

Genito-Urinary System

Candidiasis & Candida albicans

■ *Candida albicans*

- a common inhabitant of the gastrointestinal and genital floras

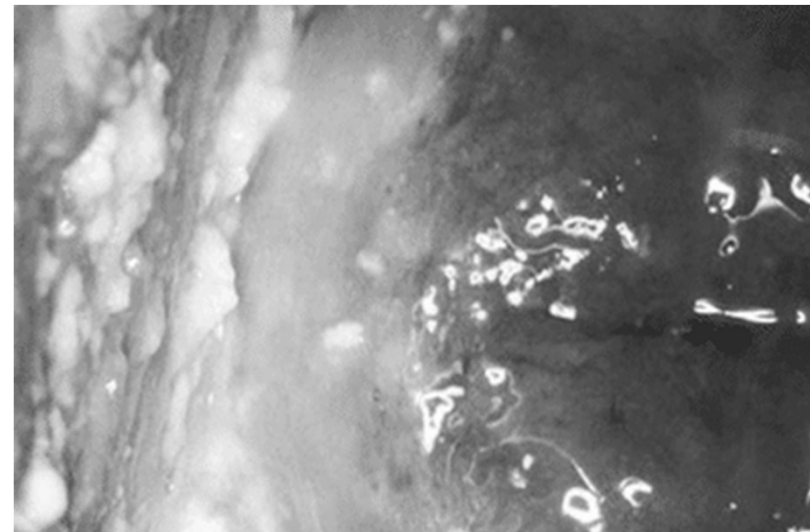
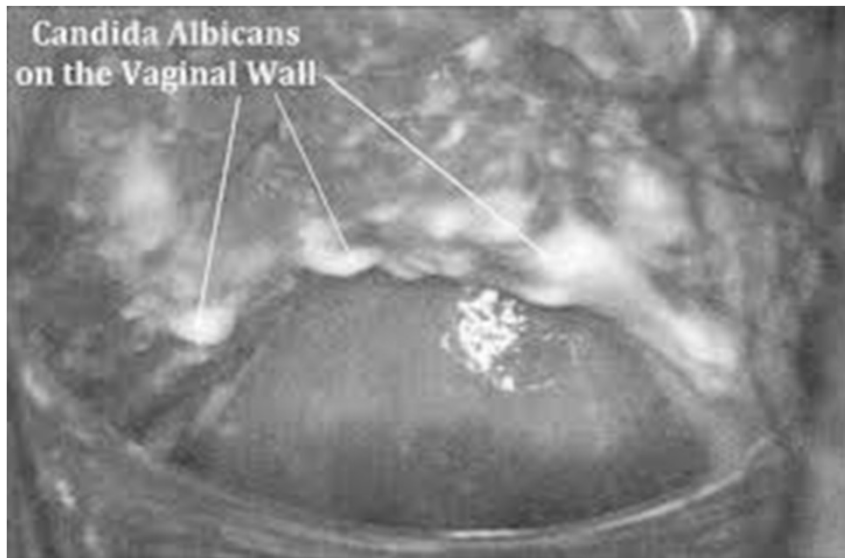
MANIFESTATIONS

- Superficial invasion of the m. membranes produces a usually painless, white, cheesy plaque called thrush that is loosely adherent to the mucosal surface.



MANIFESTATIONS

- Vaginal candidiasis (vulvovaginitis) produces a thick, curd-like discharge and itching of the vulva. Vaginitis may be recurrent.



MANIFESTATIONS

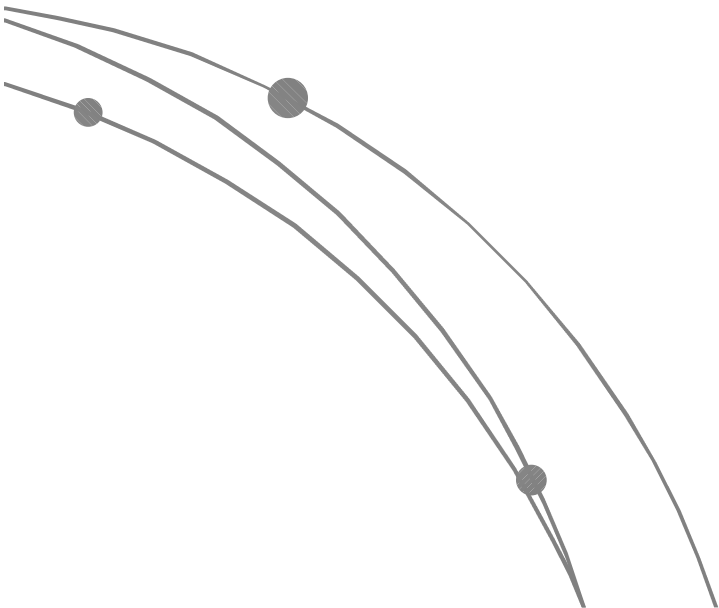
- Skin infections occur in crural folds and other areas in which wet, macerated skin surfaces are opposed (Diaber rash).



TREATMENT

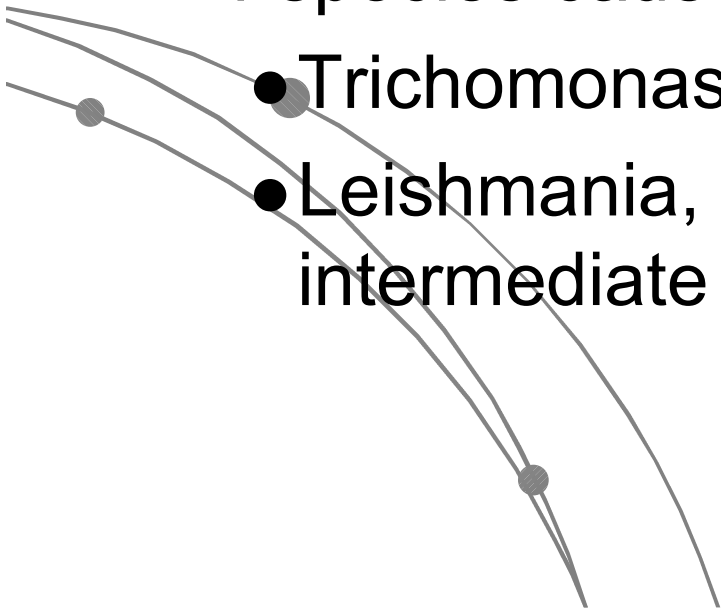
- *C. albicans* is usually susceptible to:
 - nystatin, amphotericin B, flucytosine, and the azoles.
- Topical nystatin or azoles generally used for the treatment of superficial lesions.

Trichomoniasis

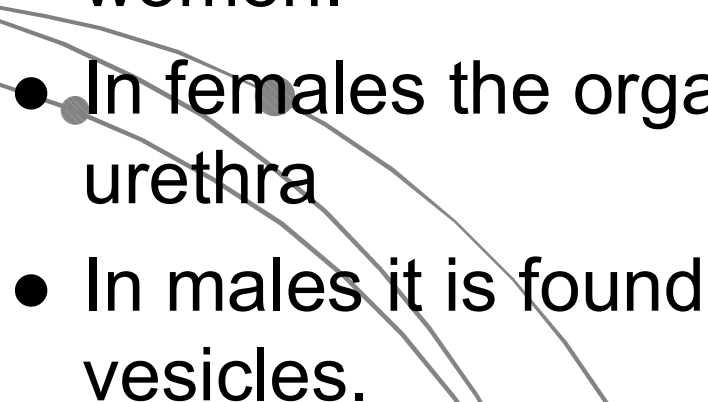


Genus Trichomonas

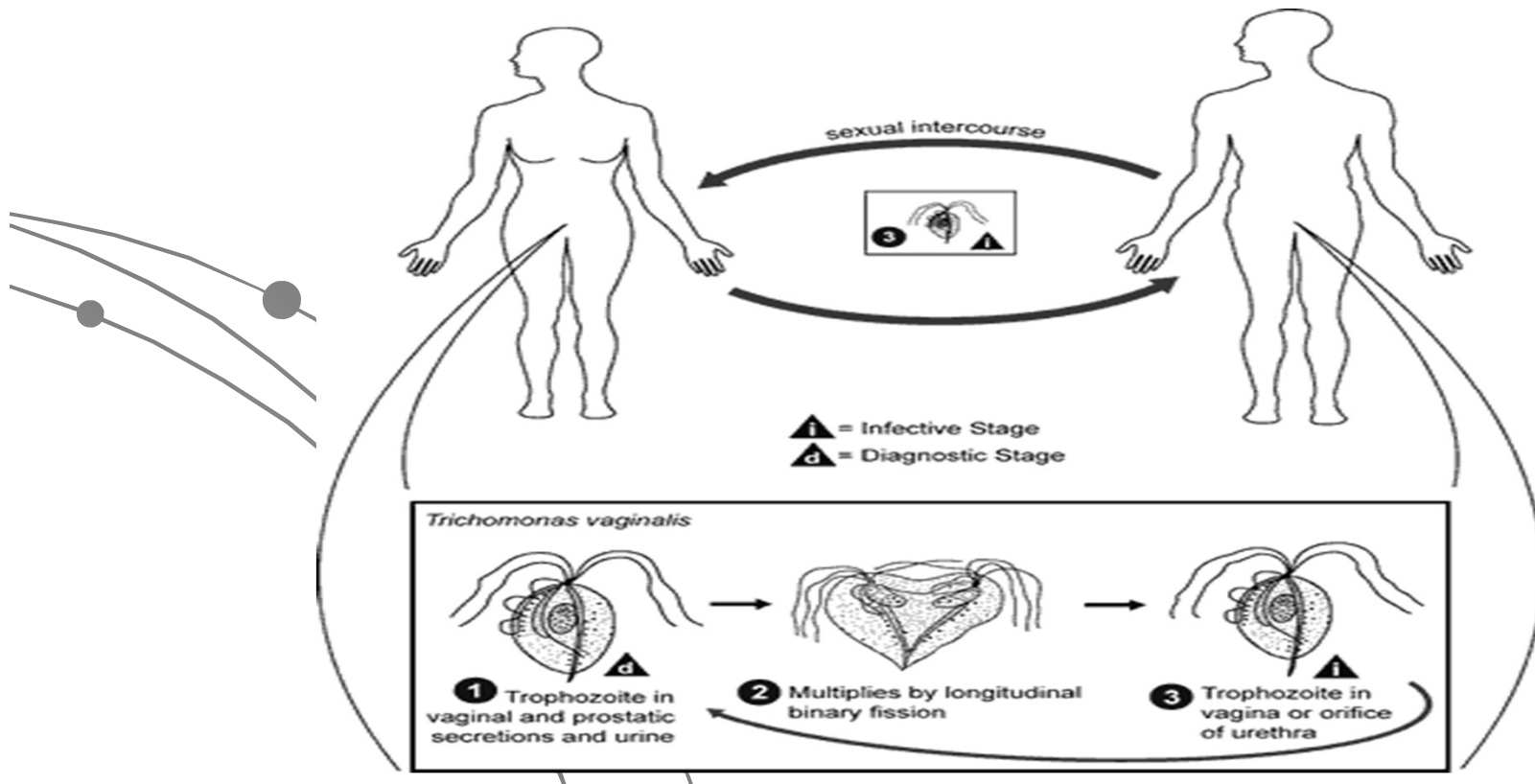
- Its includes a group of **flagellated protozoa** It infect humans and animal:
 - Multiple by binary fission
 - Move by flagella
 - 4 species caused disease
 - Trichomonas and Giardia : Non invasive
 - Leishmania, Trypanosoma: Invasive, intermediate insect host

