

Venerereal Disease

History of Presenting Illness: NON SPECIFIC (ALL VD CAN LOOK ALIKE)

- Painful menstruation (**dysmenorrhoea**)
- Great volumes of menstrual blood (**menorrhagia**)
- **Vaginal Discharge: WHAT TYPE: examine closely** →
- **Genital Ulceration, itching, desquamation**
- **Pain on Intercourse**
- **Pain on Urination**
- **Warts or growths**
- Some sort of **TERRIBLE SMELL** (anaerobic nitrosamides)
- **Painful sore joints** (SARA arthritis, usually chlamydia)
- Some kind of **INFESTATION** (eg. lice)

These are NOT DISEASE-SPECIFIC !! NEVER diagnose on discharge alone!!

...WHAT AM I DISCHARGING?
Normal: clear + white or transparent
White curds = *Candida* fungus
Purulent = pelvic inflammatory disease
Malodorous = Gram negs or Protozoa
Foamy + stinky = *Gardenella*
Foamy + yellow or Grey-green =
 = *Trichomonas*
Profuse thin grey-white nonclumping
 = **BACTERIAL VAGINITIS**

Differential Diagnoses

Candidiasis (*Candida albicans*)

- * **Trichomoniasis** (*Trichomonas vaginalis*)
- * **Bacterial vaginosis** (Anaerobic organisms)
- * **Gonorrhoea** (*Neisseria gonorrhoeae*)
- * **Chlamydia** (*Chlamydia trachomatis*, serovars D-K)
- * **Genital herpes** (

Primary syphilis (*Treponema pallidum*)

- * **Donovanosis** (*Calymmatobacterium*)
- * **Chancroid** (*Haemophilus ducreyi*)
- * **Lymphogranuloma venereum**

(LGV) (*Chlamydia trachomatis*, serovars L 1-L3)

* **Genital warts** (Human papillomavirus

- commonly types 6 and 11) - (HPV)

* **Molluscum contagiosum** (Pox virus)

* **Scabies** (*Sarcoptes scabiei*)

* **Pubic lice** (*Phthirus pubis*)

* **Dermatitis** (eg: contact) is

the commonest cause of genital rashes

* **Fungal** (mainly *Candida albicans*)

* **Secondary syphilis** (*Treponema pallidum*)

Disseminated gonococcal infection (*Neisseria gonorrhoeae*)

* **Primary HIV infection** (seroconversion illness) **Kaposi's**

sarcoma (AIDS)

* **Reiter's disease** (non-gonococcal arthritis or sexually

acquired reactive arthritis (SARA))

* **Chlamydia trachomatis**

* **Gonococcal arthritis** (*Neisseria gonorrhoeae*)

* **Pelvic inflammatory Disease (PID)** (*Chlamydia*

trachomatis or *Neisseria*

gonorrhoeae)

* **Epididymitis** (*Neisseria gonorrhoeae*, *Chlamydia trachomatis*)

* **Jaundice** (Hepatitis A, B, or C)

Common CERVICAL pathogens:

- **Gonorrhoea**
- **Chlamydia**

Common VAGINAL pathogens:

- **Candida**
- **Bacterial vaginosis**
- **Trichomonas**

CHLAMYDIA:

Commonest cause of discharge in Australian women

GOT RASH?

Its probably just a non-infectious

DERMATITIS

Vaginal Discharge is usually NOT a Sexually Transmitted Disease:

Instead, a natural flora imbalance eg. after antibiotics. (A.K.A. bacterial vaginosis)

Cervical Discharge is ALMOST ALWAYS A SEXUALLY TRANSMITTED INFECTION

Pertinent Findings on History

- **Sexual history all-important!**
- **Contraceptive use :**
- **describe HOW and WHAT is used;**

WHAT they did, HOW LONG AGO, etc; → PLUS DETAILS OF HYGIENE

ASK FOR A HISTORY OF SEXUAL CONTACTS:

Public health responsibility = notify + treat them all
 its not the number of partners. but the qualitiv (risk cateqorv) of the intercourse

ALSO NEED TO KNOW:

Age of first intercourse

Sexual preference (? High risk practices?)

