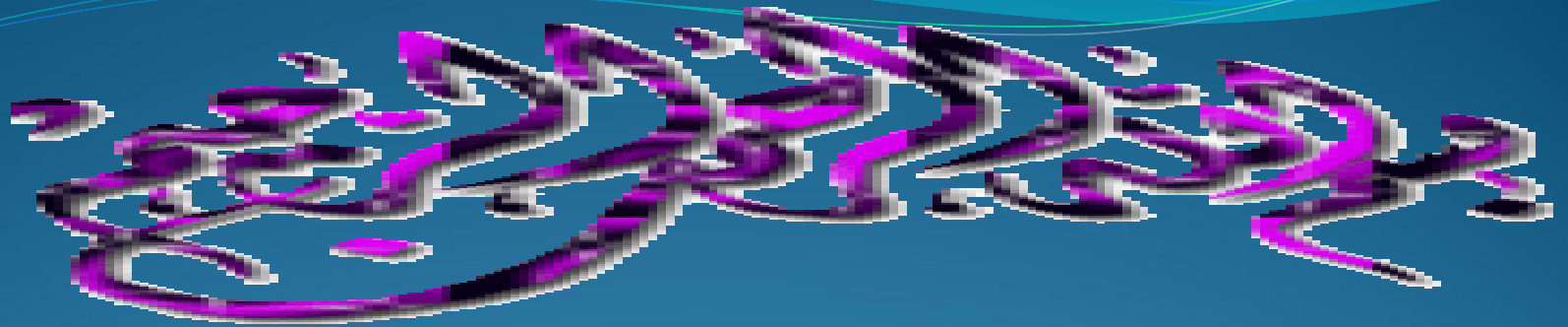




MICROBIOLOGY PRACTICAL

Reproductive block

2017



Sexually Transmitted Diseases

Practical

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Associate Professor

College of Medicine

Objectives

- Name various **etiological agents** causing STD.
- Describe the **clinical presentations** of STD.
- Discuss the **microbiological methods** used for Dx of STD.
- Outline the **management** of 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*

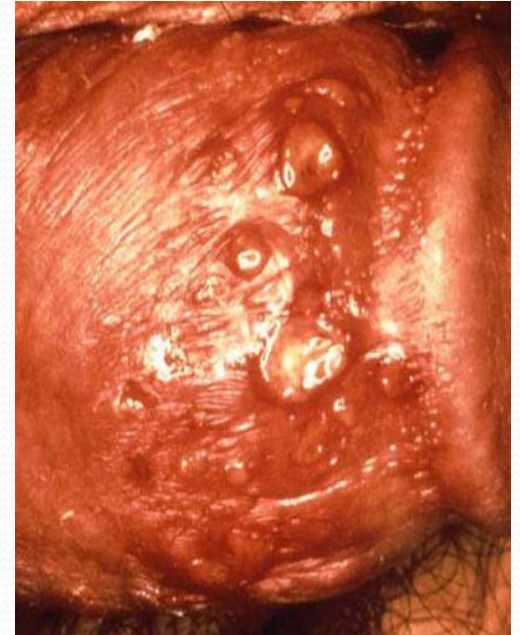
Genital ulcer



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?

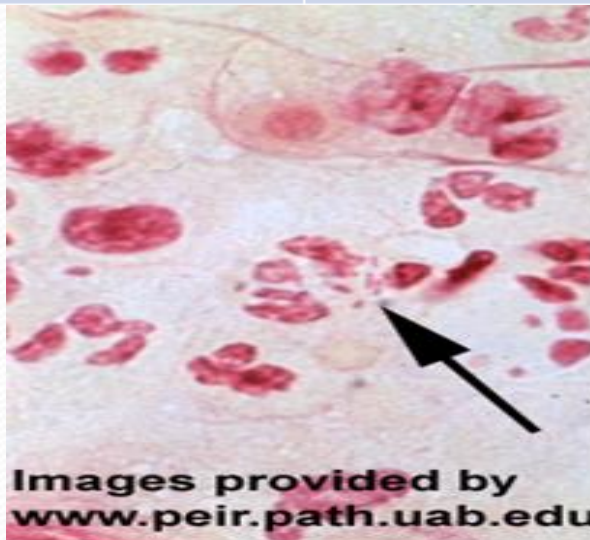
| Ulcer | Etiology | Ulcer | Lymphadeno pathy (Babo) | Systemic |
|----------------|----------------------------|---------------------------------|-------------------------|------------------|
| Chancroid | <i>Haemophilus Ducreyi</i> | Wet, painful | Inguinal tender | Present |
| Chancre | <i>Treponema 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 |
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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 |



**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 |

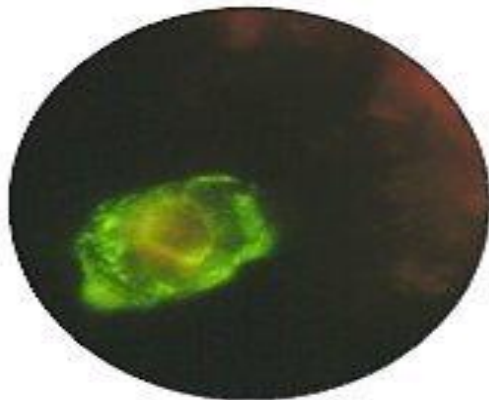
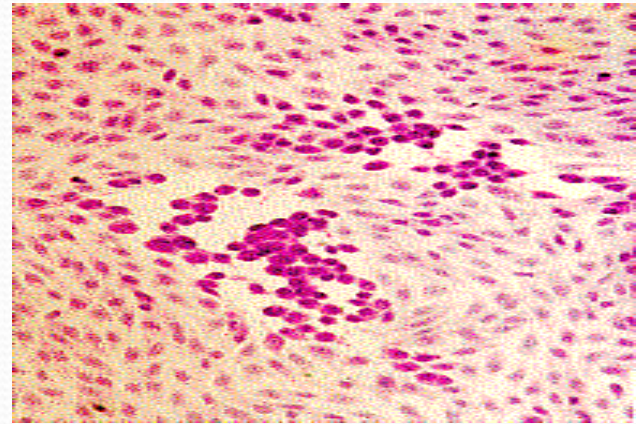
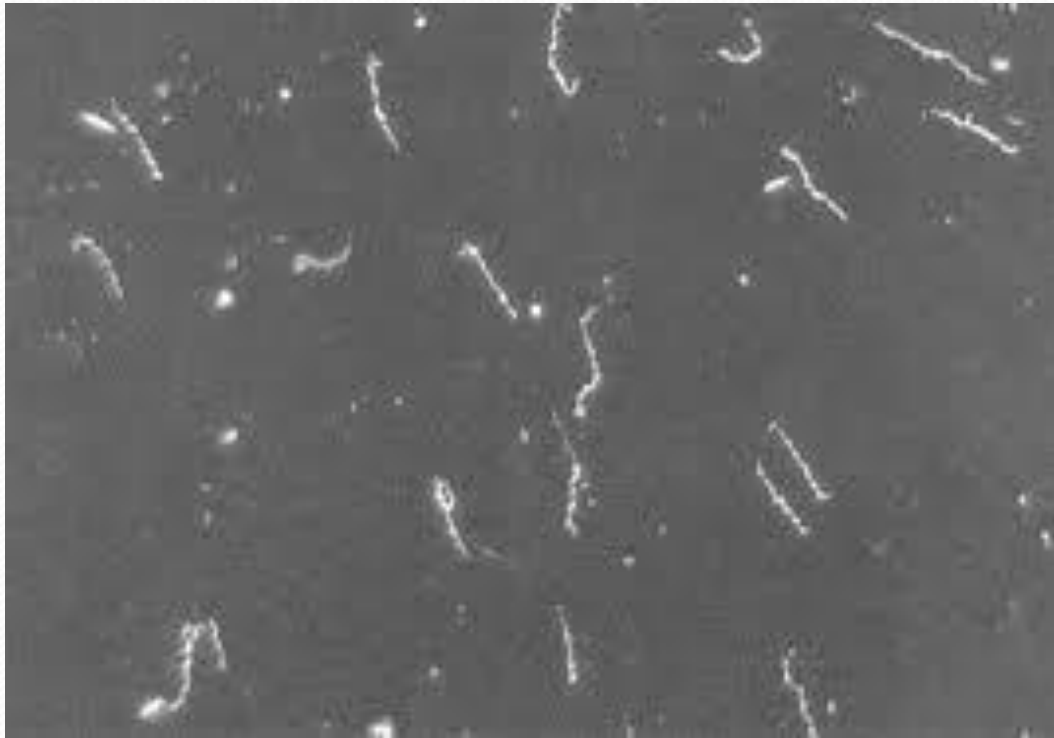