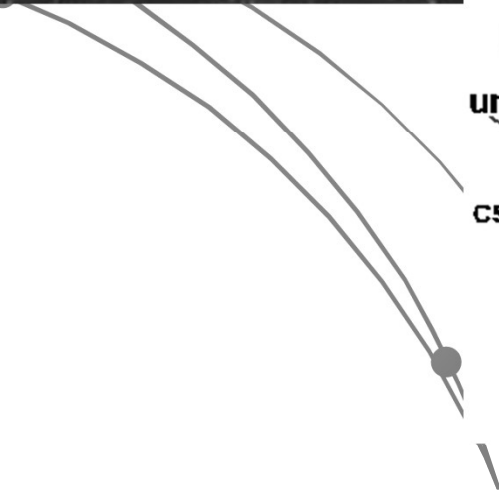
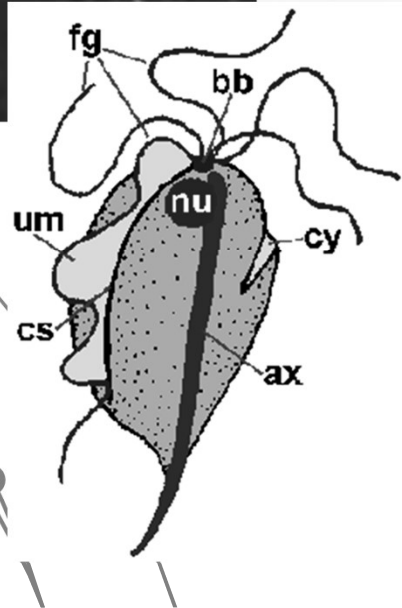
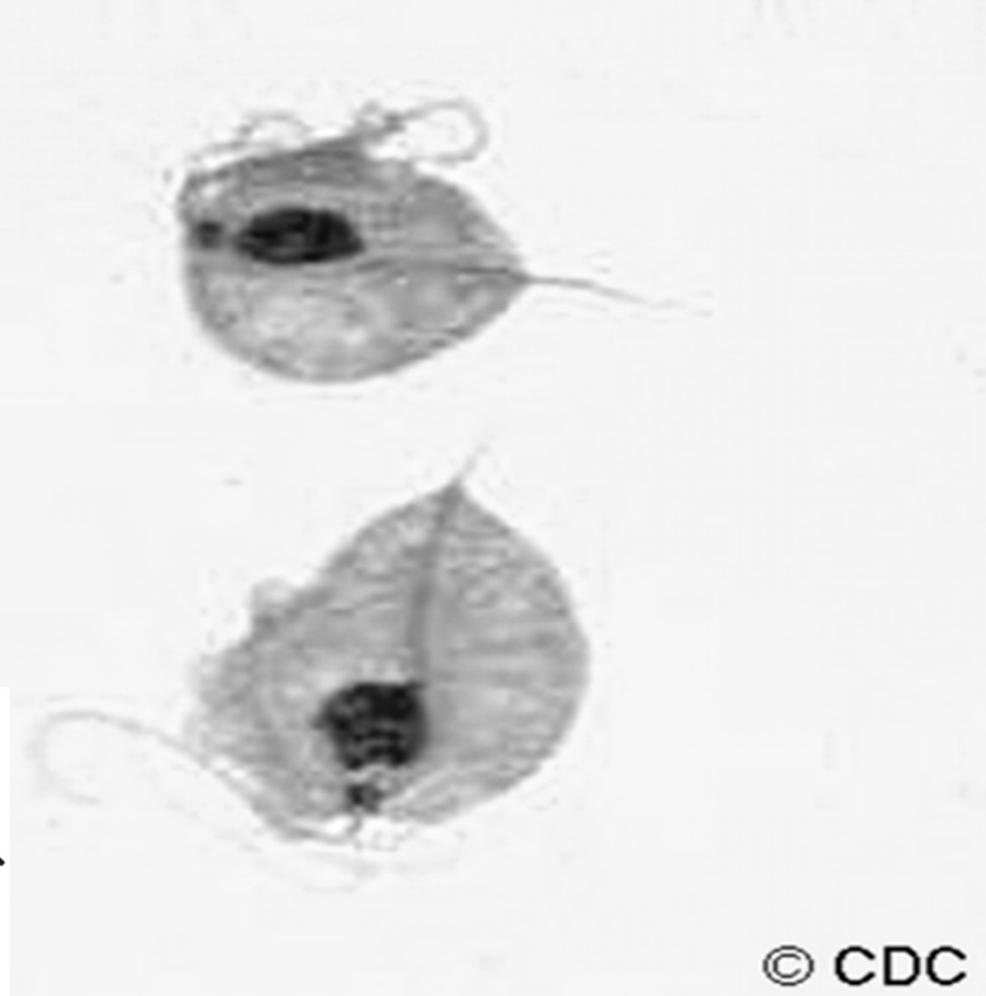
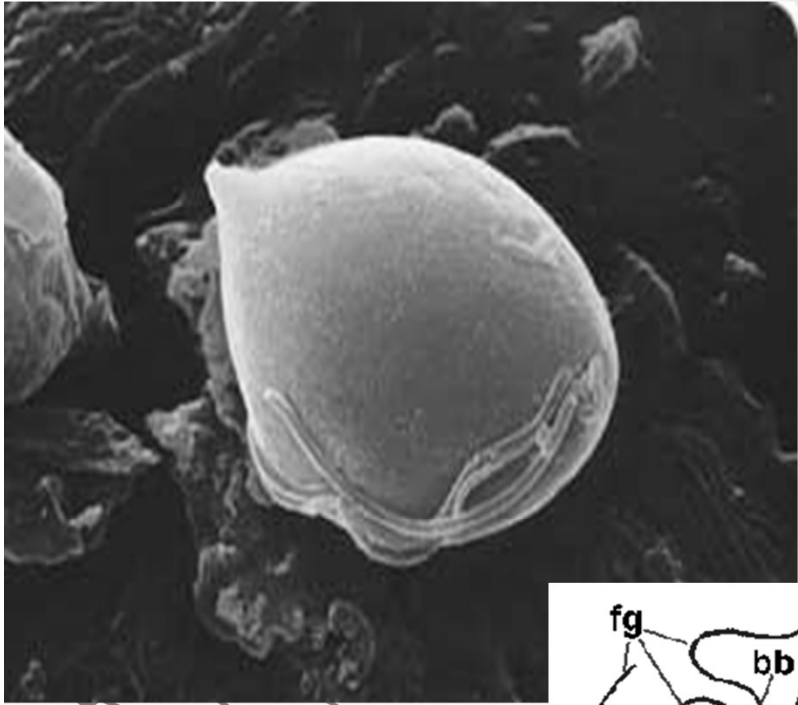


Trichomonas vaginalis

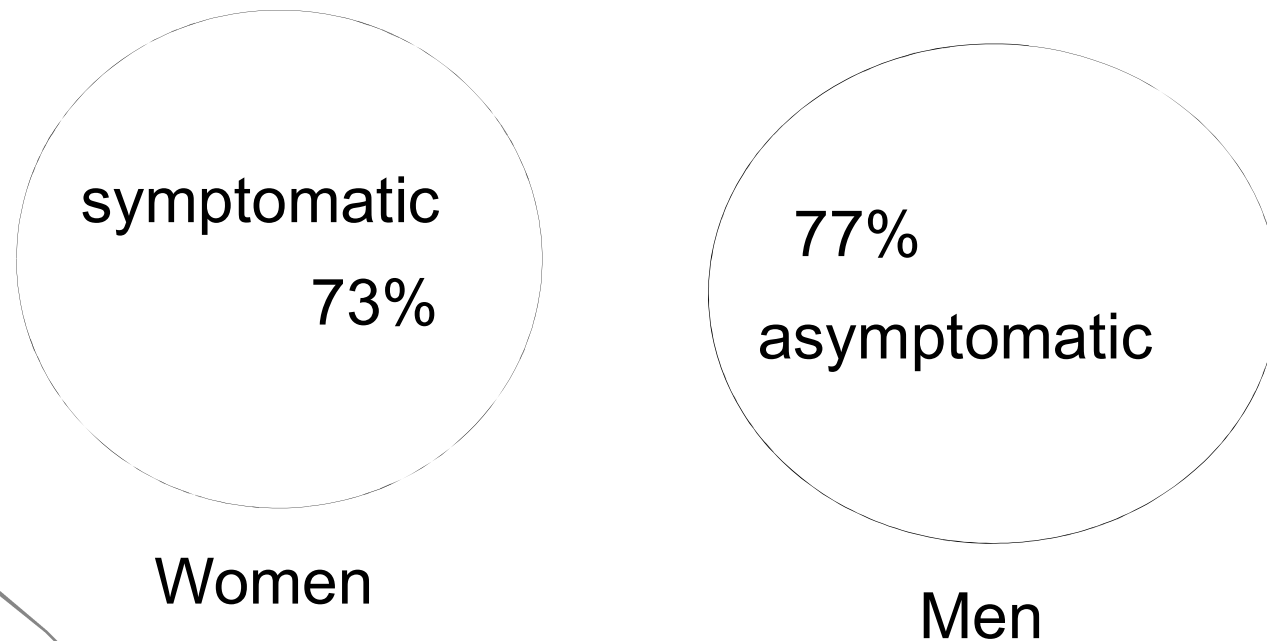
- Trichomoniasis is a common sexually transmitted disease with a worldwide distribution.
 - transmittable, sexually and through contact with toilet seats and towel.
 - T. vaginalis despite its name, infects both men and women.
 - In females the organism inhabits the vagina and urethra
 - In males it is found in the urethra, prostate or, seminal vesicles.
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- The life cycle consist only of a trophozoite stage
- It lacks cyst form but the trophozoite survives 1-2 hours outside host on moist surfaces.
- In urine, semen, water, it is viable for up to 24h





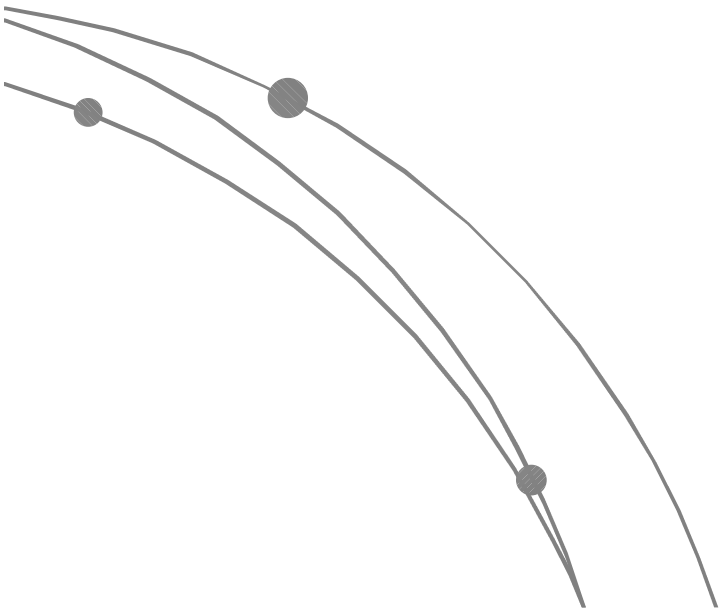
Proportion of asymptomatic trichomoniasis



Symptoms included penile or vaginal discharge or itching, dysuria, or lower abdominal pain.