Other partners: did they have multiple partners?

Had sex outside Australia? (STD risk countries)

History of sexual assault?

- **Date of 1st period**
- **Regularity of periods henceforth**
- **Previous pregnancies**
- **Last PAP smear**
- **Past infections of the urinary tract**
- **DRUG and ALCOHOL HISTORY**

Herpes virus is EXTREMELY VULNERABLE to simple soap

Findings on Examination

- **TEMPERATURE (!!)**
- **Abdominal tenderness**
- **OBSERVE the external genitalia and TAKE A SPECULUM SPECIMEN OF ENDOCERVICAL MUCUS** and of whatever else that seems interesting
 - the **OS OF CERVIX: Discharge? Ulceration? Contact bleeding?**
- **Cervical Motion Tenderness + BILATERAL ADNEXIAL TENDERNESS**
- **Big question: how far north has it spread?**

Explain embarrassing procedure in detail!!

Table 24-1. ANATOMIC DISTRIBUTION OF COMMON FEMALE GENITAL INFECTIONS

Organism	Source	Location and Manifestations of Infection				
		Vulva	Vagina	Cervix	Corpus	Adnexa
Herpesvirus	STD	Herpetic ulcers				
Molluscum contagiosum	STD	Molluscum lesions				
HPV	STD	Genital warts, intraepithelial neoplasia, invasive carcinoma				
<i>Chlamydia trachomatis</i>	STD			Follicular cervicitis, endometritis, salpingo-oophoritis		
<i>Neisseria gonorrhoeae</i>	STD	Skene gland adenitis	Vaginitis in children	Acute cervicitis	Acute endometritis and salpingitis	
<i>Candida</i> <i>Trichomonas</i>	Endogenous STD	Vulvovaginitis		Cervicovaginitis		

Diagnostic Criteria	Normal	Bacterial Vaginosis	Vaginitis Trichomonas	Candida Vulvovaginitis
Vaginal pH	3.8 - 4.2	> 4.5	4.5	< 4.5 (usually)
Discharge	White, thin, flocculent	<u>Thin, white (milky), gray</u>	<u>Yellow, green, frothy</u>	<u>White, curdy, "cottage cheese"</u>
Amine odor "whiff" test	Absent	fishy	fishy	Absent
Microscopic	<u>Lactobacilli, epithelial cells</u>	<u>Clue cells</u> , adherent cocci, no WBC's	<u>Trichomonads</u> , WBC's >10/hpf	<u>Budding yeast, hyphae, pseudohyphae</u>

Tests and Investigations

Must consider local disease epidemiology

Target the tests to what is prevalent eg. Chlamydia in Australia

SCREENING THE ASYMPTOMATIC PATIENT: a ROUTINE WORK-UP

Testing the "At Risk" population:

MALE:

Gram stain swab of urethral discharge.

CULTURE THESE MICROBES:

- *Neisseria gonorrhoeae* (NG) :
- *Chlamydia trachomatis* (CT),

Rectal & throat swabs for NG and/or CT as indicated by sexual behaviour.

FEMALE: *endocervical swab*

Gram Stain, MICROSCOPY + CULTURE these microbes:

- *Neisseria gonorrhoeae*
- *Chlamydia trachomatis*
- *Trichomonas vaginalis*
- Bacterial vaginosis
- *Candida fungus*

KOH whiff test + pH!

Rectal & throat swabs for NG and CT as indicated by sexual behaviour.

Cervical Pap smear as indicated.

ROUTINE SEROLOGY FOR BOTH SEXES:

Syphilis (possible screening tests include RPR, VDRL, ELISA, TRUST, TPHA),

Hepatitis B (anti-Hbc; anti-HBs and HbsAg as indicated, Hepatitis C - anti-HCV - and Hepatitis A - anti HAV, as indicated).

HIV (anti-HIV).

The role of accurate serological tests for HSV-1 and HSV-2 in screening for genital herpes infection is not yet well defined.