Fig. 3, HSV-infected epithelial cell from skin lesion (DFA)

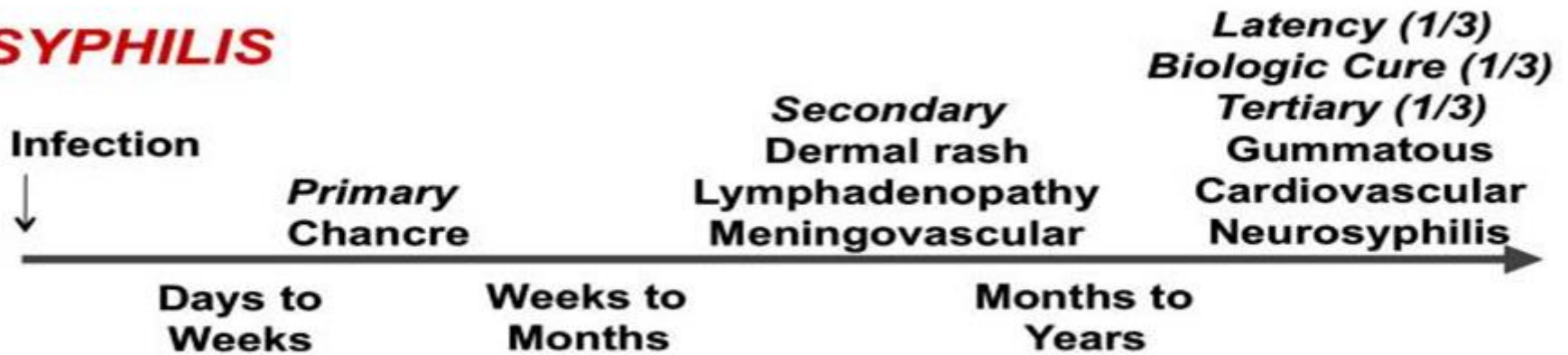


Cytopathic effect of HSV in cell culture

- 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-hour 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?

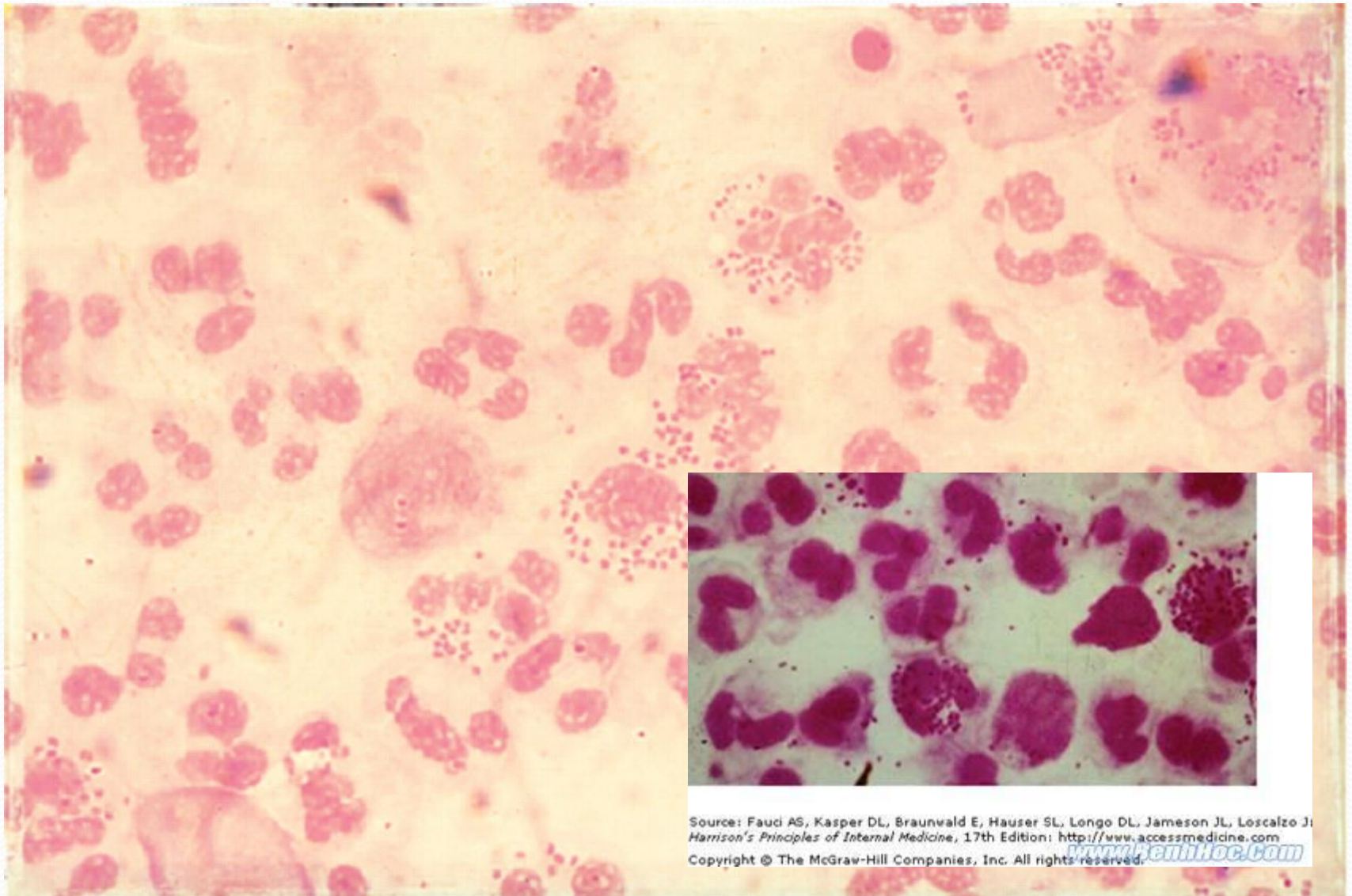
| | Organisms | Smear/ Culture | Immunological tests | Molecular testing |
|------|------------------------------|-----------------------|---------------------|-------------------|
| GCU | <i>Neisseria gonorrhoeae</i> | | | |
| NGCU | <i>Chlamydia trachomatis</i> | | | |
| | | | | |

