



MICROBIOLOGY PRACTICAL

Reproductive block

2017

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
Chancroid				
Chancre				
Ulcerated Vesicles				

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?

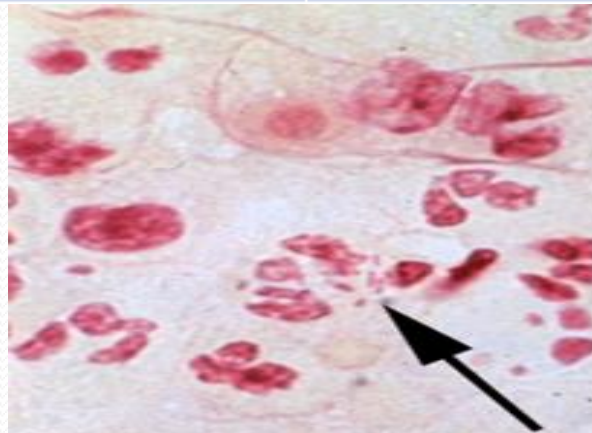
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Chancroid	<i>Haemophilus Ducreyi</i>	Wet, painful	Inguinal tender	Present
Chancre	<i>Treponema Pallidum</i>	Dry, painless and raised margin	Inguinal	Depends on stage

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Chancroid	<i>Haemophilus Ducreyi</i>	Wet , painful	Inguinal tender	Present
Chancre	<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



Images provided by
www.peir.path.uab.edu

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<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?

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<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

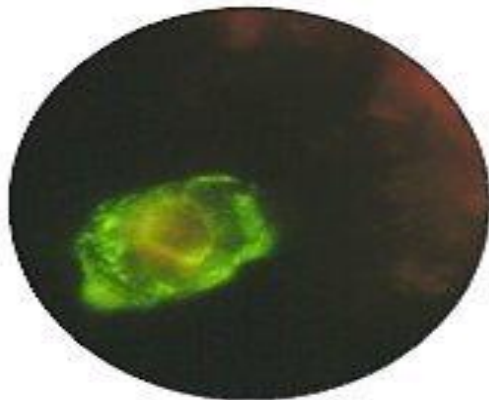
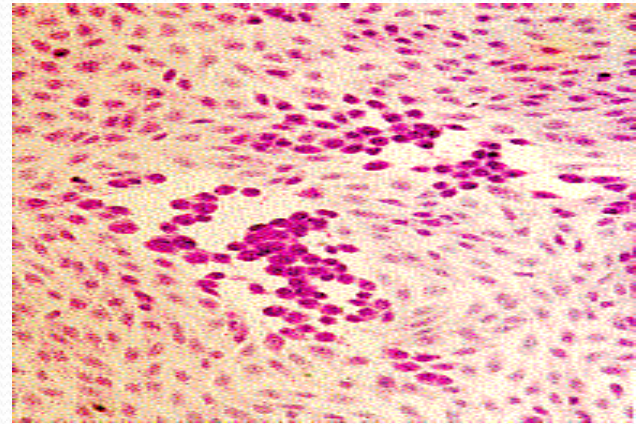
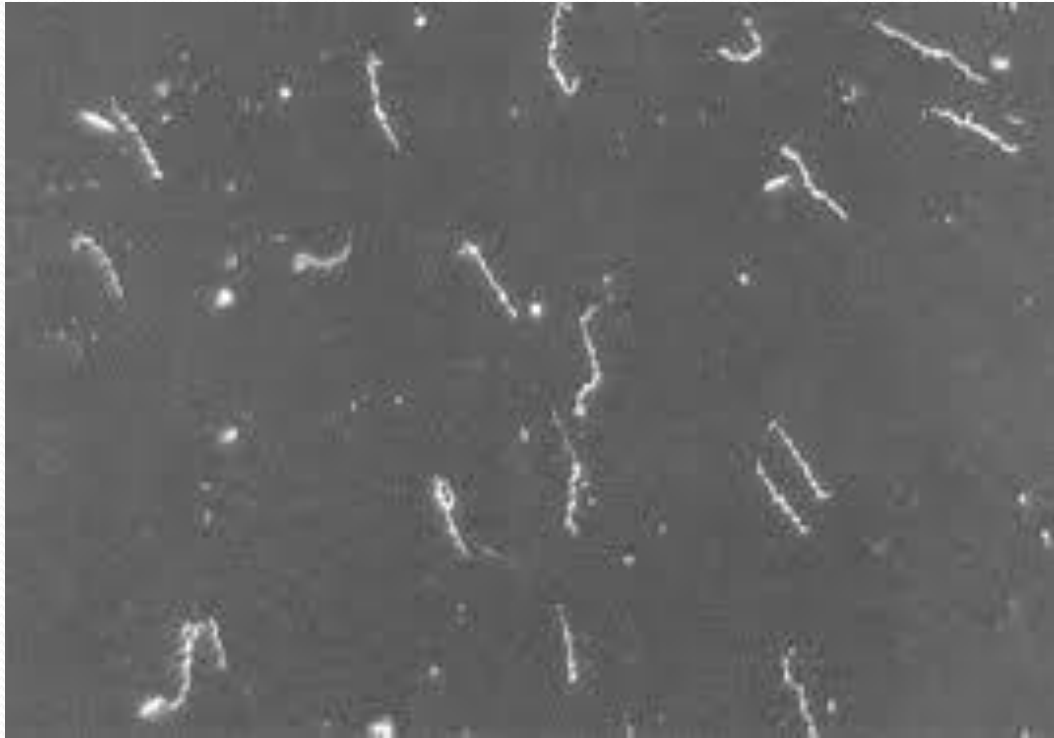


Fig. 3, HSV-infected epithelial cell from skin lesion (DFA)



Cytopathic effect of HSV in cell culture

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



SYPHILIS

Infection



Primary
Chancre

Secondary
Dermal rash
Lymphadenopathy
Meningovascular

Latency (1/3)
Biologic Cure (1/3)
Tertiary (1/3)
Gummatous
Cardiovascular
Neurosyphilis

Days to
Weeks

Weeks to
Months

Months to
Years





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">• <i>Trichomonas vaginatis</i>• <i>Mycoplasma</i>	

