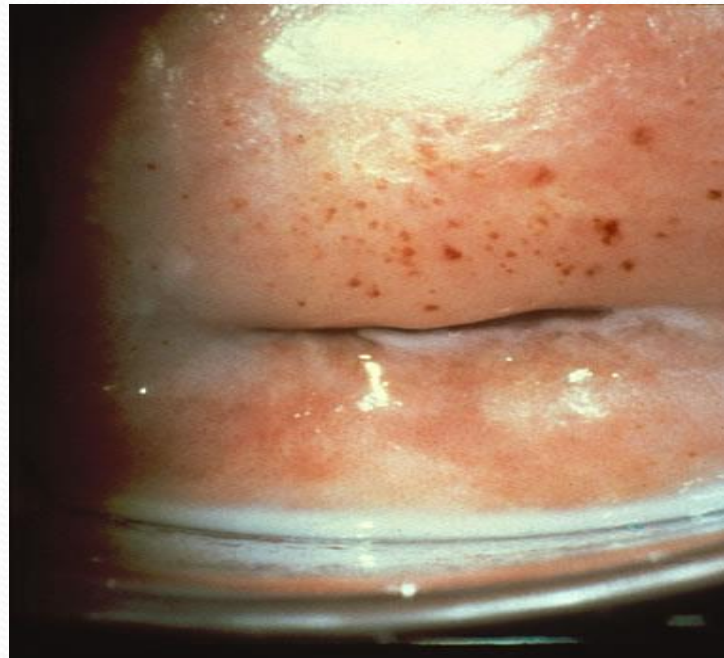
	PH	Whiff test	Gram stain / Wet prep	Culture	Immunologic /molecular test
Bacterial vaginosis	>4.5	+++	Clue cells	Not helpful	DNA Probe (gardnerella vaginalis)
Candida vaginitis	<4.5	-	Yeast and pseudohyphae	Candida	DNA Probe
Trichomonas vaginalis	>4.5	+-	Trichomonas	Motile Trophozoites	EIA DNA Probe



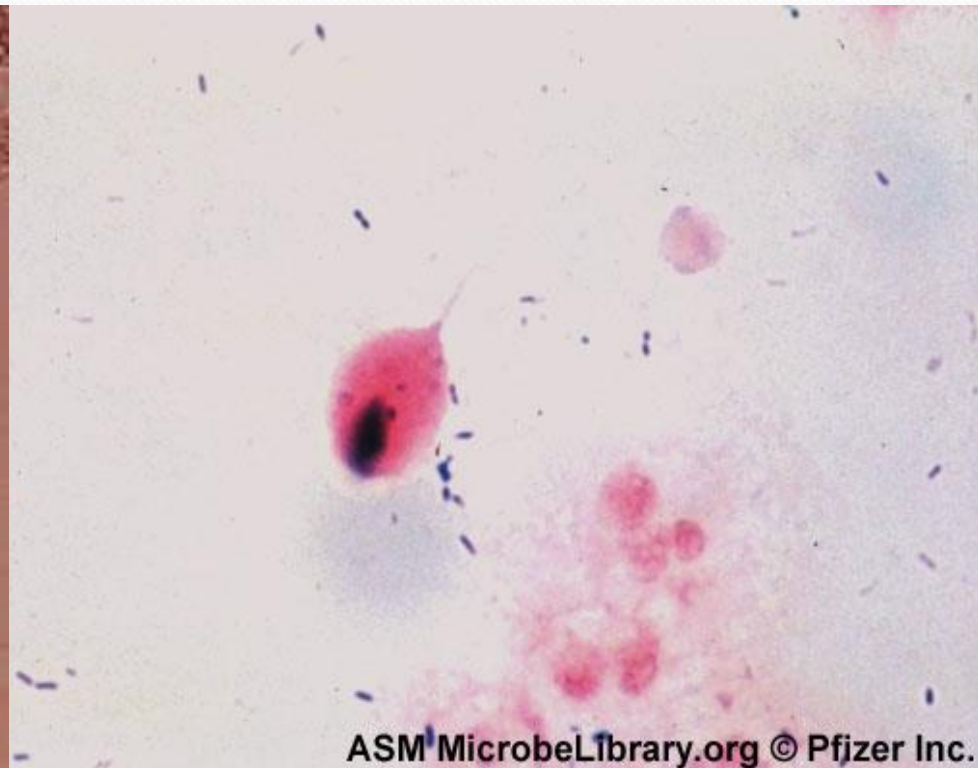
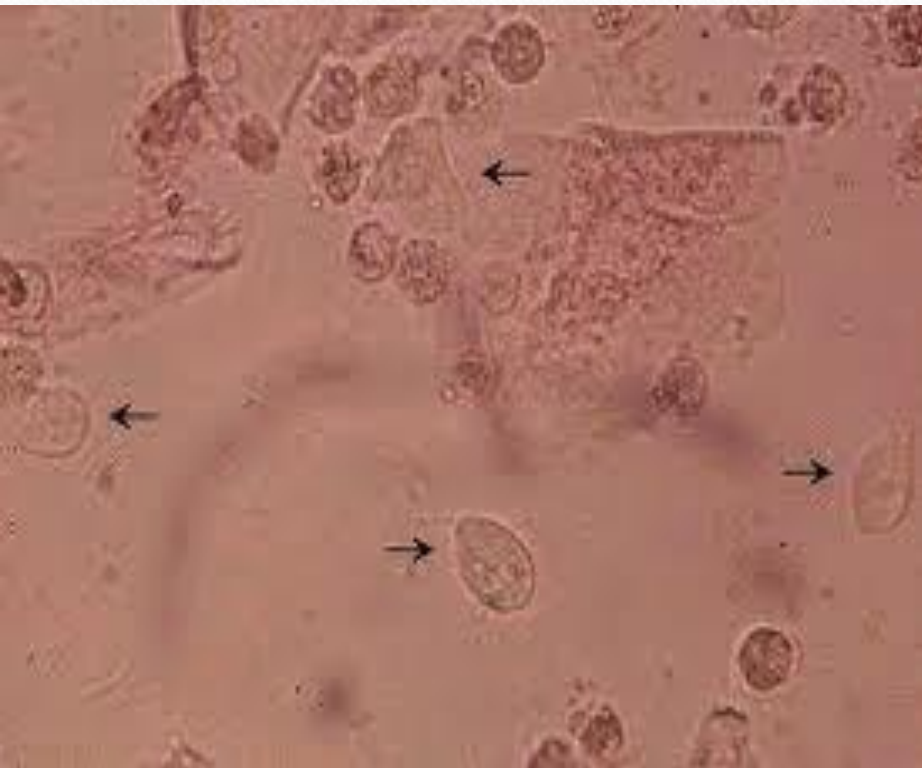
She presented to her family physician for management. On examination there is a bad odor along with a frothy discharge and strawberry cervix.

Swab of the secretions was taken in order to perform tests.

“Strawberry cervix”



# Wet prep/ Gram stain




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



# *Trichomonas vaginalis*





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





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