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> | | | |
| | | | | |

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

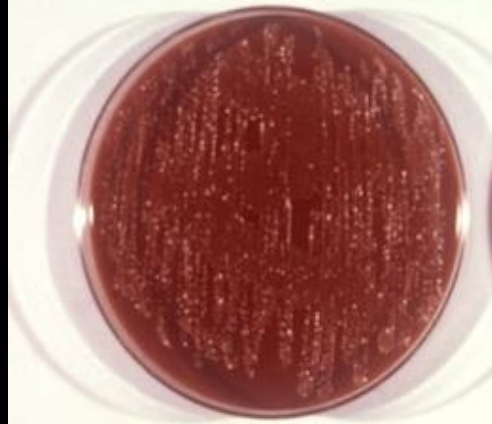
| | Organisms | Smear/ Culture | Immunological tests | Molecular testing |
|------|--|---|---------------------|---------------------|
| GCU | <i>Neisseria gonorrhoeae</i> | Gram-ve diplococci & pus cell / Selective media | | +ve (Gold Standard) |
| NGCU | <i>Chlamydia trachomatis</i> | Pus cell/ McCoy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



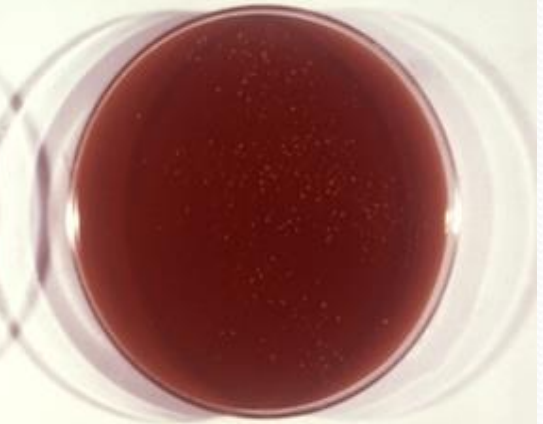
Source: Fauci AS, Kasper DL, Braunwald E, Hauser SL, Longo DL, Jameson JL, Loscalzo J. *Harrison's Principles of Internal Medicine*, 17th Edition: <http://www.accessmedicine.com>
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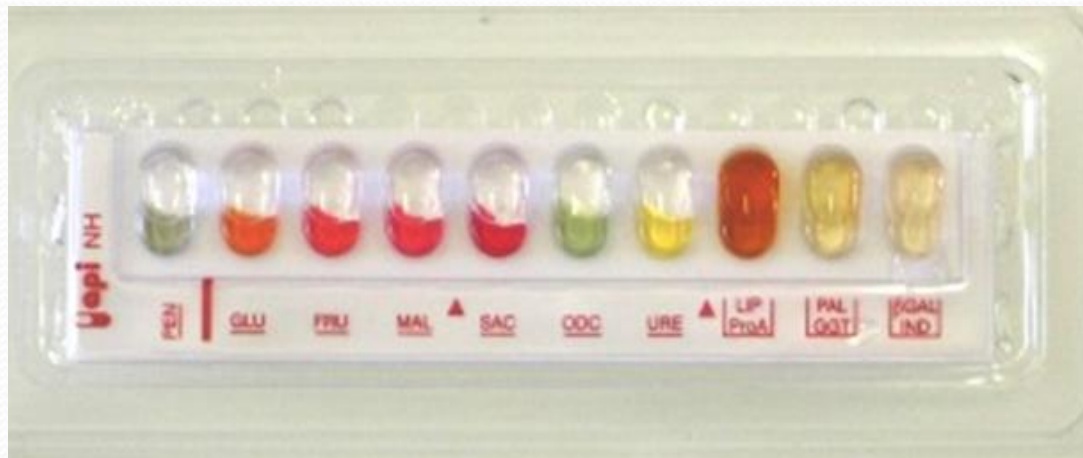
Rectal Specimen (Testing for *Neisseria gonorrhoeae*)