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

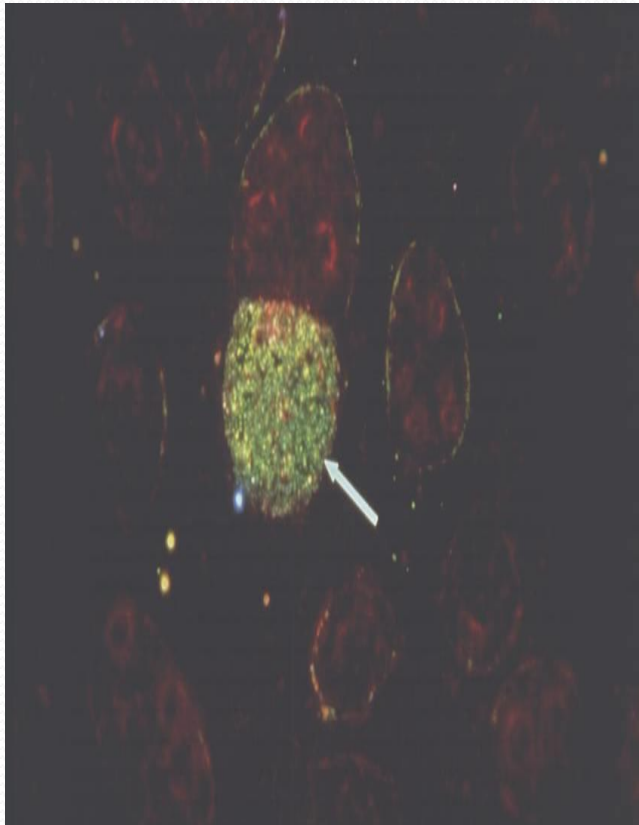
	Organisms	Smear/ Culture	Immunological tests	Molecular testing
GCU	<i>Neisseria gonorrhoeae</i>	Gram-ve diplococci & pus cell / Selective media		+ve (Gold Standard)
NGCU	<i>Chlamydia trachomatis</i>			

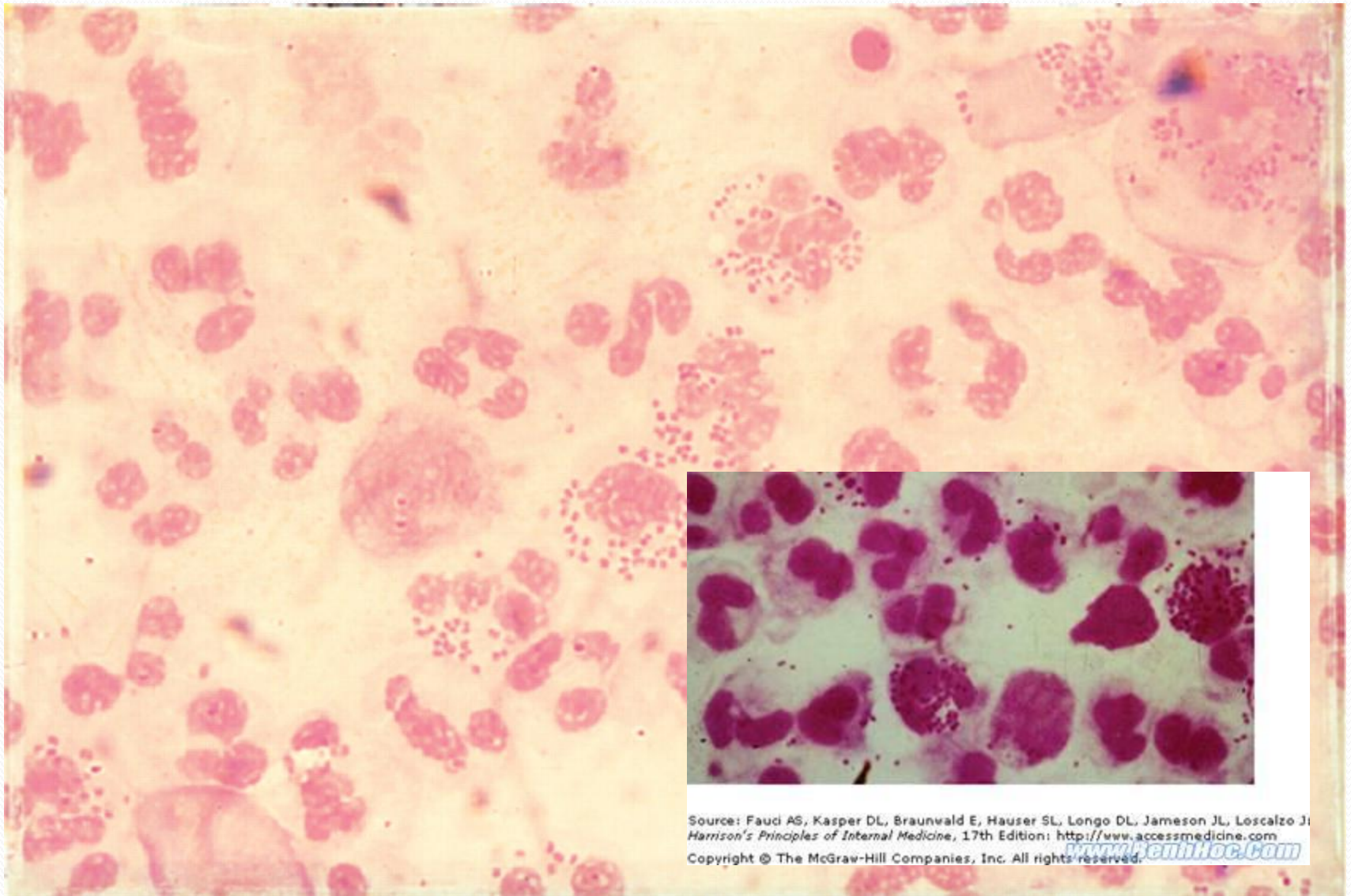
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GCU	<i>Neisseria gonorrhoeae</i>	Gram-ve diplococci & pus cell / Selective media		+ve (Gold Standard)
NGCU	<i>Chlamydia trachomatis</i>	Pus cell/ McCoy Cell culture	DFA ELISA Rapid test	+ve(Gold Standard)
	<u>Others</u> <i>Trichomonas vaginalis</i>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