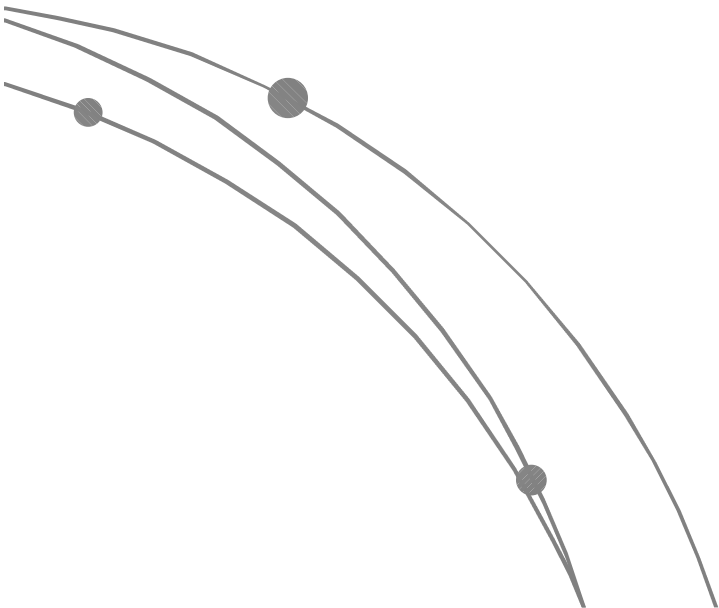
Symptoms

- Symptoms are nonspecific and cannot be used to differentiate trichomoniasis from other genital infections.



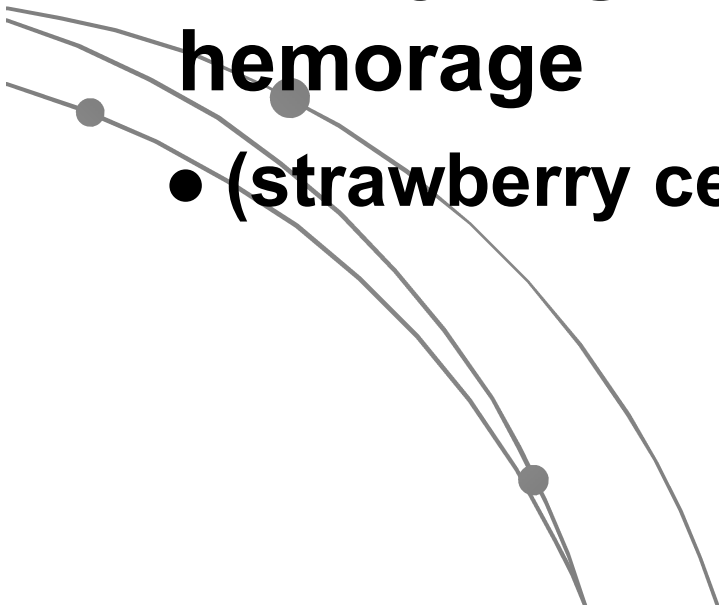
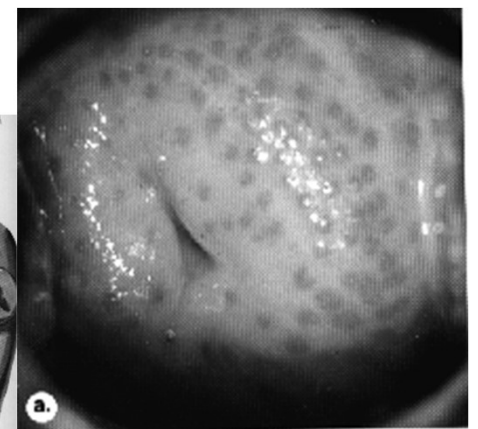
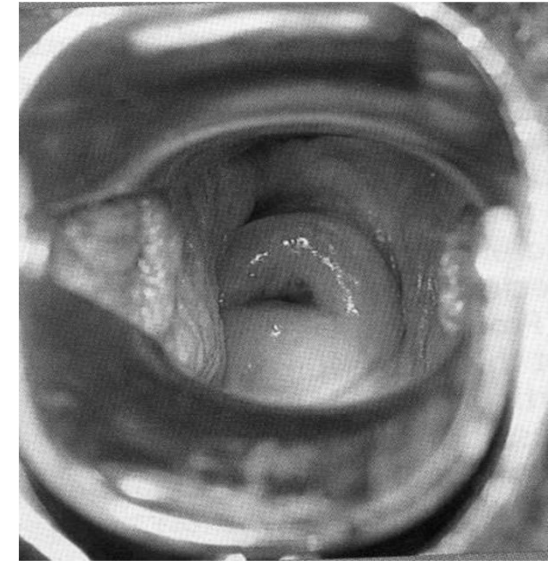
Clinical Aspects

- **Males:**
 - Asymptomatic.
 - Urethritis and Prostatitis.
 - Dysurea.
 - Non purulent discharge.



Vaginitis - Trichomoniasis

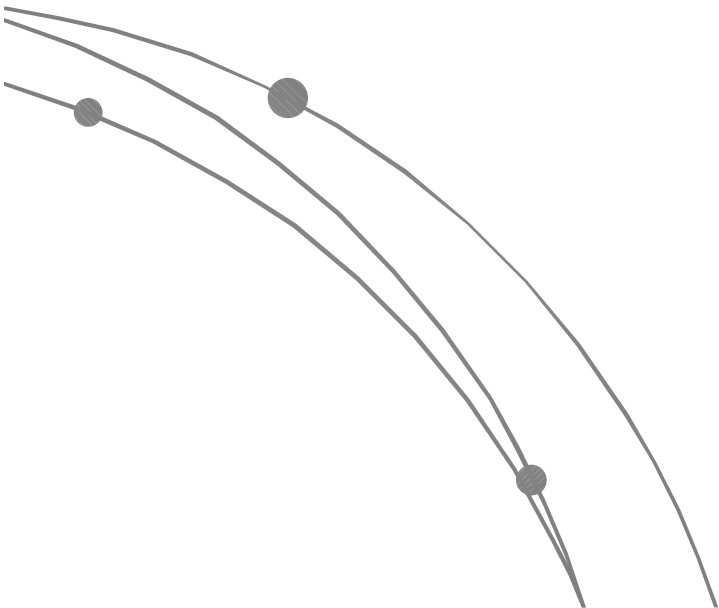
- Reddened vaginal and endocervical mucosa
- Profuse, frothy discharge, yellow-greenish in color
- foul odor, vulvar pruritus
- Patchy vaginal erythema and hemoragage
- (strawberry cervix 2%)



Diagnosis:

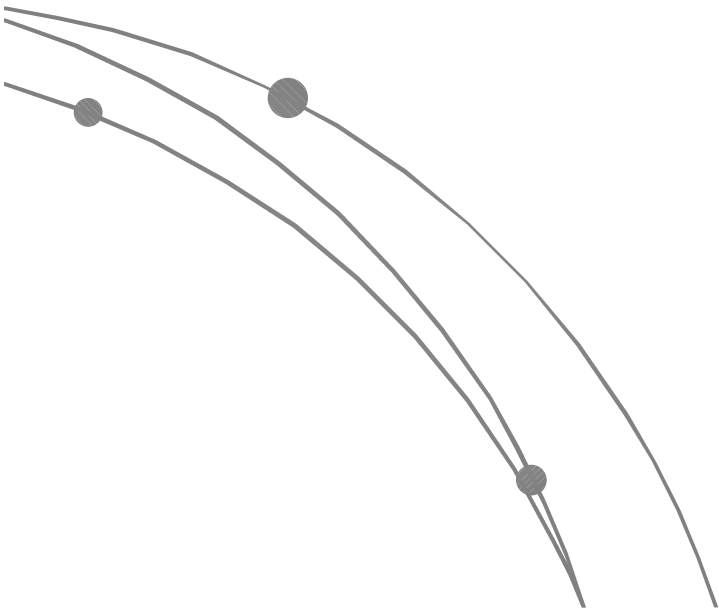
Specimens:

- **Vaginal discharge (female)**
- **Urethral discharge**



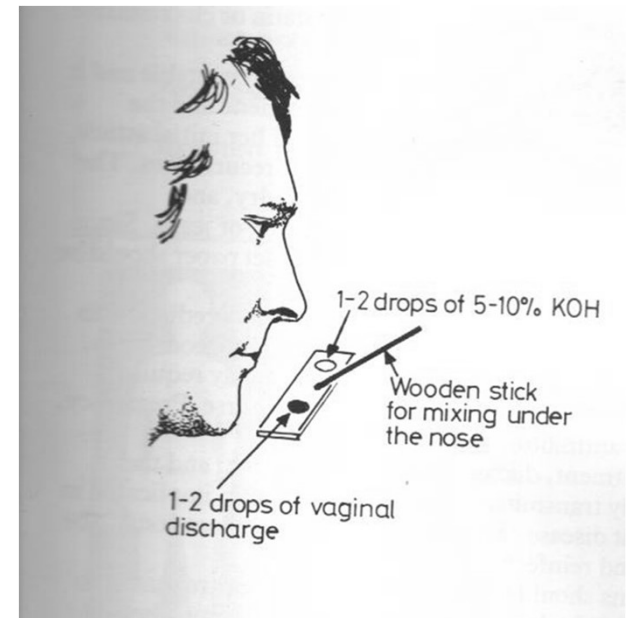
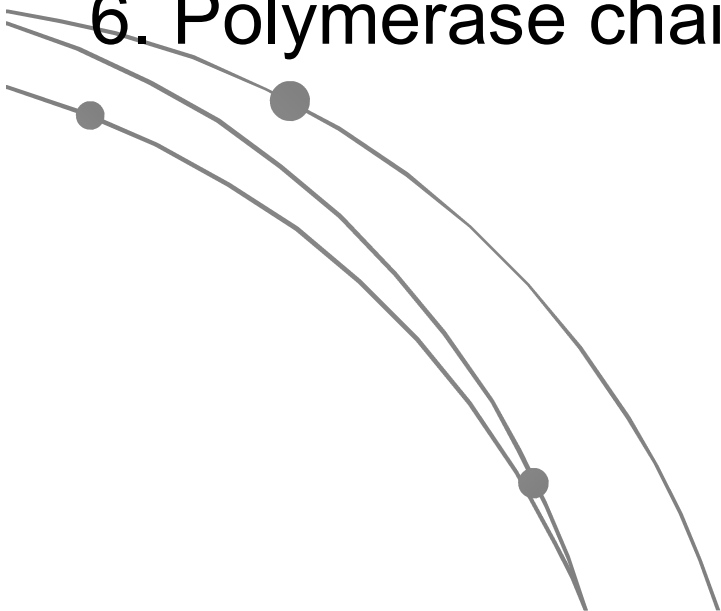
Vaginitis

- Vaginal discharge and pruritus
 1. BV
 2. Candidiasis
 3. Trichomonas vaginalis