**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?*

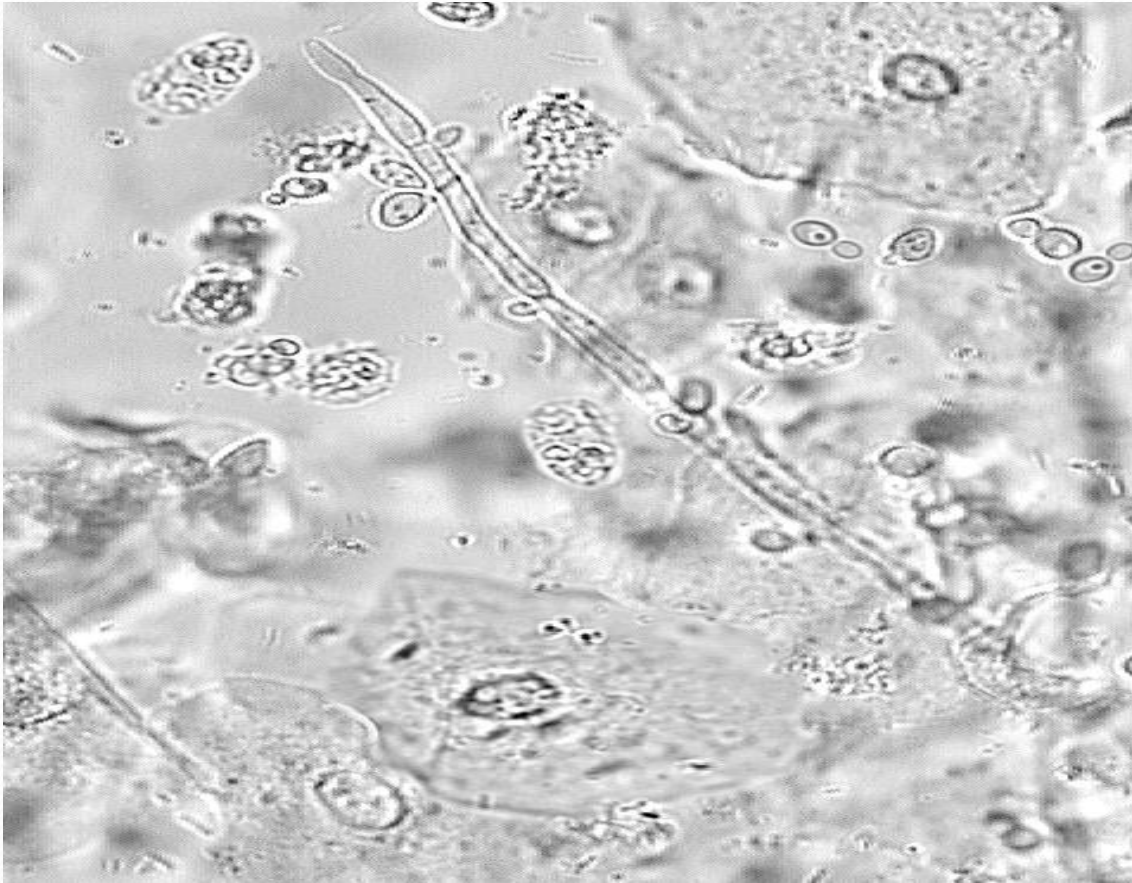
PH



**Whiff
test**



Wet Prep:



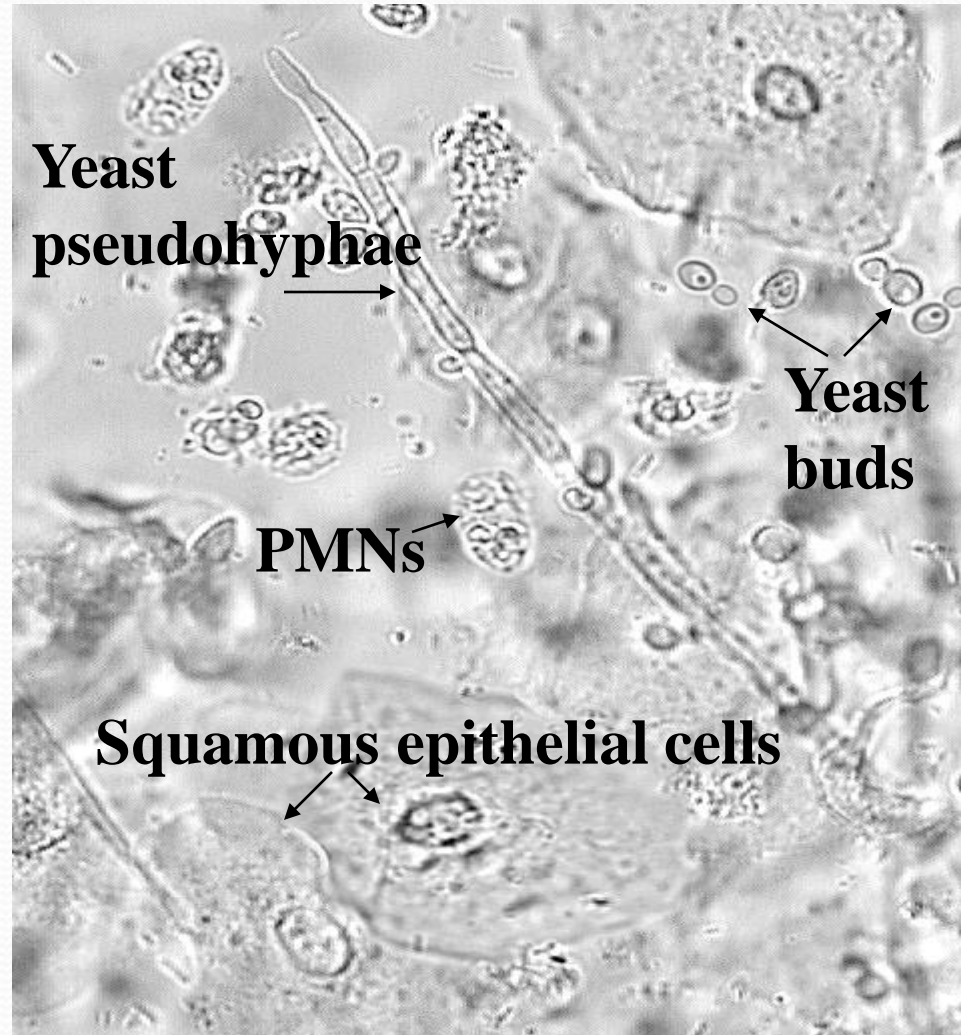
Saline: 40X objective



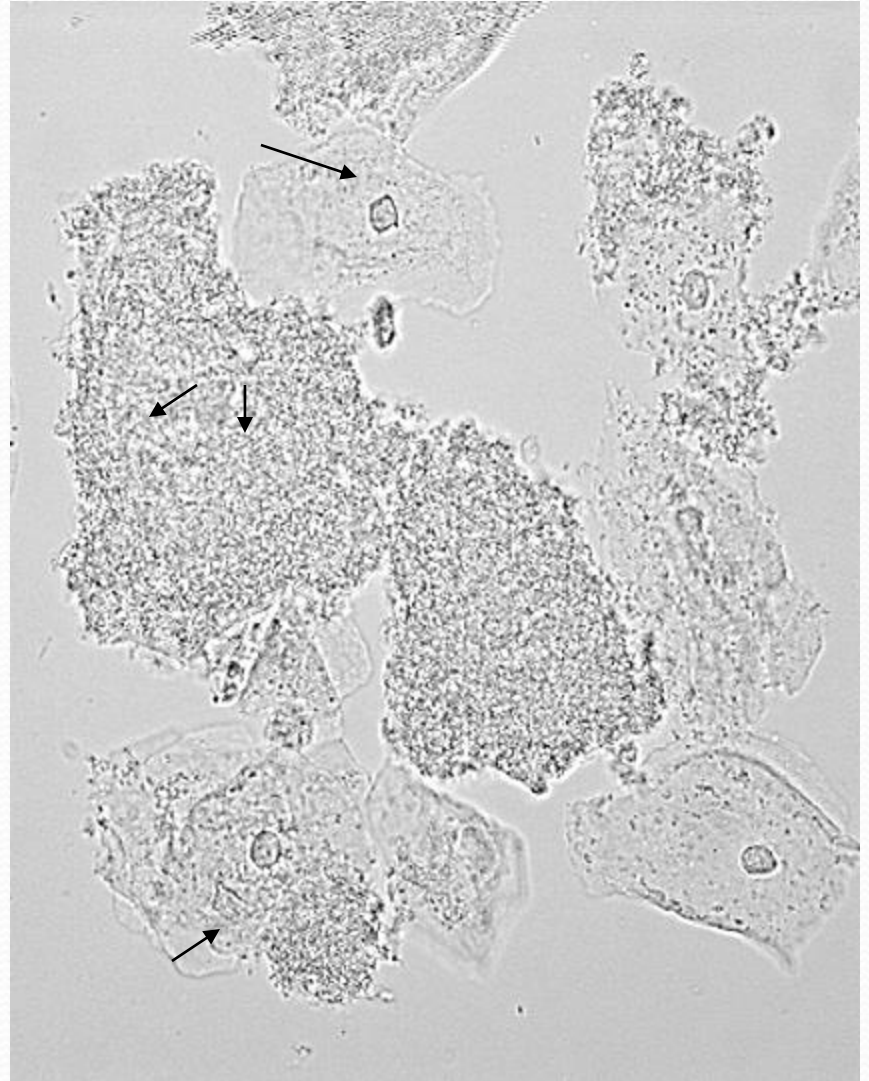
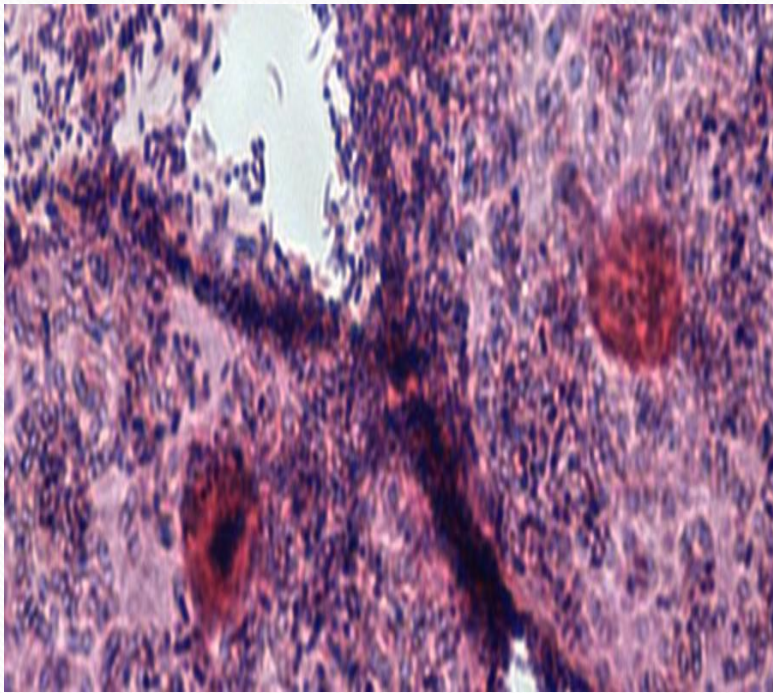
Source: Seattle STD/HIV Prevention Training Center at the University of Washington