Chlamydia

Direct Fluorescent Antibody (DFA)



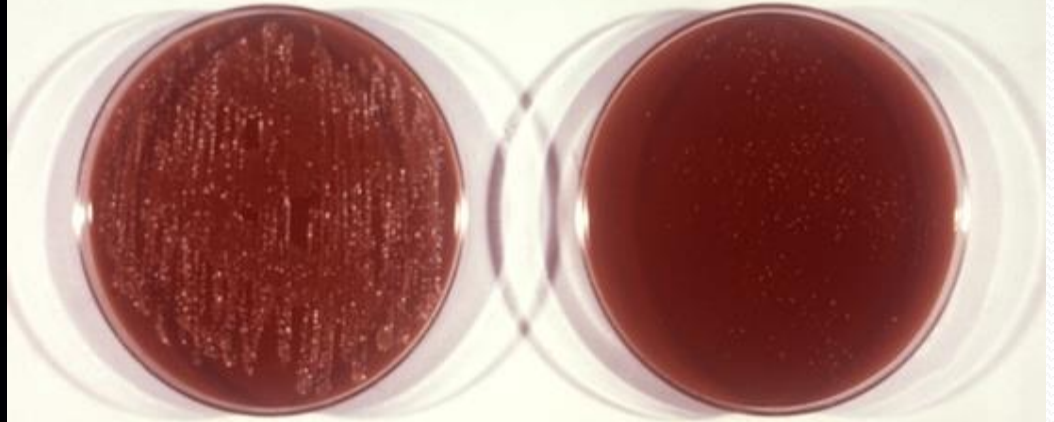


Source: Fauci AS, Kasper DL, Braunwald E, Hauser SL, Longo DL, Jameson JL, Loscalzo J: *Harrison's Principles of Internal Medicine*, 17th Edition: <http://www.accessmedicine.com>
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**Chocolate Medium
Overgrowth**

Rectal Specimen
(Testing for *Neisseria gonorrhoeae*)



**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?*

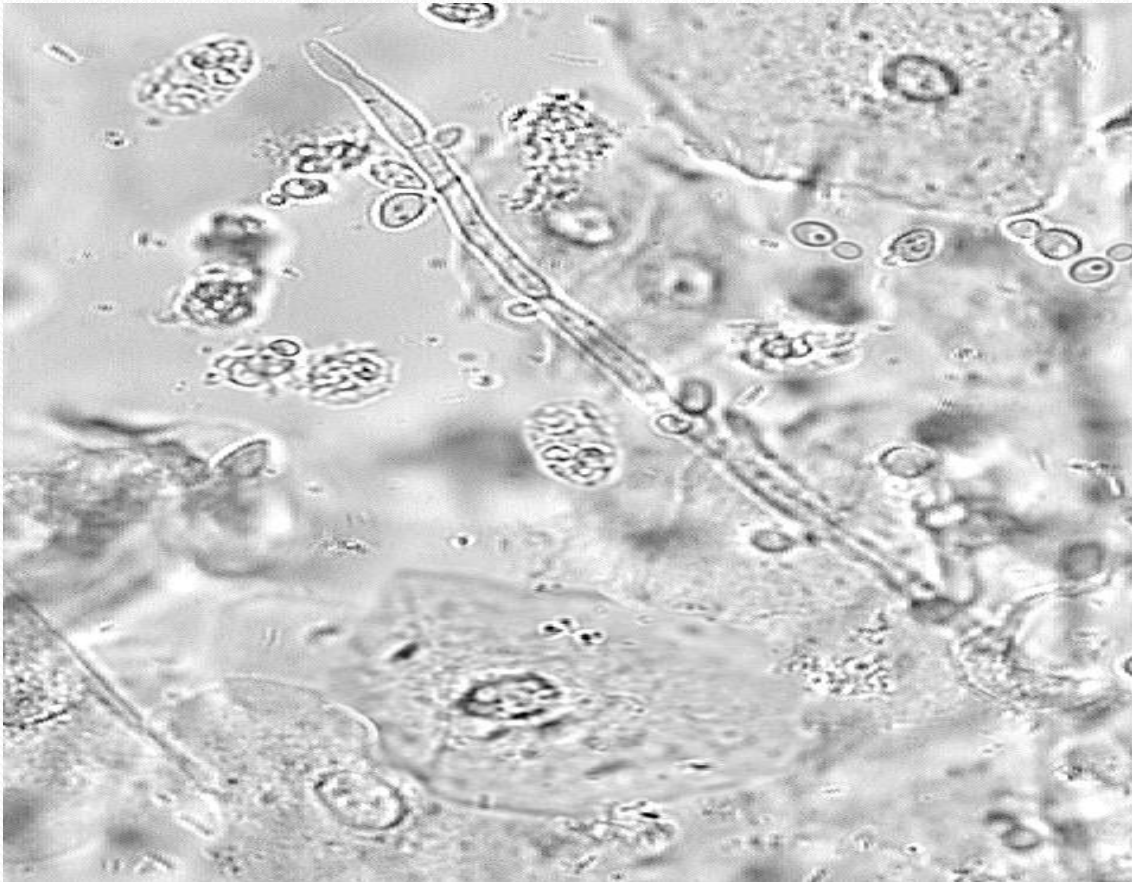
PH



**Whiff
test**



Wet Prep:

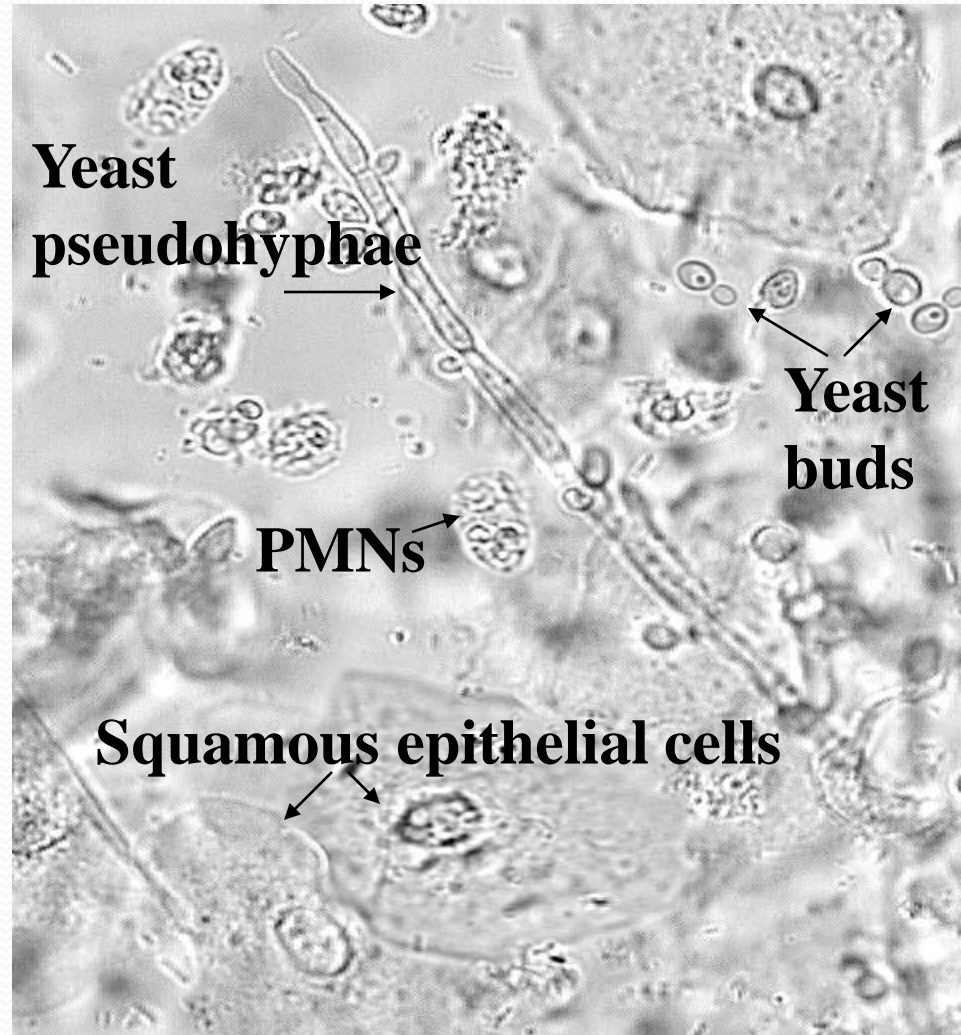


Saline: 40X objective

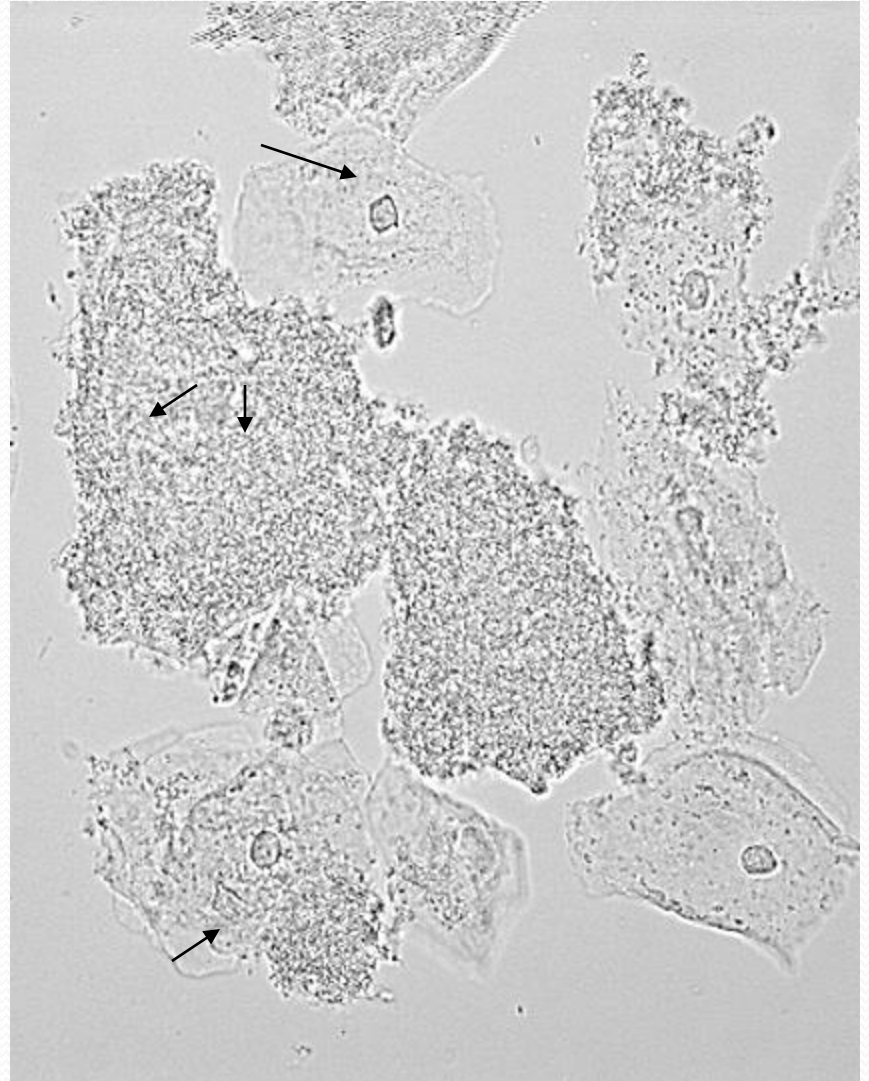
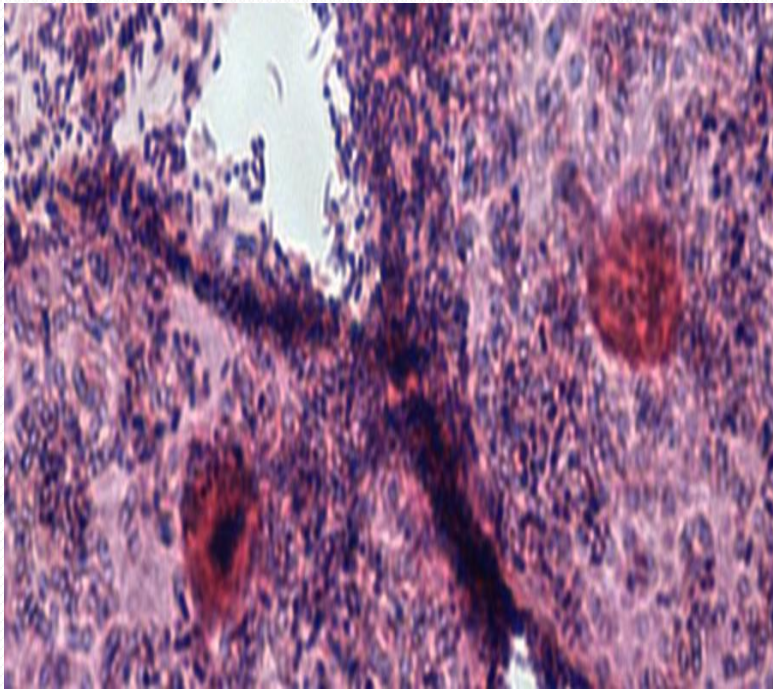