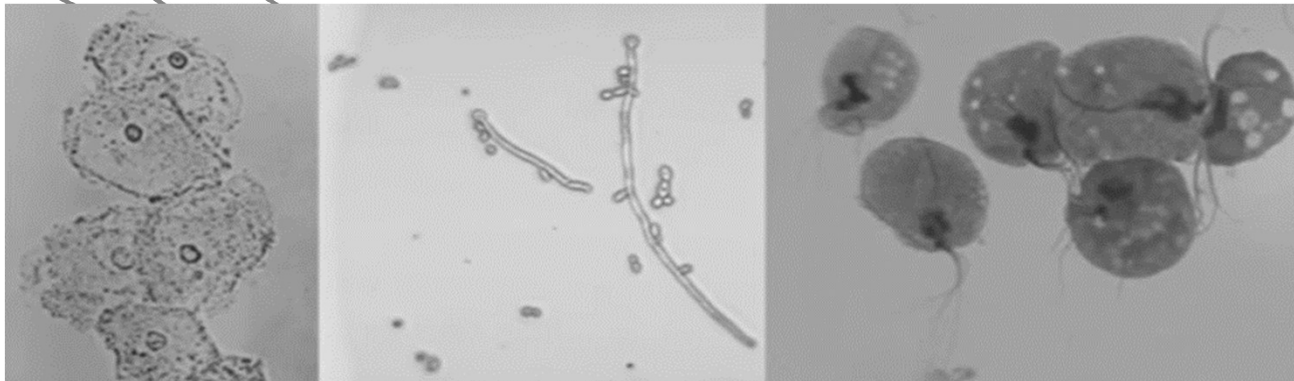


Vaginitis

1. Vaginal pH (normally 3.8-4.5):
3. Wet mount (Vaginal smear)
2. Potassium hydroxide (10% KOH) amine test (Whiff test)
4. Culture
5. Direct immunofluorescence assay
6. Polymerase chain reaction



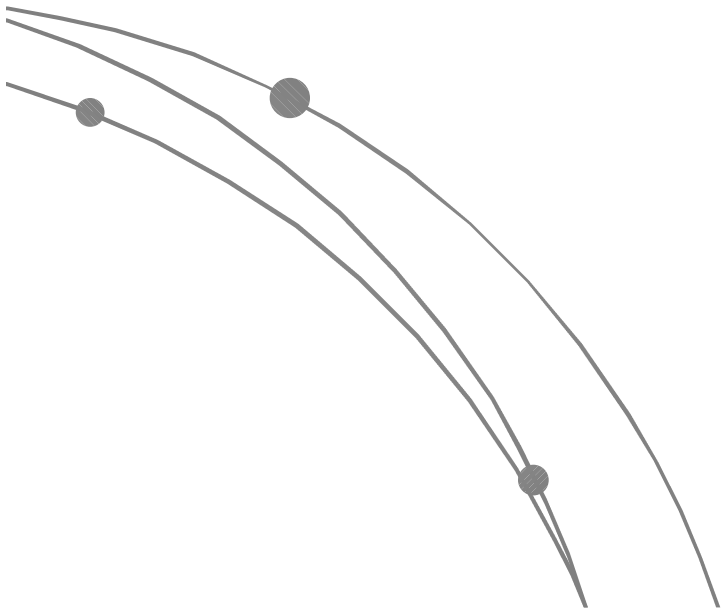
	BV	Trich	Candida
Organism	G vaginalis	T vaginalis	C albicans
Discharge	Gray, fishy	Yellow- green, Frothy, erythema of cervix	White
pH	More than 4.5	More than 4.5	Less than 4.5
Wet mount	Clue cells	Motile trichomonade, flagylated	Yeast, hyphae
KOH	Fishy (+)	Fishy(+)	Negative
	Metronidazole	Metronidazole (partener)	fluconazole
STD	No	Yes	No



pear-shaped
trophozoites, with
"bobbling" jeky
motility

T. vaginalis culture

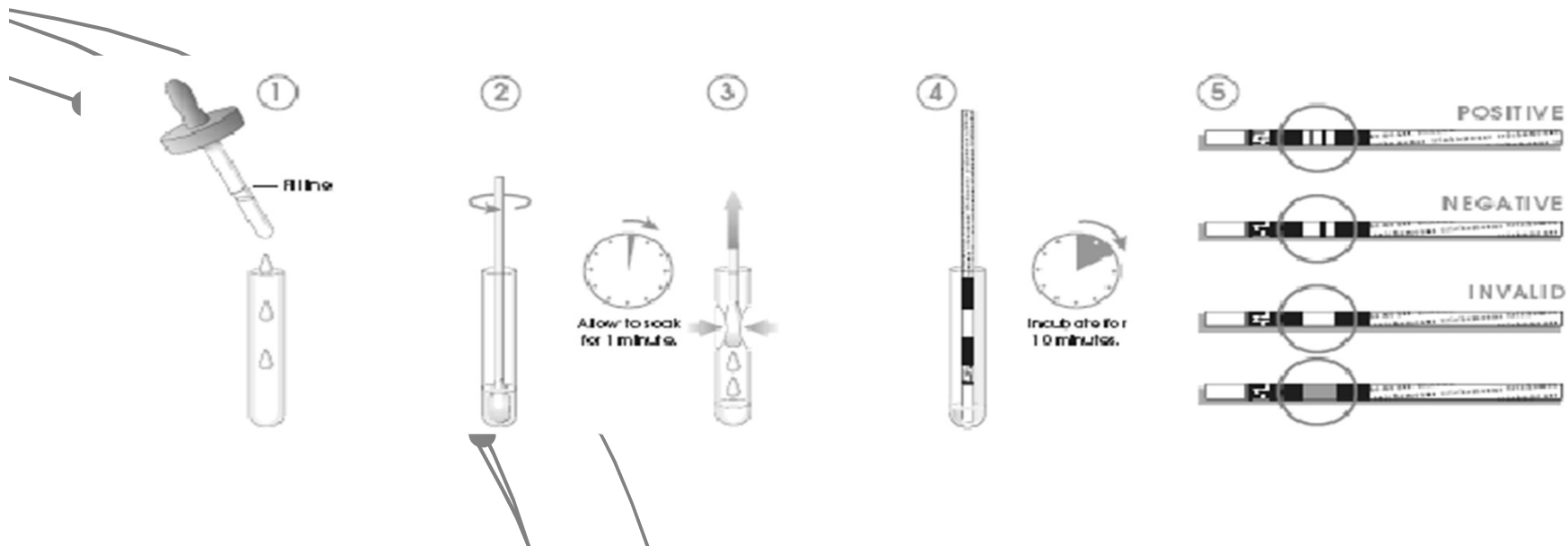
- Diamond's medium with antifungal and antibacterial additives



Rapid antigen detection



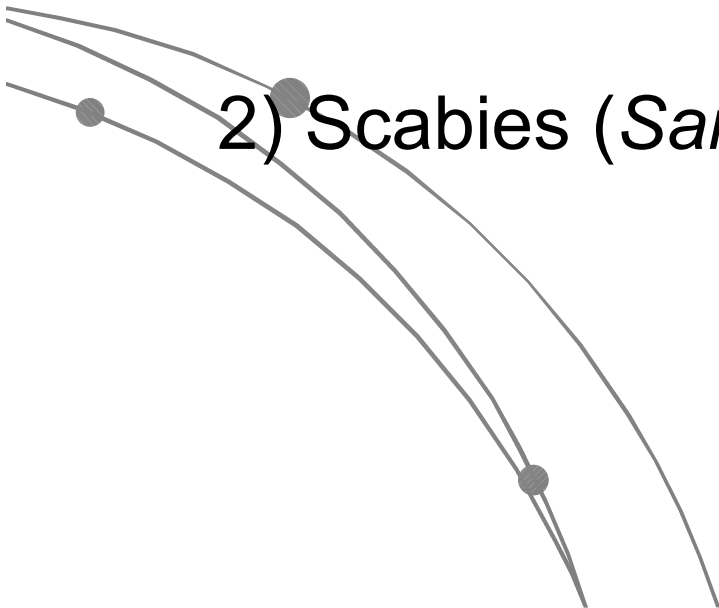
- Dipstick from Genzyme
- Antibodies on stick capture *T. vaginalis* antigen in specimen
- Sensitivity slightly better than wet mount microscopy ~80%
- Only validate in women



Ectoparasitic infections

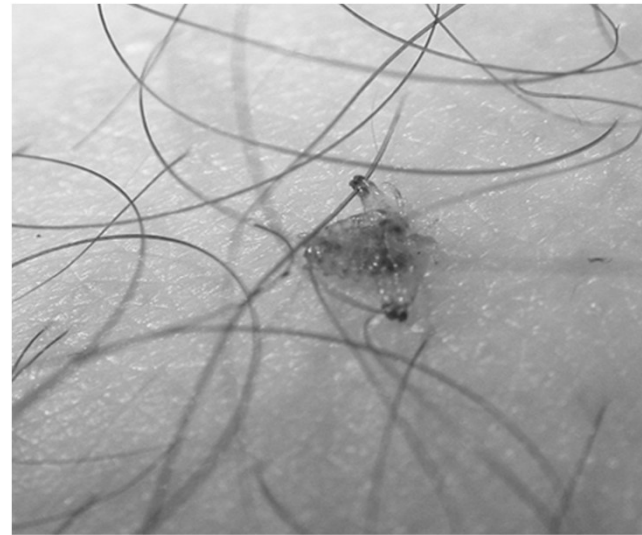
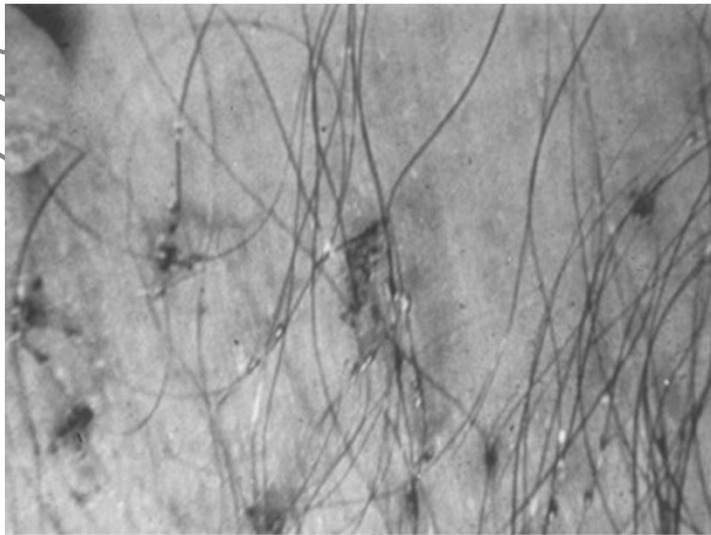
- Ectoparasites: parasitic organisms that live on the outer skin surfaces
- 2 common STIs caused by ectoparasites:
 - 1) pubic lice (*Phthirus pubis*)

2) Scabies (*Sarcoptes scabiei*)