PMNs and Yeast Pseudohyphae

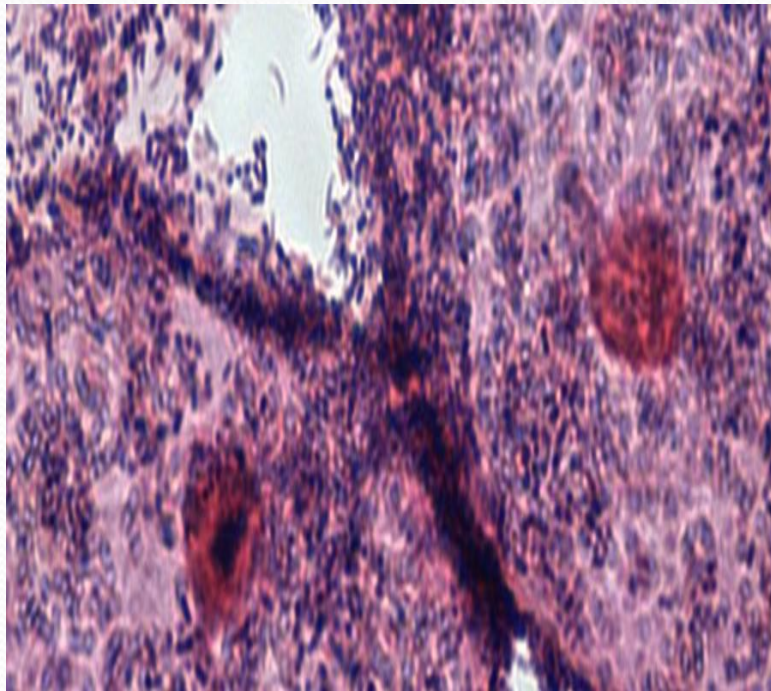
Saline: 40X objective



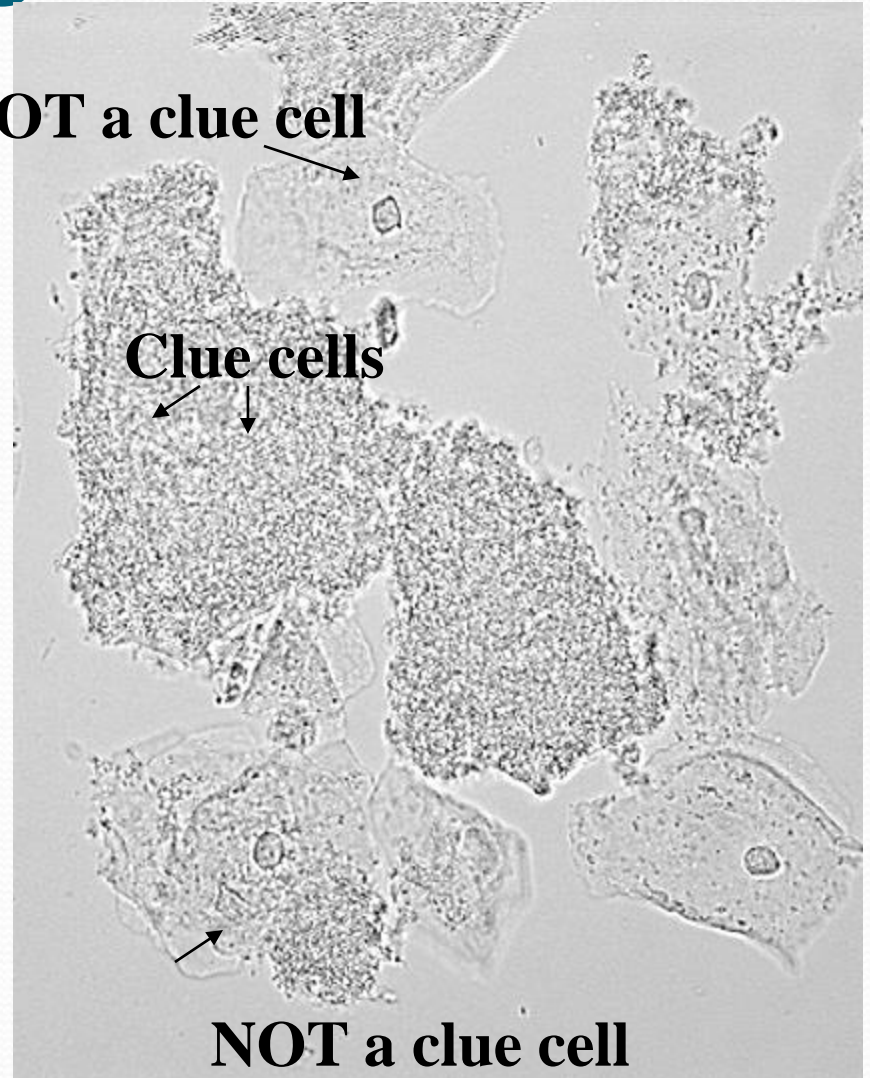
Source: Seattle STD/HIV Prevention Training Center at the University of Washington