PMNs and Yeast Pseudohyphae

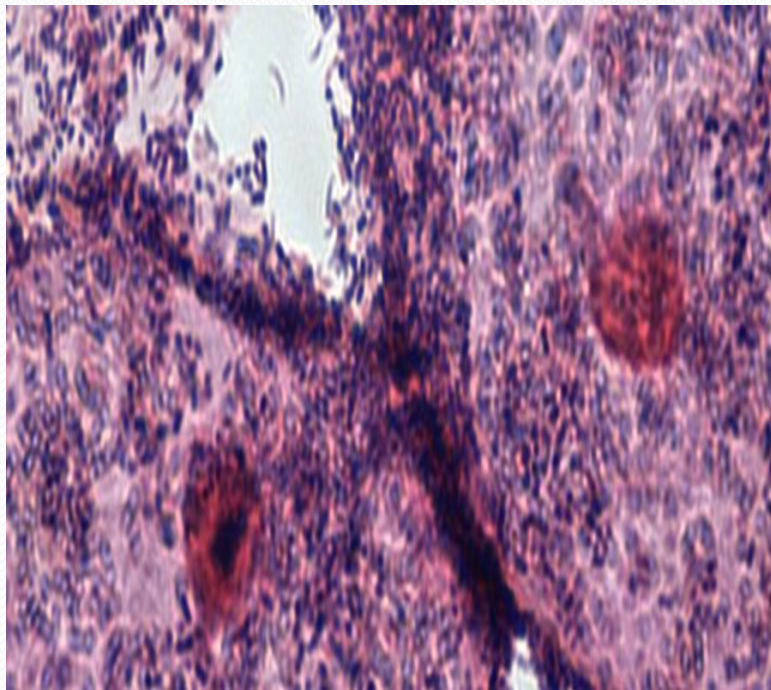
Saline: 40X objective



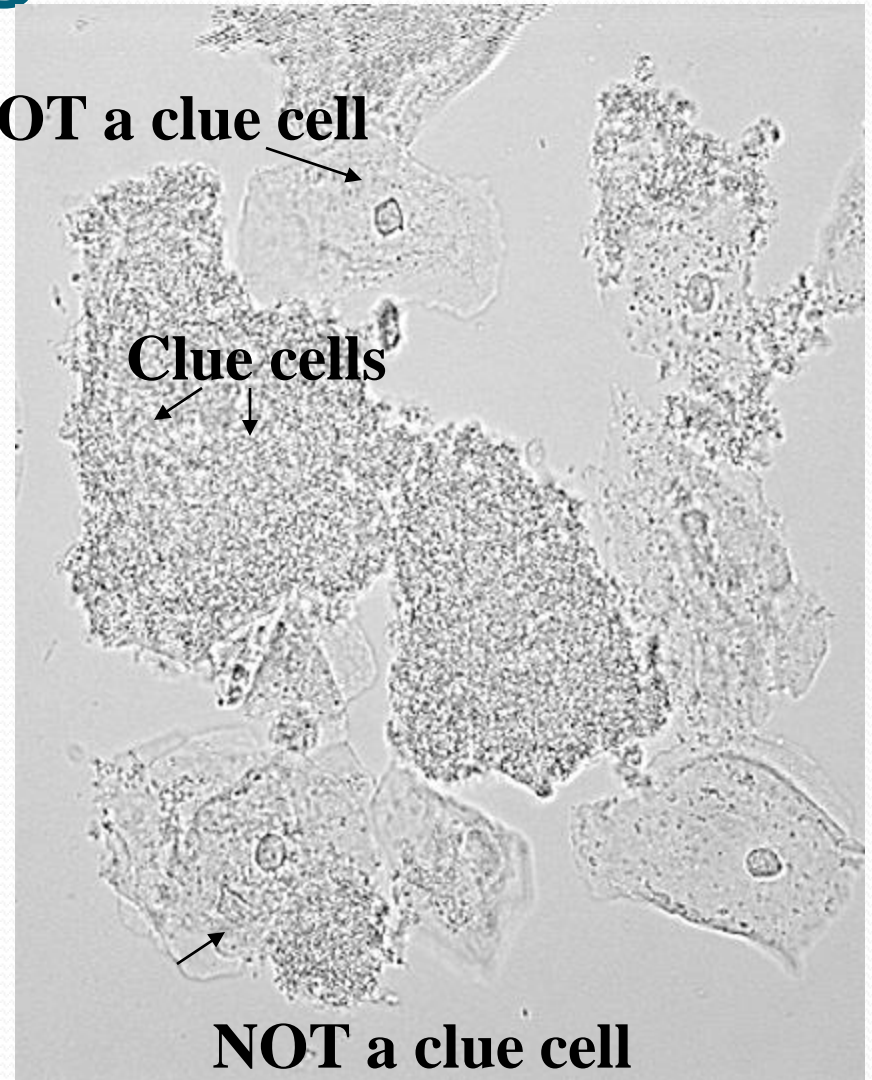
Source: Seattle STD/HIV Prevention Training Center at the University of Washington