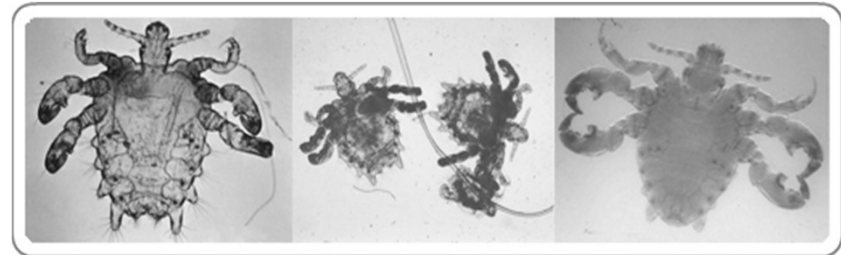
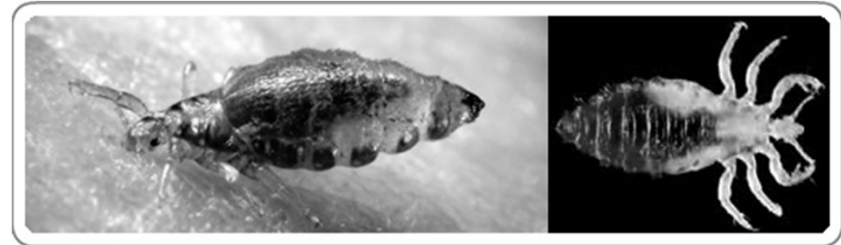
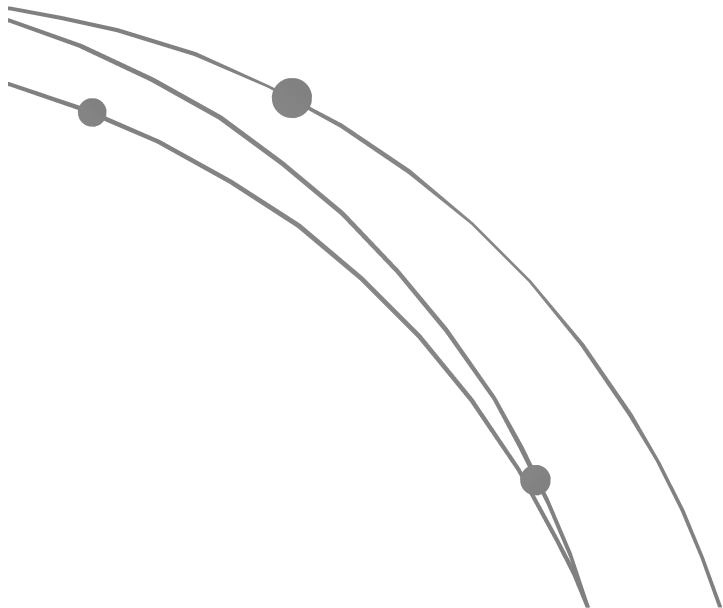
Phthirus pubis: Pubic louse

- a parasitic insect which spends its entire life on human hair and skin,
- Feeds exclusively on blood 4-5 times daily.
- Humans are the only known host.

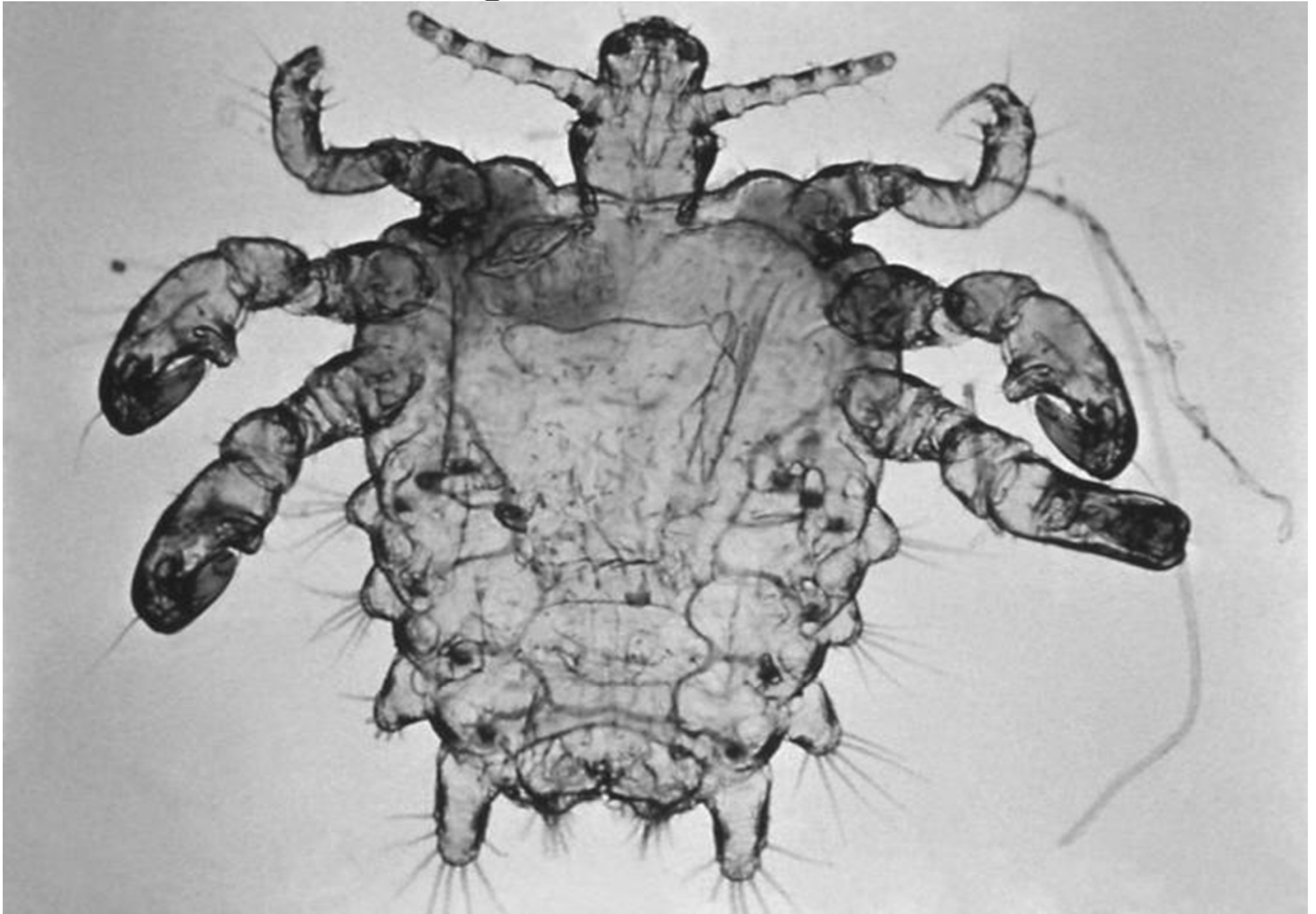


Three types of lice:

- Head lice
- Body lice:
- Pubic lice (crabs)



A magnified crab louse



All three types of lice:

- Are ectoparasites: lice live on the surface of the host
- Move by crawling, as opposed to flying
- Have humans as their only host
- Have similar life cycles



Head Lice



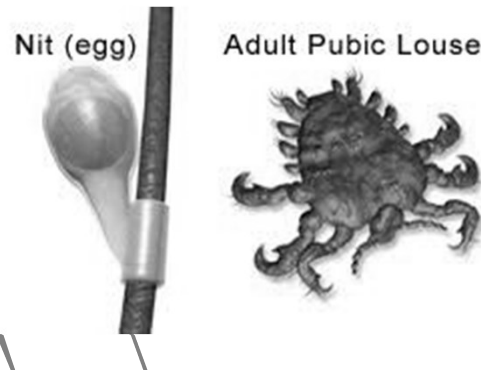
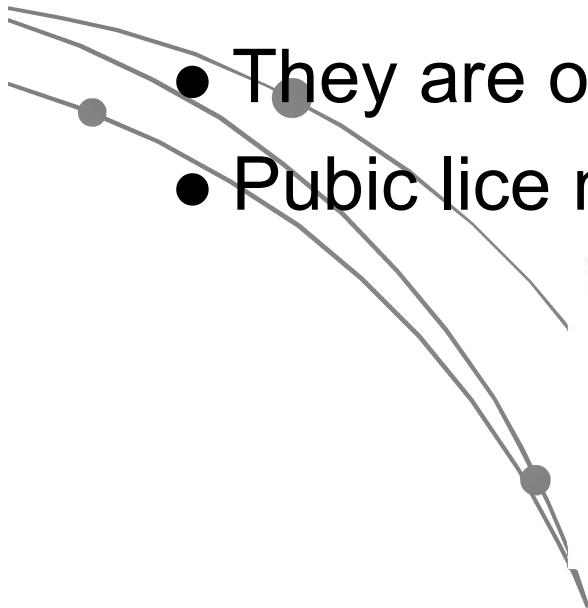
Body Lice



Pubic Lice

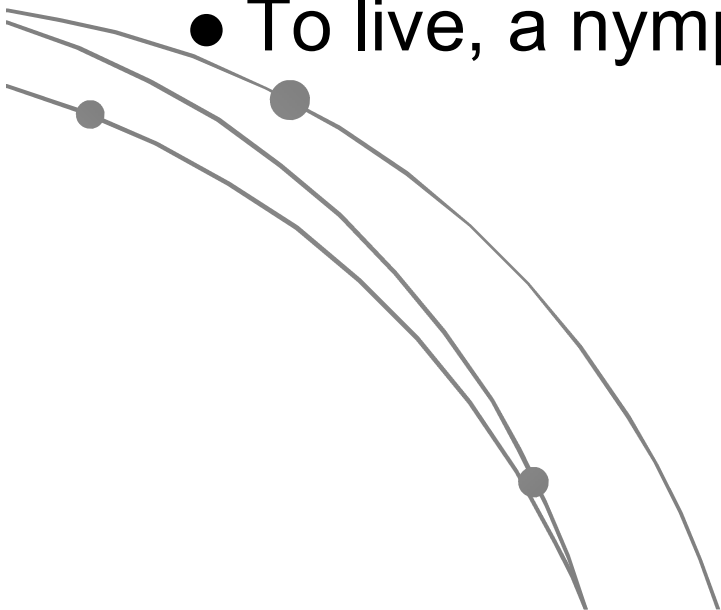
What Do Pubic Lice Look Like?

- Pubic lice have forms: the egg (also called a nit), the nymph, and the adult.
- **Nit**
 - Nits are lice eggs.
 - Hard to see and are found firmly attached to the hair shaft.
 - They are oval and usually yellow to white
 - Pubic lice nits take about 6-10 days to hatch.