Bacterial Vaginosis



NOT a clue cell



Clue cells

NOT a clue cell

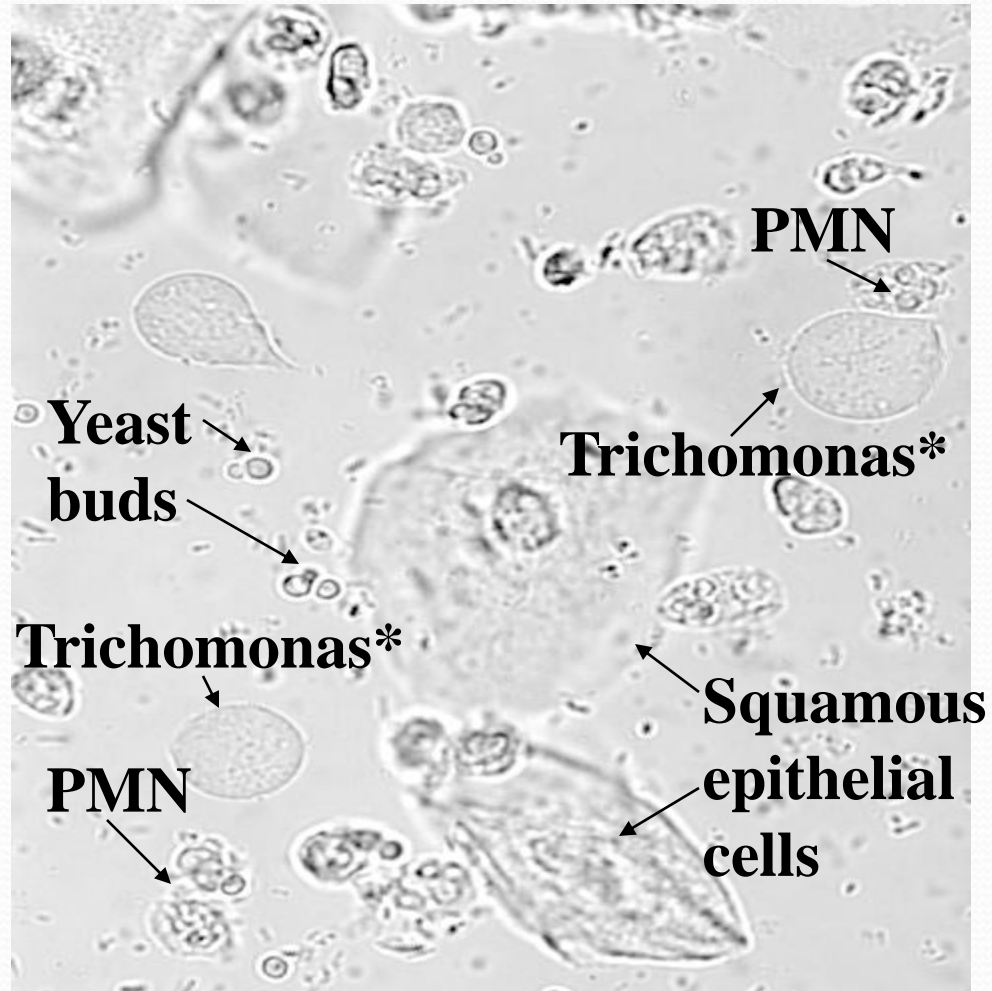
Saline: 40X objective



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

Wet Prep: Trichomoniasis

Saline: 40X objective

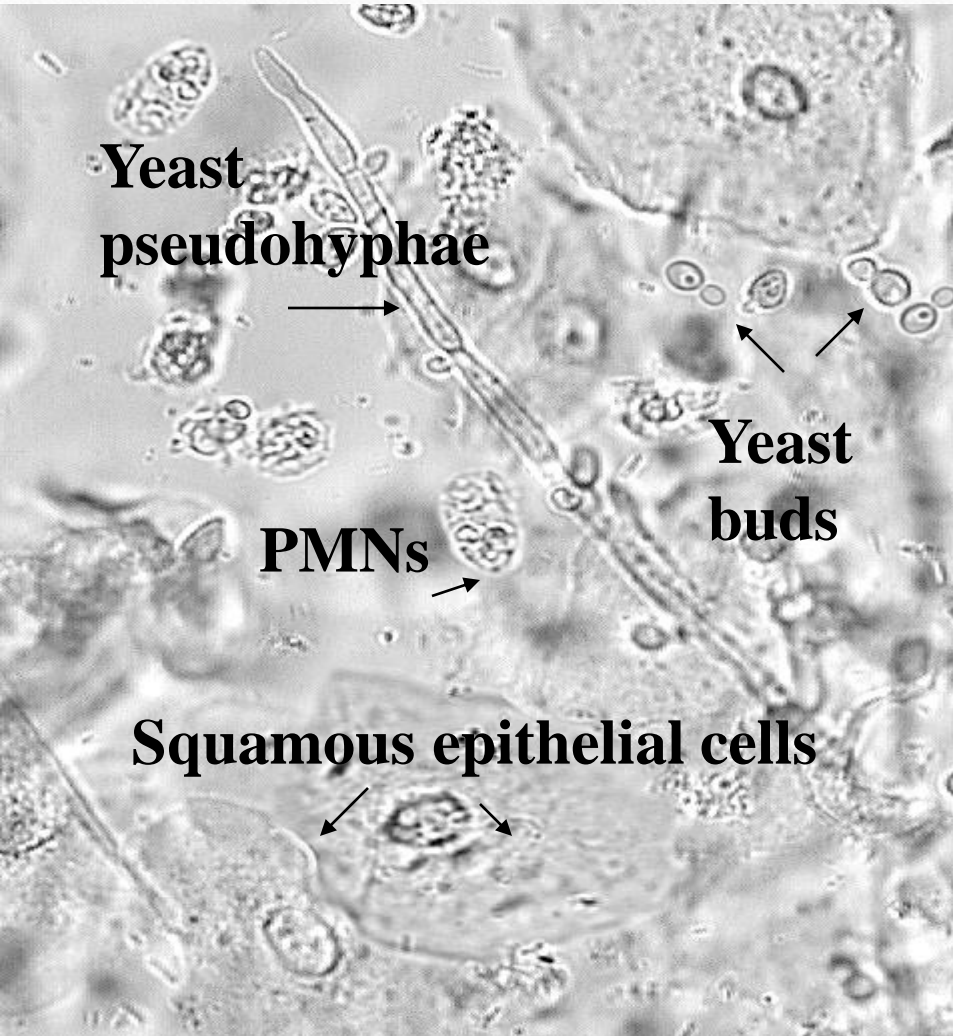


*Trichomonas shown for size reference only: must be motile for identification

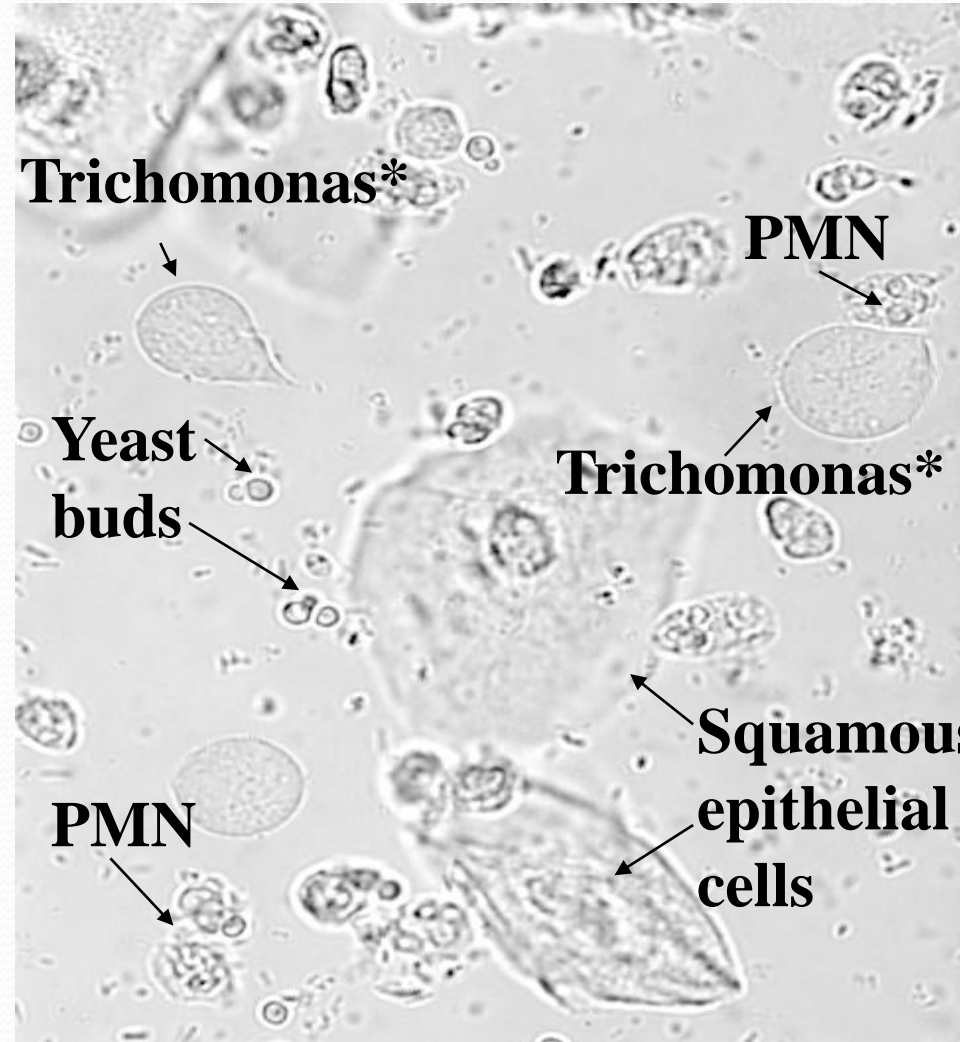
Source: Seattle STD/HIV Prevention Training Center at the University of Washington

Wet Prep:

Yeast Pseudohyphae



Trichomoniasis



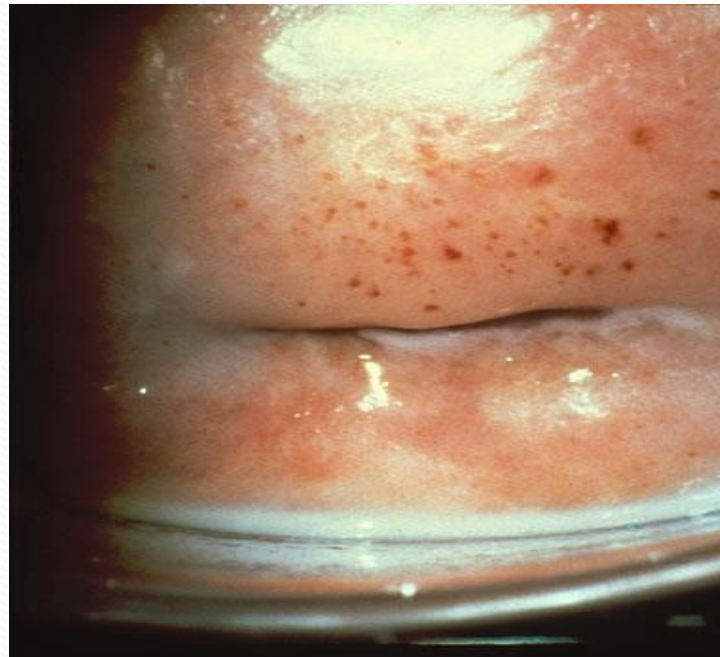
*What investigations would you like to order for her?
Explain how those investigations would help you?*

| | 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 | <4.5 | - | Yeast and pseudohyphae | Candida | DNA Probe |
| Trichomonas vaginalis | >4.5 | +- | Trichomonas | Motile Trophozoites | EIA DNA Probe |