Bacterial Vaginosis



NOT a clue cell



Clue cells

NOT a clue cell

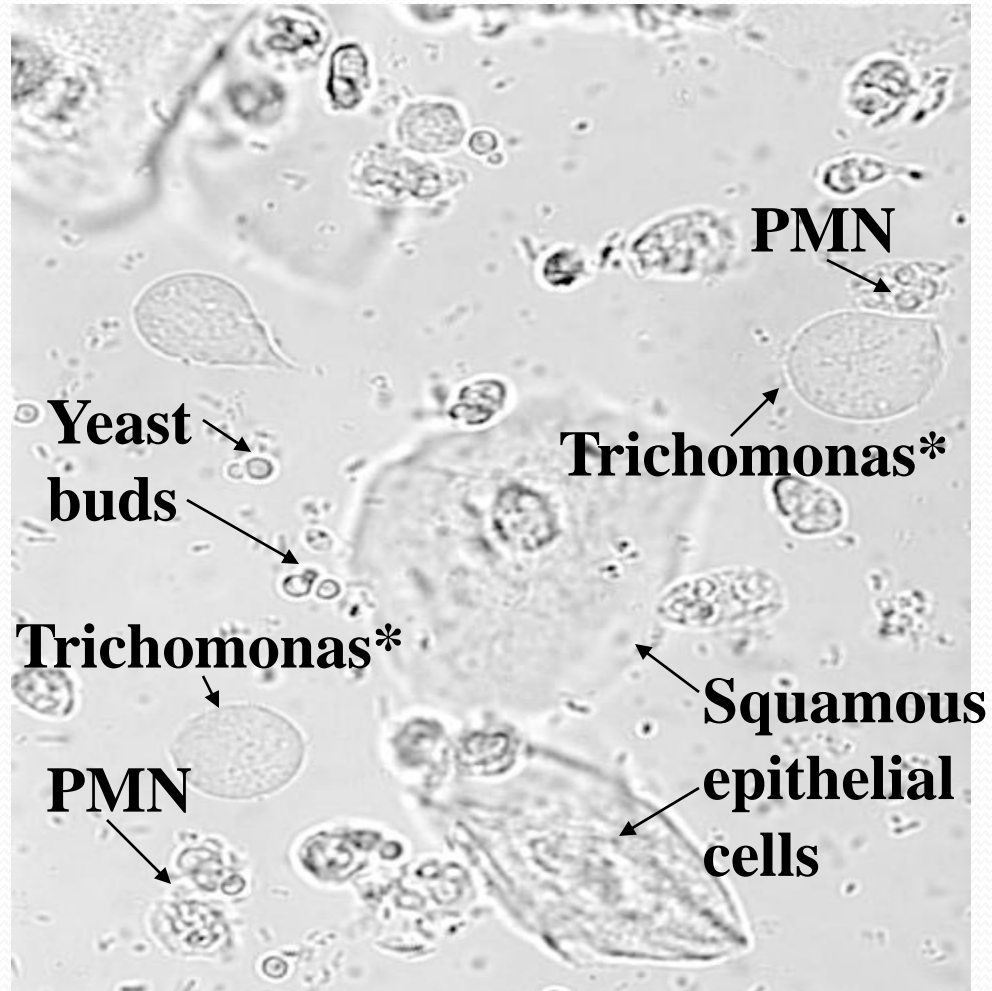
Saline: 40X objective



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

Wet Prep: Trichomoniasis

Saline: 40X objective

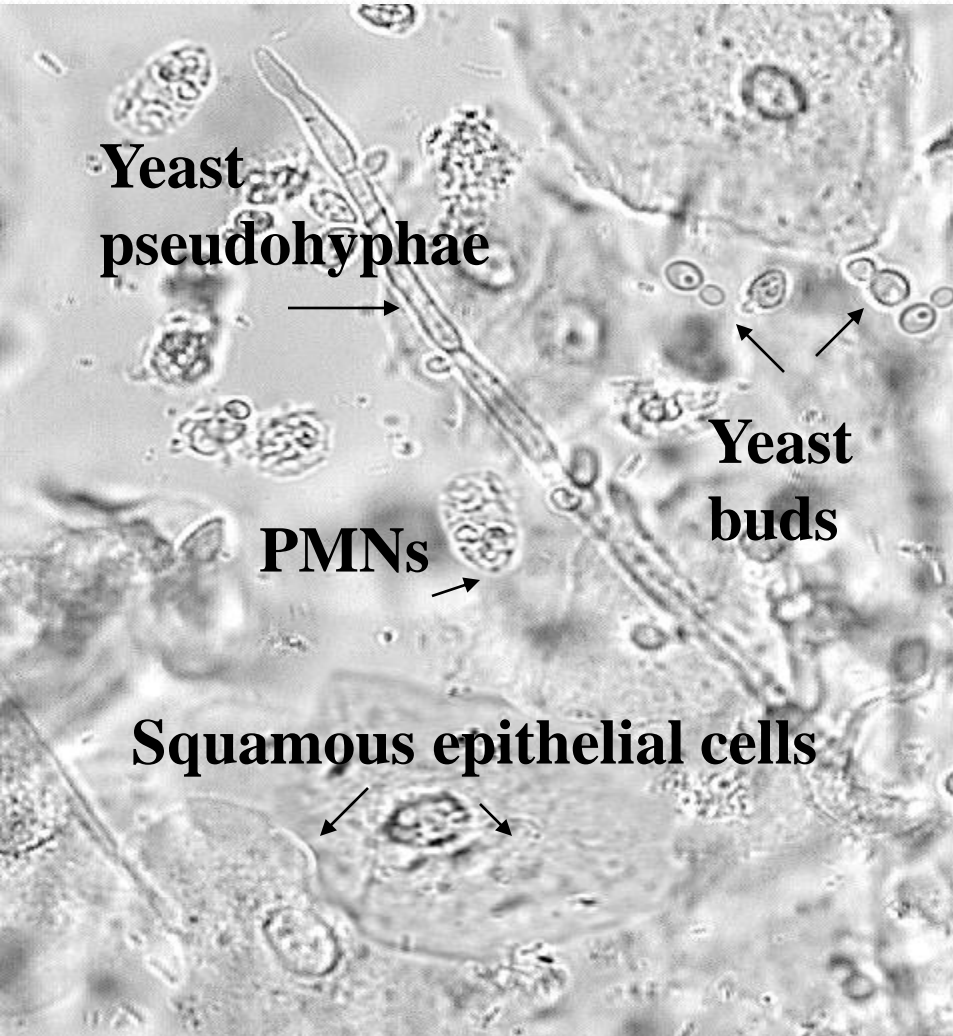


*Trichomonas shown for size reference only: must be motile for identification

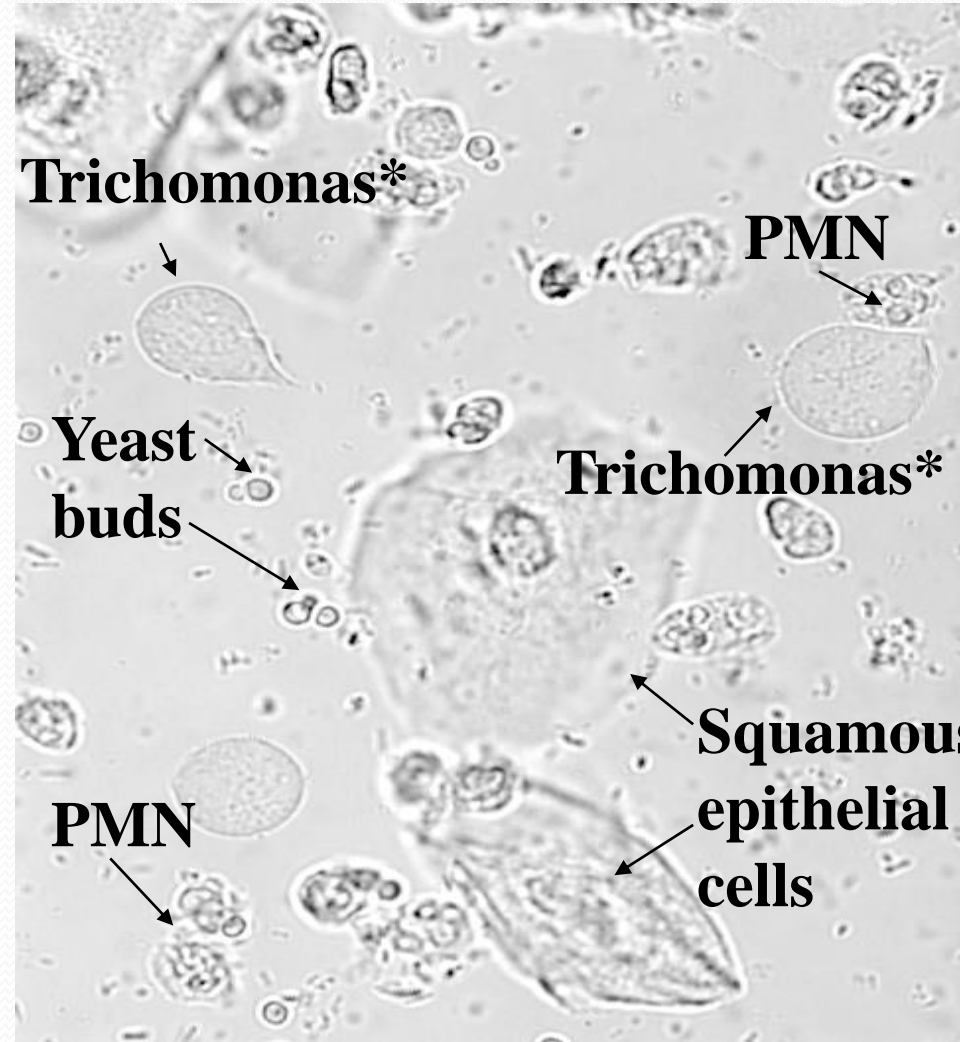