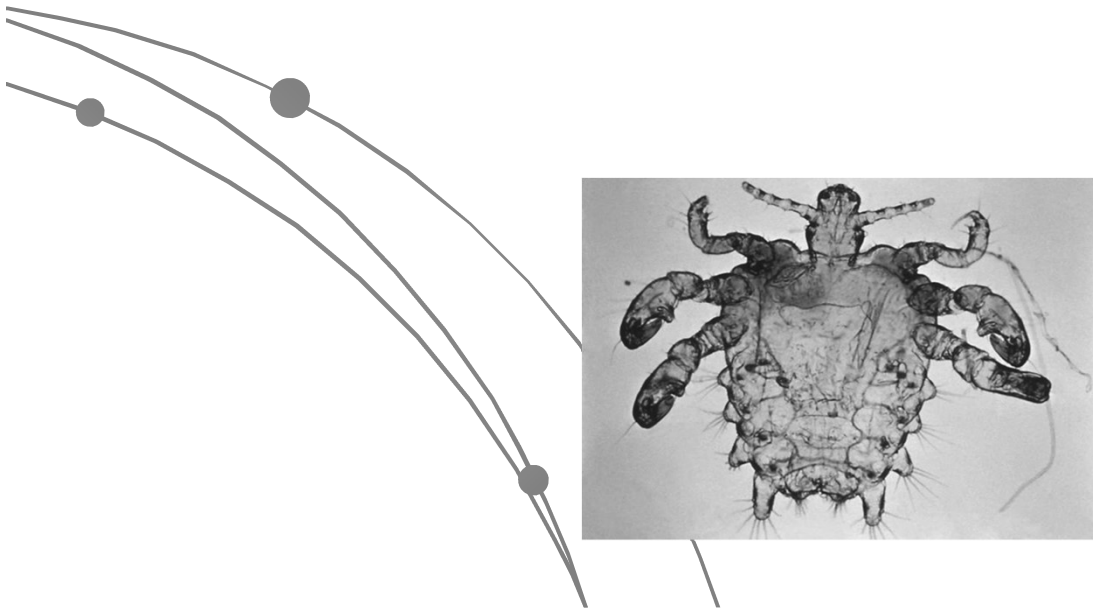
- **Nymph:**

- immature louse that hatches from the nit (egg). A nymph looks like an adult pubic louse but it is smaller.
- Pubic lice nymphs take about 2-3 weeks after hatching to mature into adults capable of reproducing.
- To live, a nymph must feed on blood.



- Adult:

- Adult pubic louse resembles a miniature crab when viewed through a strong magnifying glass.
- Pubic lice have six legs
- Pubic lice are tan to grayish-white in color.
- To live, lice must feed on blood.
- If the louse falls off a person, it dies within 1-2 days.

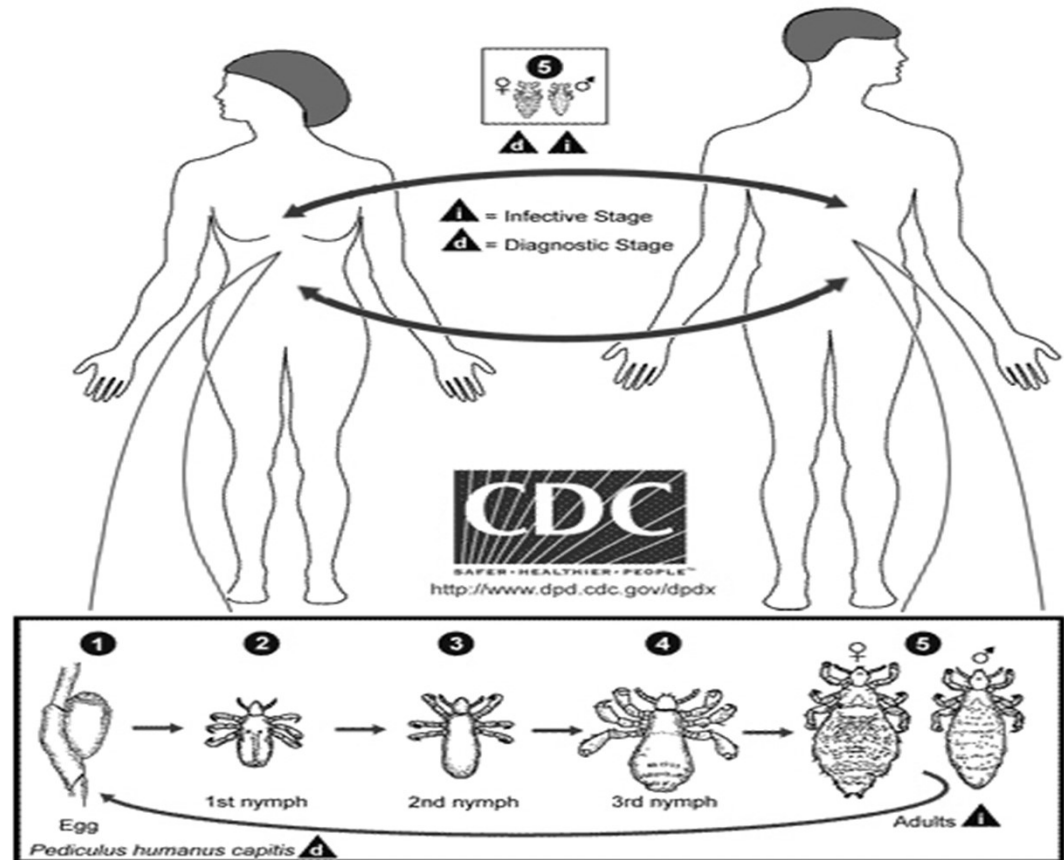
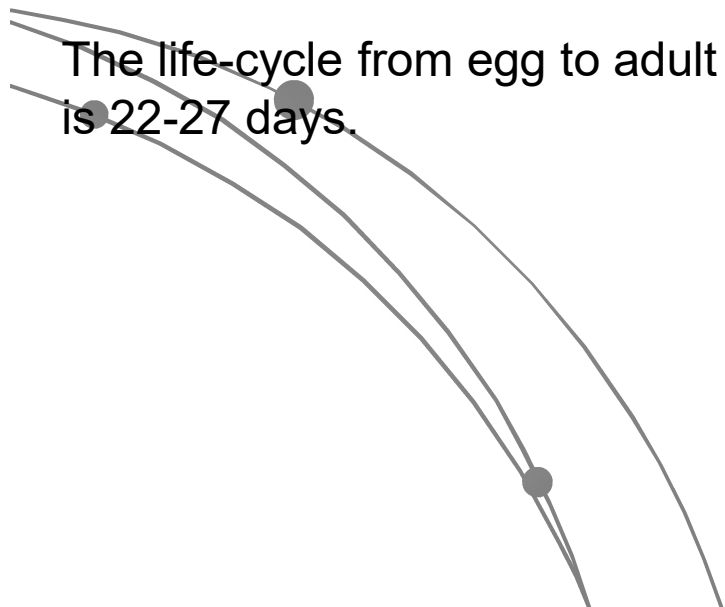


Lice Life Cycle

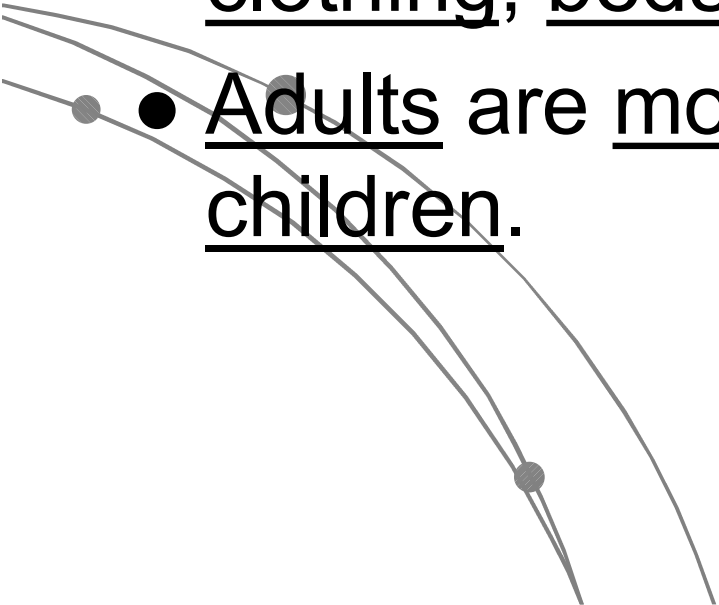
Lice stages:

1. Egg/nit
2. Nymph (3 molts)
3. Adult

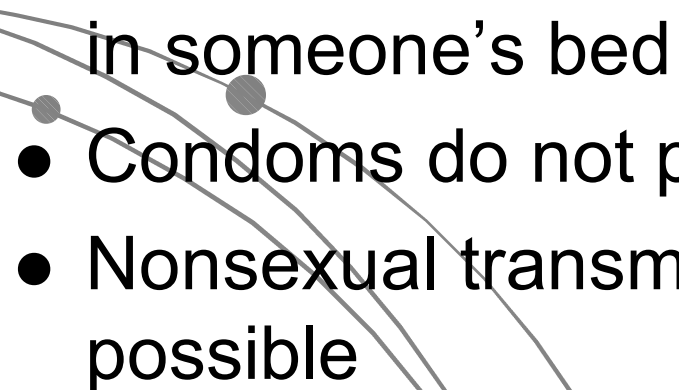
Both nymphs and adults take blood meals from the human host.



Epidemiology

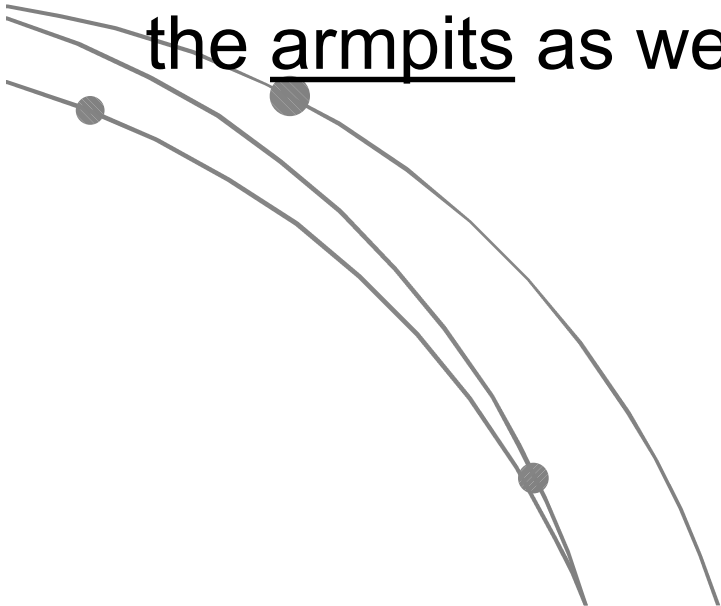
- Pubic lice : close contact between individuals, usually through sexual contact.
 - Parent to child infestations are more likely to occur through routes of shared towels, clothing, beds or closets.
 - Adults are more frequently infested than children.
- 

Transmission

- During sexual contact when two people bring their pubic areas together
 - Lice can live away from the body for up to 2 days-- can drop off onto underclothes, bedsheets, etc,
 - eggs deposited by female louse can survive for several days
 - Therefore, it is possible to get pubic lice by sleeping in someone's bed or wearing someone's clothes
 - Condoms do not prevent the spread of pubic lice.
 - Nonsexual transmission of public lice is also possible
- 
- A decorative graphic consisting of three curved lines that sweep from the left side of the slide towards the bottom right. Each line has a small grey circular dot placed on it. The lines are thin and grey, and the dots are also grey.

Clinical Manifestations

- Infestation with pubic lice is called Phthiriasis or Pediculosis pubis.
- Although any part of the body may be colonized, crab lice favour the hairs of the genital and peri-anal region.
- Especially in male patients, pubic lice and eggs can also be found in hair on the abdomen and under the armpits as well as on the beard.



- The main symptom is itching, usually in the pubic hair area. It results from hypersensitivity to louse saliva, and it becomes strong enough two or more weeks following initial infestation.
- In the majority of infestations a characteristic grey-blue or slate coloration appears (maculae caeruleae) at the feeding site, which may last for days and is also characteristic for the infestation.