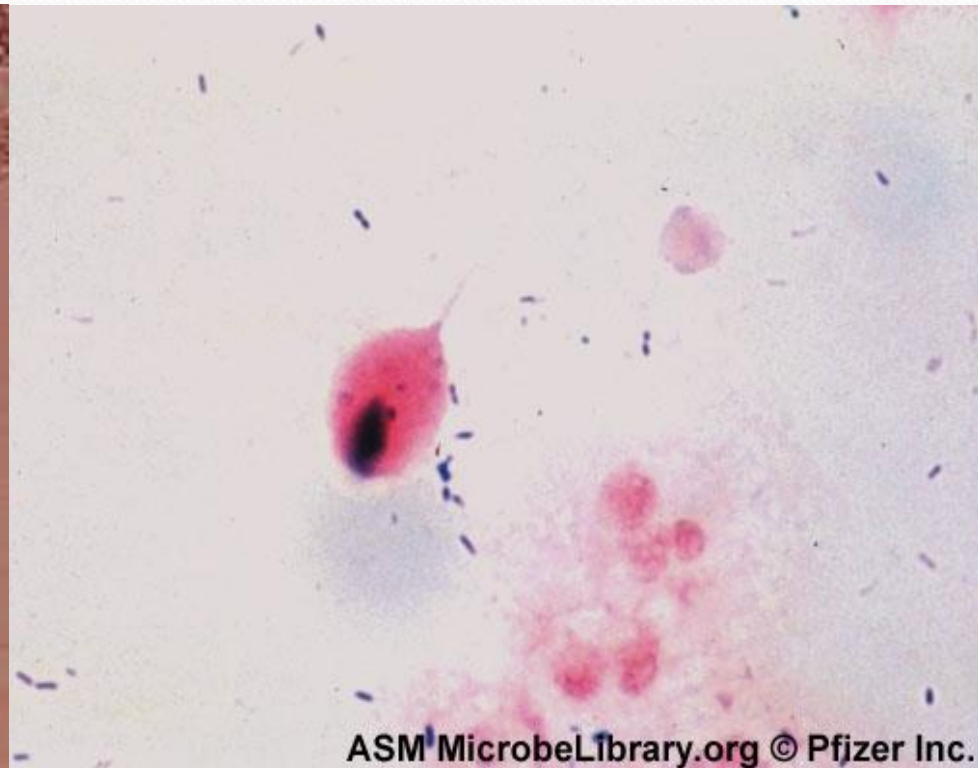
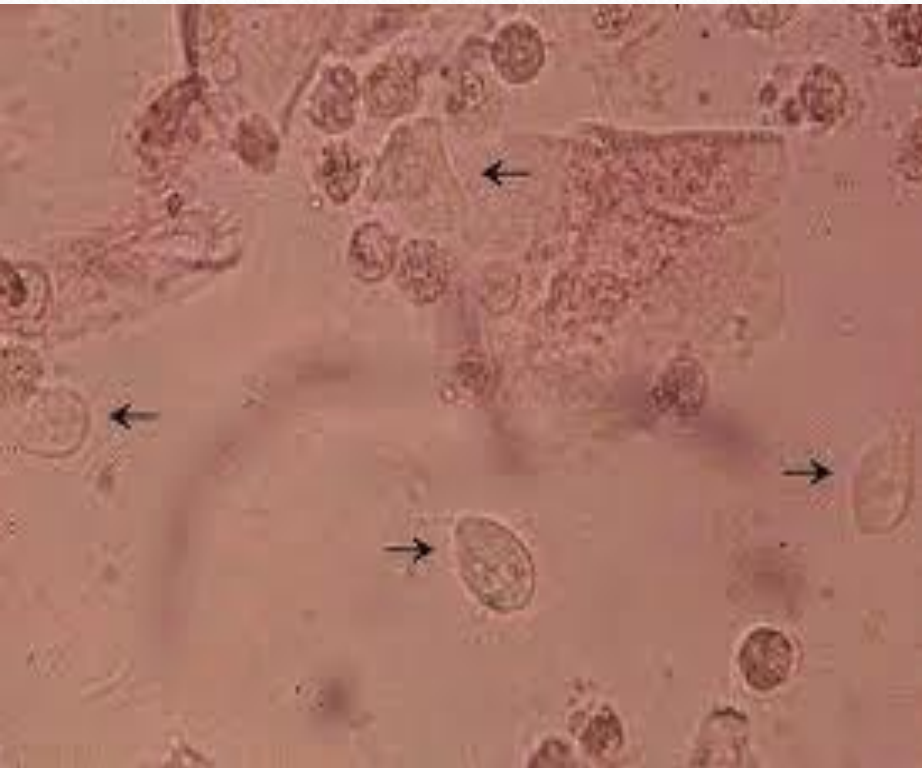
She presented to her family physician for management. On examination there is a bad odor along with a frothy discharge and strawberry cervix.

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

“Strawberry cervix”



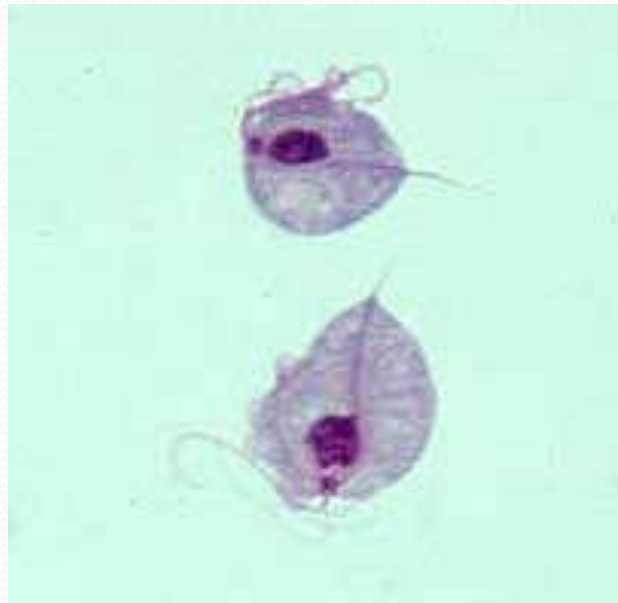
Wet prep/ Gram stain




ASM MicrobeLibrary.org © Pfizer Inc.

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?

سبأني اليوم الذي سألبس فيه نقابي
لن أفتن من رغبة ربي
لأنه أرحم بي من حولي
سأنتظر نعمة ربي بكل شوق و يقين

نقابي نعمة من ربي