Source: Seattle STD/HIV Prevention Training Center at the University of Washington

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					

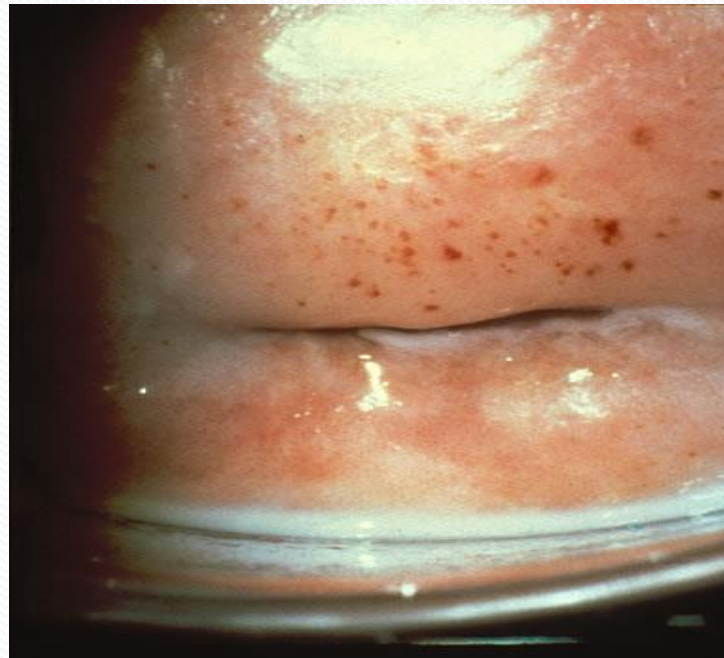
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Bacterial vaginosis	>4.5	+++	Clue cells	Not helpful	DNA Probe (gardnerella vaginalis)
Candida vaginitis	<4.5	-	Yeast and pseudohyphae	Candida	DNA Probe
Trichomonas vaginalis	>4.5	+-	Trichomonas	Motile Trophozoites	EIA DNA Probe