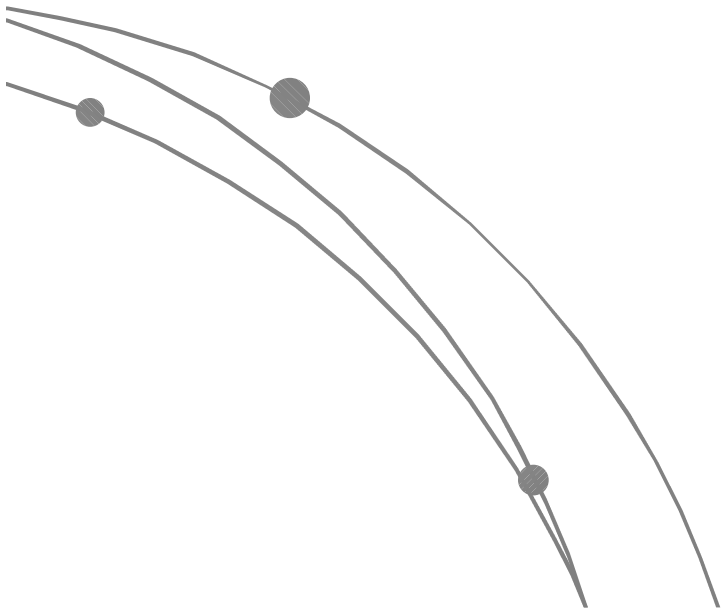


Diagnosis

- carefully examining pubic hair for nits, nymphs and adults.
- Lice and nits could be removed either with forceps or by cutting the infested hair with scissors.
- A magnifying glass or a stereo-microscope can be used for the exact identification.
- If lice are detected in one family member, the entire family needs to be checked and only those who are infested with living lice should be treated.

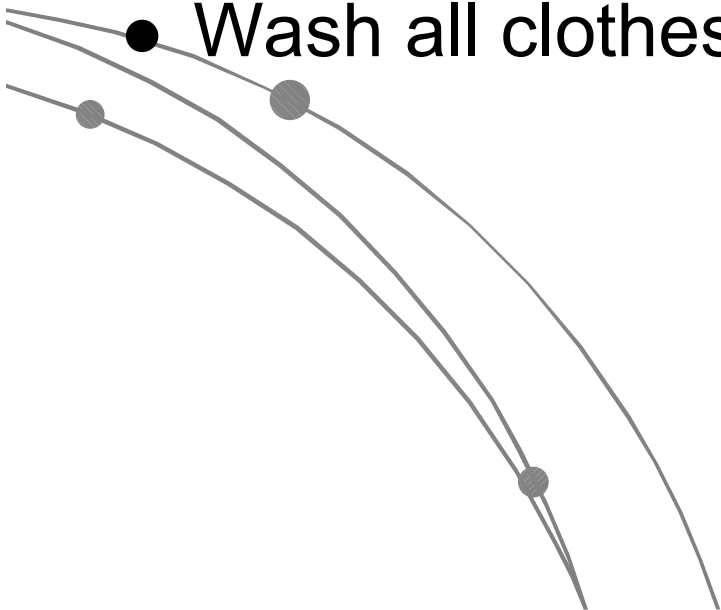
Treatment

- medicinal lotion (1% permethrin or pyrethrin) applied to all affected areas + all areas w/body hair (genitals, armpits, scalp, even eyebrows);
- Ivermectin paralyzes and kills lice and their eggs



- Shaving off or grooming any hair in the affected areas with a fine-toothed comb is necessary to ensure full removal of the dead lice and nits, though it does not suffice as treatment on its own.

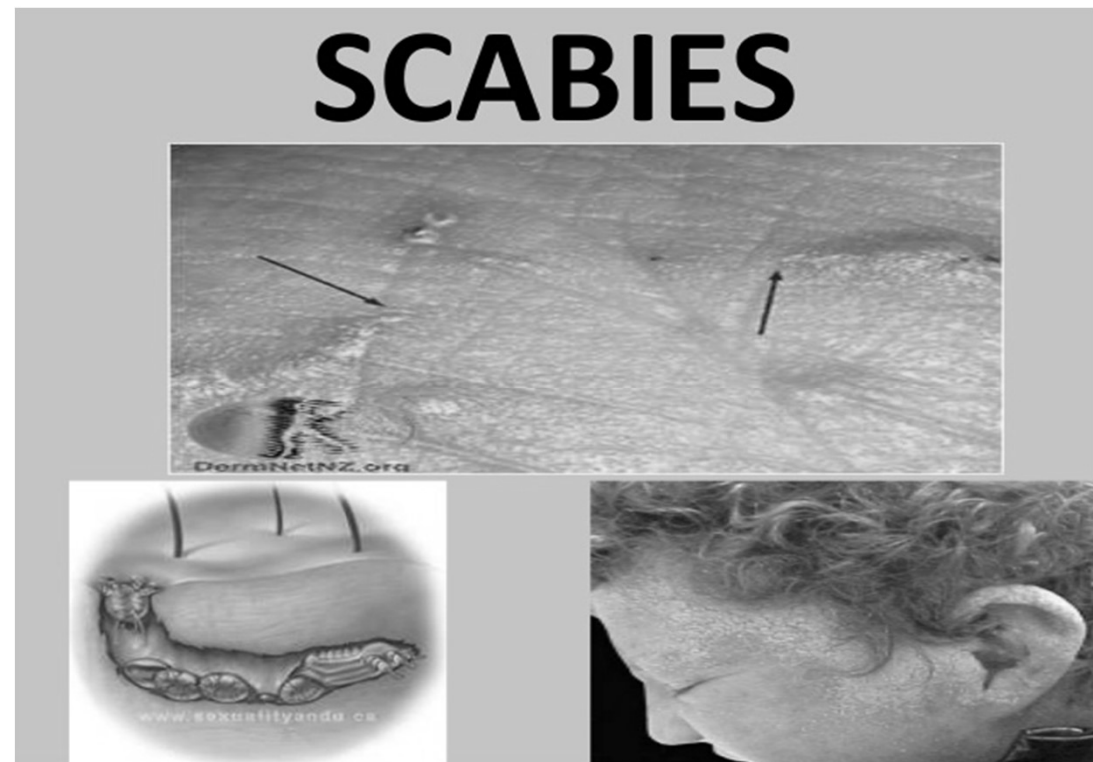
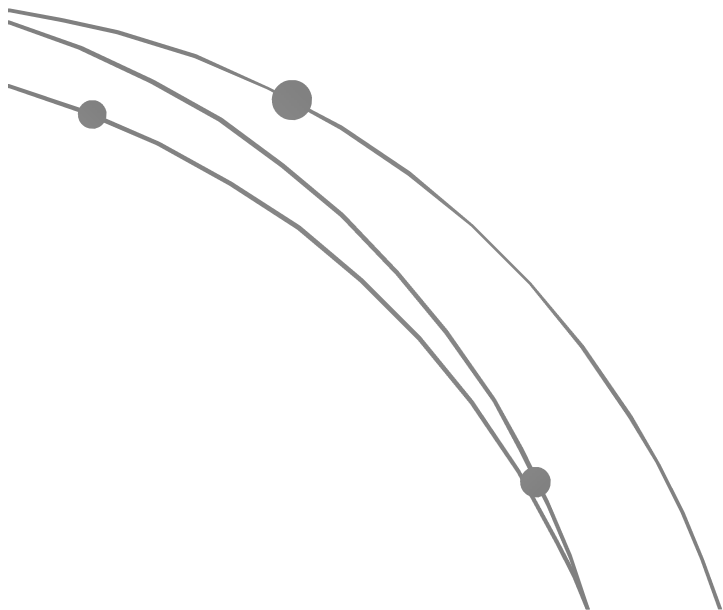
- Wash all clothes and bedding that were exposed



Scabies is a contagious ectoparasite skin infestation characterized by superficial burrows and intense pruritus (itching).

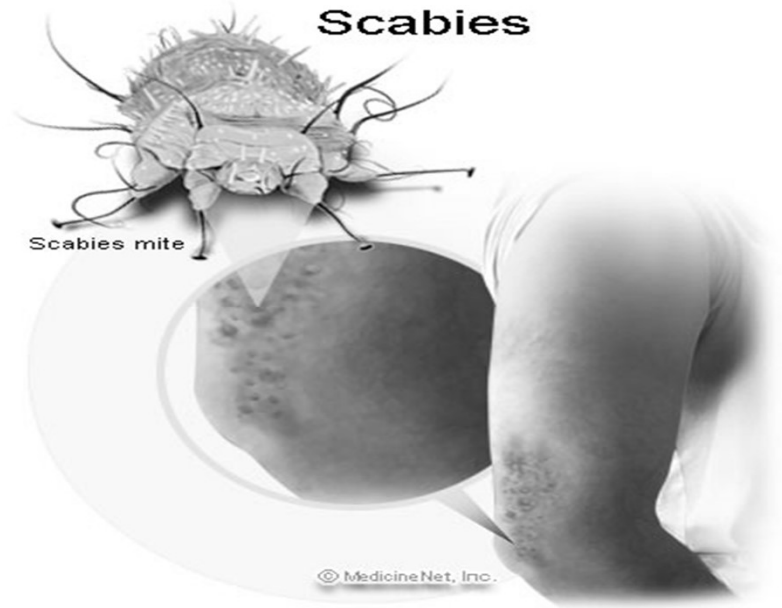
It is caused by the mite *Sarcoptes scabiei*.

The word *scabies* itself is derived from the Latin word for "scratch" (scabere).

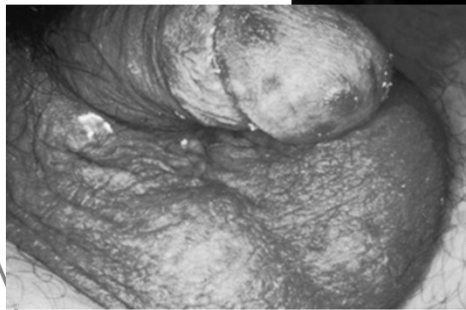
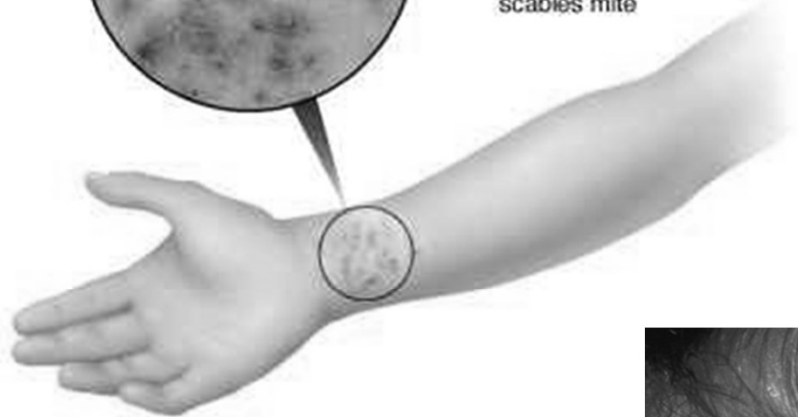




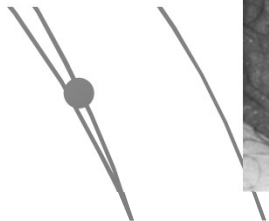
Scabies



Electron micrograph of scabies mite



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Scabies

Scabies is highly contagious and can be spread by scratching, picking up the mites under the fingernails and simply touching another person's skin.