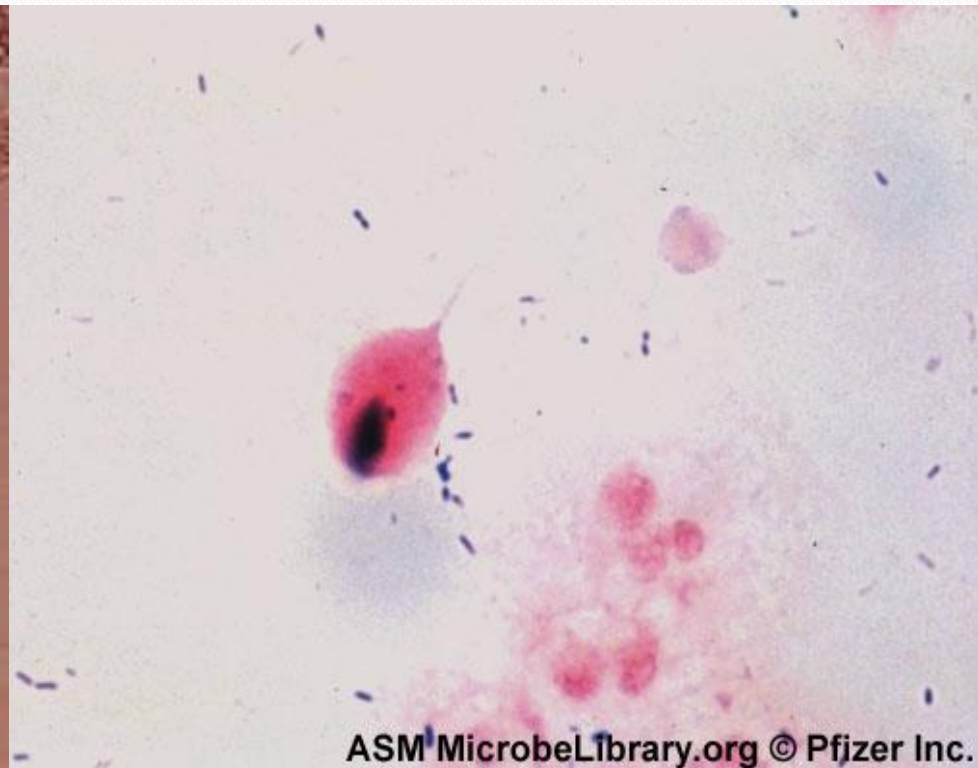
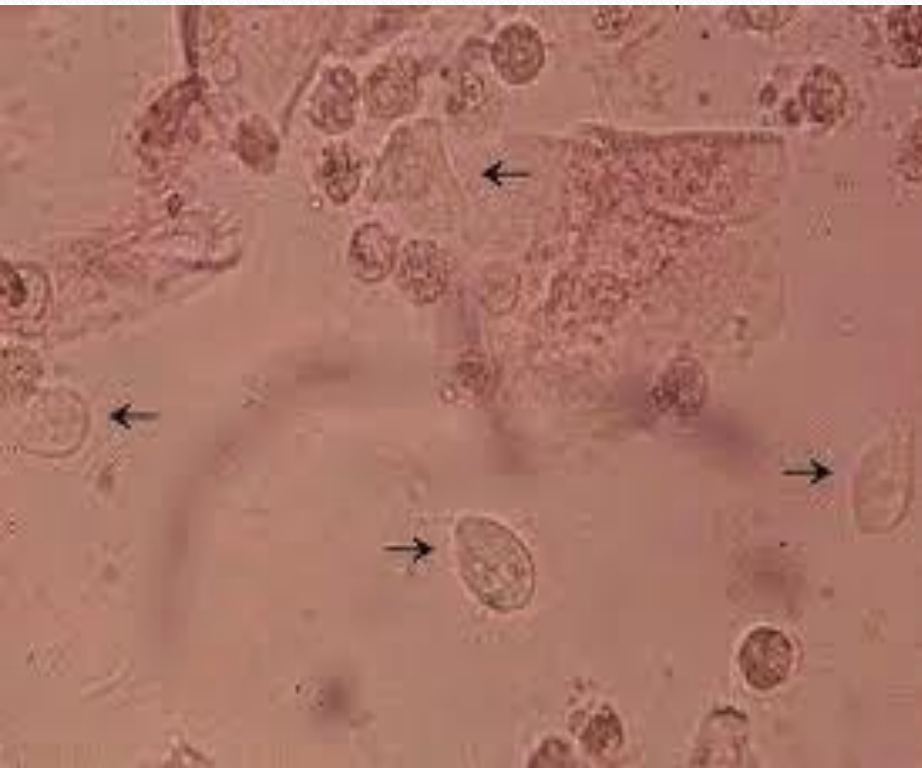
She presented to her family physician for management. On examination there is a bad odor along with a frothy discharge and strawberry cervix.

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

“Strawberry cervix”

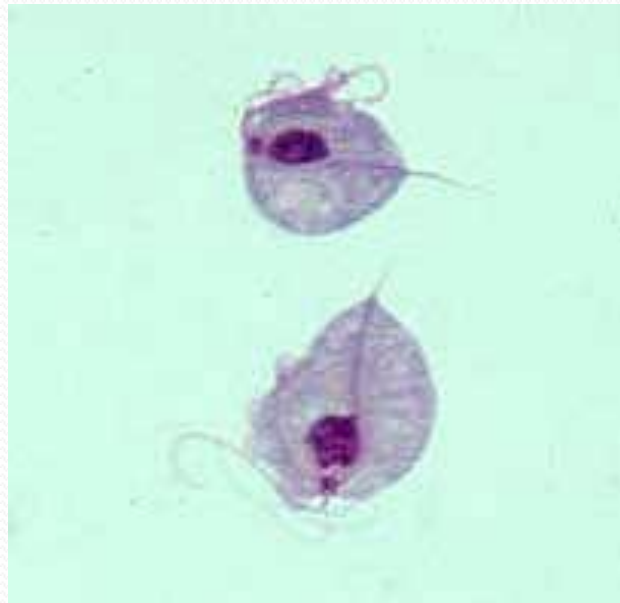


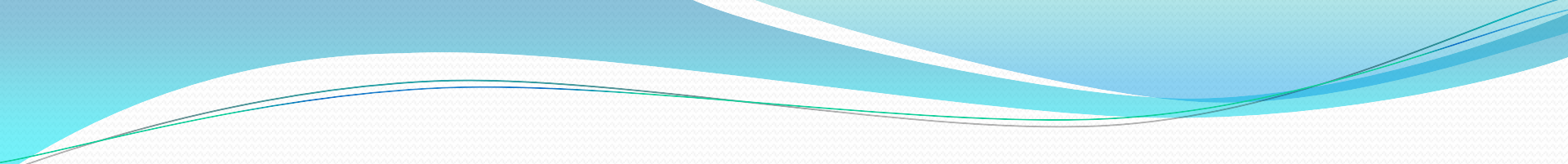
Wet prep/ Gram stain



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?