They can also be spread onto other objects like keyboards, toilets, clothing, towels, bedding, furniture, and anything else that the mite may be rubbed off onto, especially if a person is heavily infested.

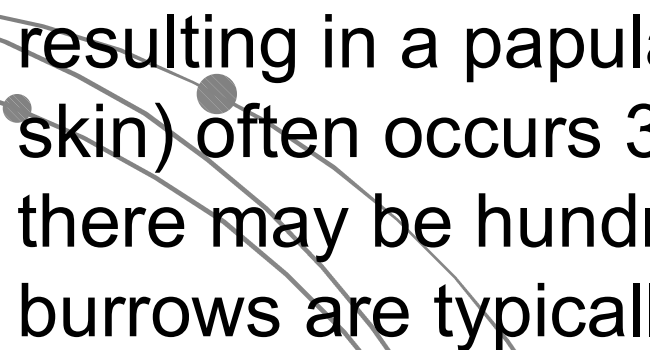
The parasite can survive up to 14 days away from a host, but often do not survive longer than two or three days away from human skin.¹

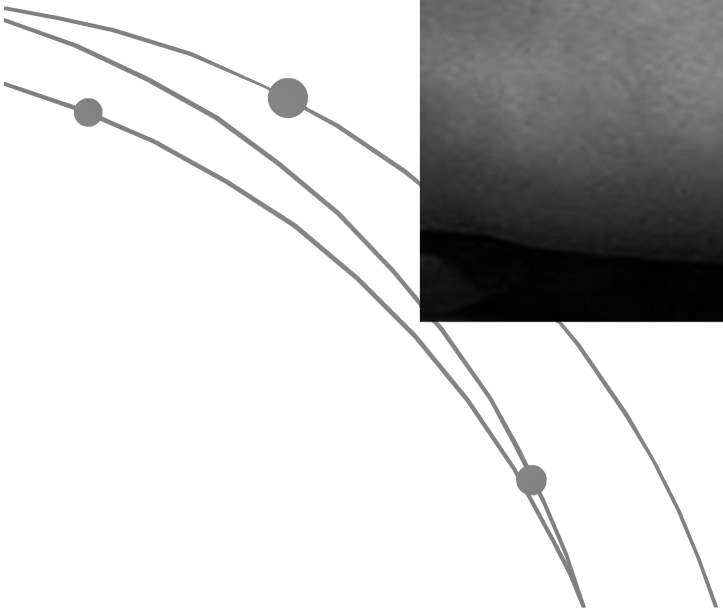
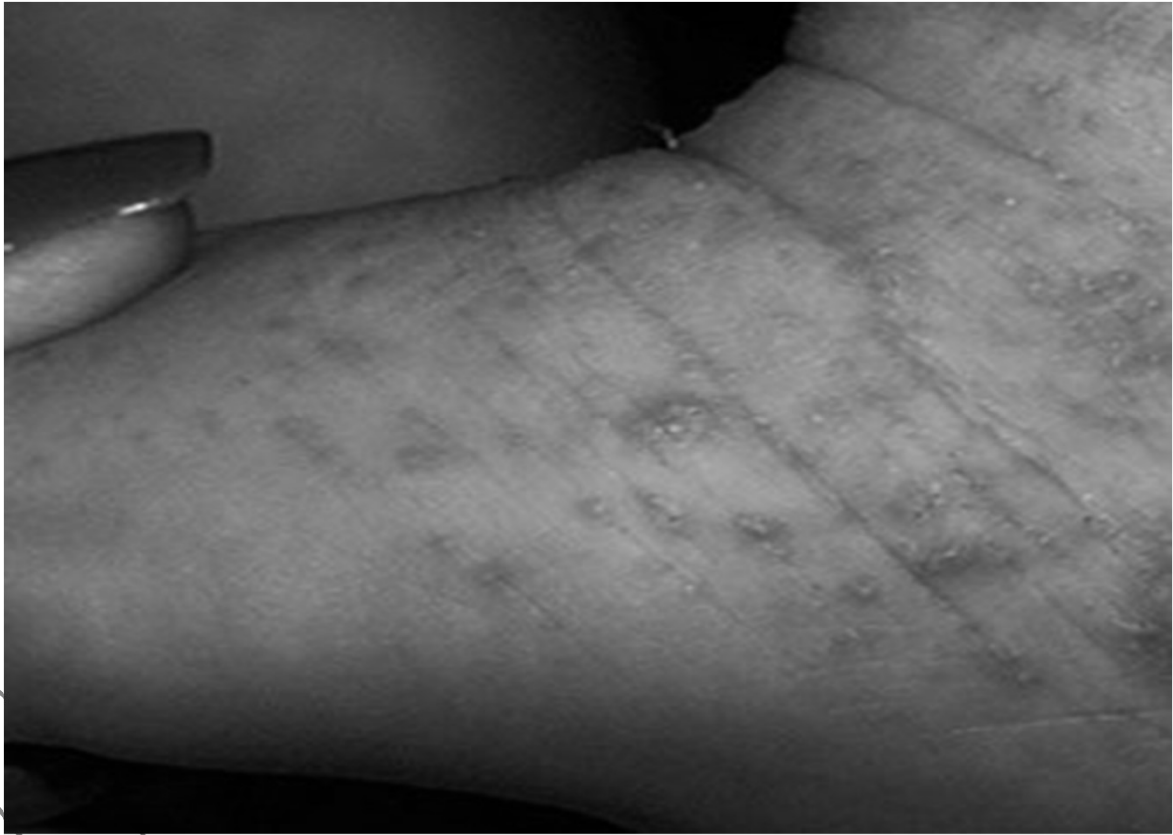
Feed on dissolve tissue not blood

Scabies

When a human comes into contact with the female mite, it burrows under the skin, laying eggs along the lines of its burrow. These eggs hatch, and the resulting offspring rise to the surface of the skin; mate; and repeat the cycle causing red lesions.

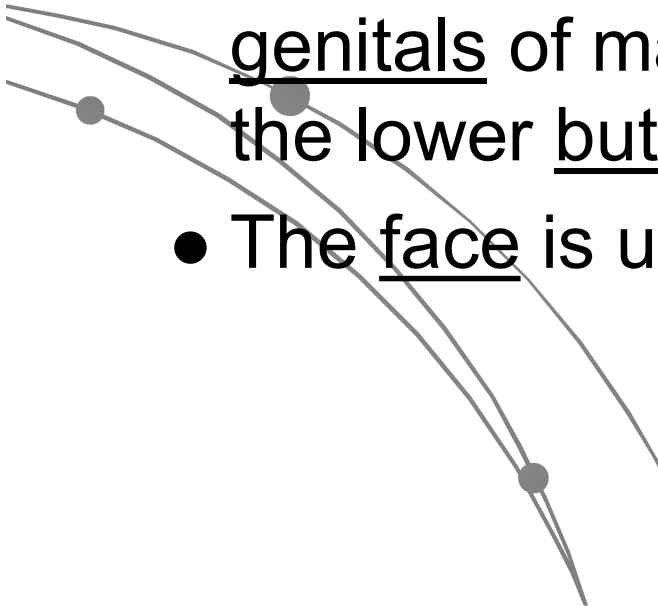
A delayed hypersensitivity (allergic) response resulting in a papular eruption (red, elevated area on skin) often occurs 30-40 days after infestation. While there may be hundreds of papules, fewer than 10 burrows are typically found.





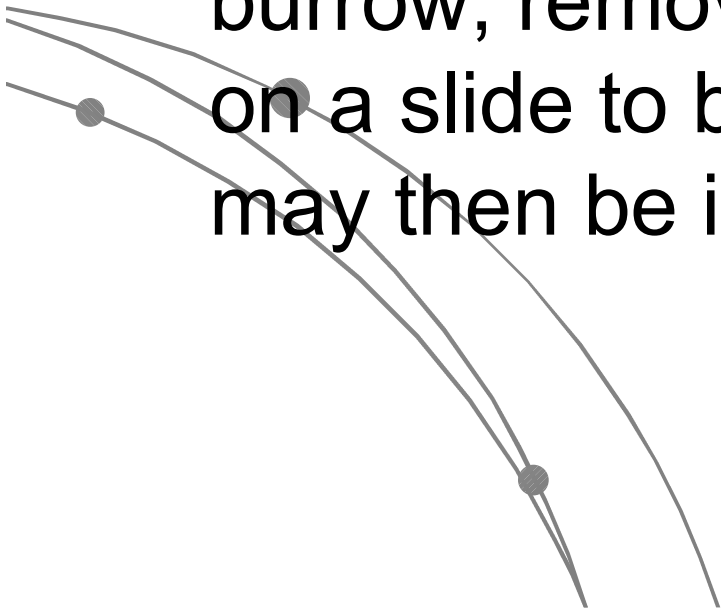
The burrow

- A fine, wavy and slightly scaly line
- A few mm to one cm long.
- A tiny mite may sometimes be seen at the end of the burrow.
- Mostly in the webs of fingers, flexing surfaces of the wrists, around elbows and armpits, areolae of the breasts in females and on genitals of males, along the belt line, and on the lower buttocks.
- The face is usually not involved.



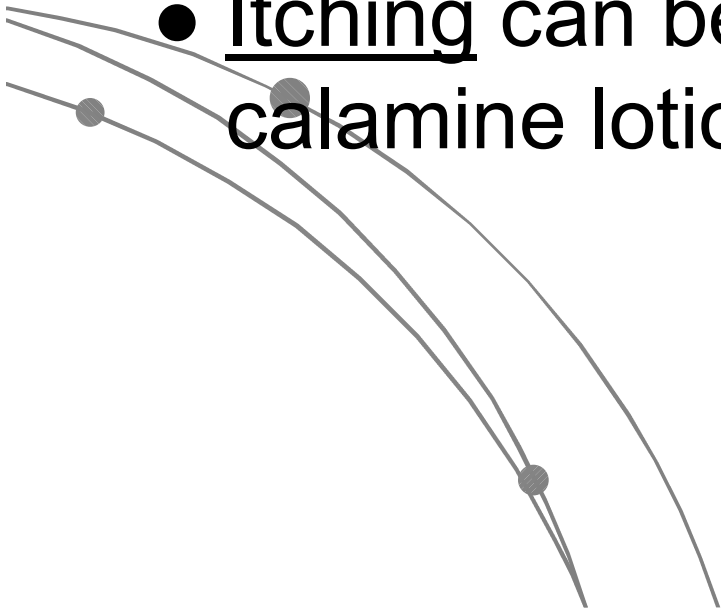
Diagnosis

- Diagnosis can be made simply by observing the characteristic burrows of the mites causing scabies.
- A sterilized needle can be used to explore the pearly bump at the end of a burrow, remove its contents, and place it on a slide to be examined. The mite itself may then be identified.



Treatment

- Treatment by several types of lotions (usually containing 5% Permethrin) can be applied to the body and left on for 12 to 24 hours. One topical application is usually sufficient.
- Itching can be lessened by the use of calamine lotion or antihistamines.



Prevention

- Good hygiene is essential in the prevention of scabies.
- When a member of a household is diagnosed with scabies, all that person's recently worn clothing and bedding should be washed in very hot water.