TESTS and INVESTIGATIONS:

Presentations	Causes	Investigations
Urethral discharge / dysuria	NG ; CT; T. vaginalis Mycoplasma genitalis Ureaplasma urealyticum	Gram stain swab of urethral discharge. Detection of NG and CT by culture of urethral swab, or NAA of sample of urine or urethral swab.
Vaginal discharge	NG CT T. vaginalis C. albicans bacterial vaginosis (BV)	Vaginal pH and "whiff" (KOH) test of vaginal fluid can be useful bedside tests to help diagnose candidiasis and BV. Vaginal swab for wet mount microscopy & gram stain for diagnosis of trichomoniasis, candidiasis and BV and culture / NAA as indicated. Endocervical swab for gram stain & culture/NAA for NG and CT (urine & vaginal samples can be used for NAA).
Genital Ulceration	Herpes simplex virus 1 syphilis (<i>T. pallidum</i>) chancroid (<i>H ducreyi</i>) donovanosis (<i>C. granulomatis</i>) lymphogranuloma venereum (<i>C trachomatis</i> serovars L1-L3)	Dark ground microscopy & serology for syphilis; culture or antigen detection from swab of lesion for HSV; gram stain and culture for chancroid; Chlamydia test for LGV and serology; biopsy and histopathology for Donovanosis.
Lower Abdo Pain	Pelvic inflammatory disease: NG, CT, others	tests for gonorrhoea and chlamydia (as above in STD screen) pelvic ultrasound, laparoscopy as indicated Exclude ectopic pregnancy using a pregnancy test
Swollen testicle	Epididymitis (NG, CT, urinary pathogens eg. <i>E. Coli</i>)	Tests for urethral NG and CT Scrotal ultrasound: Exclude torsion of the testis
Genital lumps	Human papillomavirus (HPV) Molluscum contagiosum	Clinical; biopsy if atypical
Conjunctivitis	NG; CT	Culture / NAA from conjunctival swab
Genital infestations	Scabies (<i>Sarcoptes scabiei</i>) Pubic lice (<i>Phthirus pubis</i>)	Clinical microscopy (low power)
Arthritis	Reiter's disease (non-gonococcal arthritis or sexually acquired reactive arthritis (SARA) (CT others) Gonococcal arthritis (NG)	Culture / NAA for urethral, throat or rectal NG and CT Culture / NAA for NG, CT from joint aspiration as indicated
Rashes	C. albicans; T. rubrum 2 ° syphilis, NG; CT; HIV Kaposi's sarcoma genital dermatoses	Culture for fungi Serology for syphilis and HIV Culture / NAA for NG, CT from skin lesion as indicated Biopsy as indicated

IN SHORT:

!! MAKE SURE ITS NOT PREGNANCY!!

Any discharge requires Swab, culture, microscopy and gram stain

Any ulcers or rashes: Viral + syphilis antibody serology

Any abdo pain, swelling anywhere: Ultrasound + ? Laparoscopy

**You
can
use
PCR**

CONTACT TRACING - "Partner Notification"

relevant contacts are mainly those people that the index case has had sex with during the infectious period.

YOU DIAGNOSE IT = YOURE RESPONSIBLE: DUTY TO WARN

But also confidentiality agreement: THUS rely on patient to agree with you; "yes, those people should be told, Doc"

→ GET THE PATIENT TO DO IT! OR... It can be done by anonymity-preserving phone call from 3rd party

THUS → MAKE A REFERRAL TO AN APPROPRIATE HEALTH SERVICE → FOR SCREENING + TREATMENT

OBJECTIVES OF CONTACT TRACING:

- | | |
|---|---|
| a) to interrupt the transmission of infection; | c) to provide counselling to affect behaviour change; and |
| b) to identify people with an infection who may benefit from treatment; | d) more generally, to identify and reach populations at risk. |

CONTACT TRACING PRIORITIES: basically, everything high except for herpes and warts

Condition	Priority	Rationale
AIDS/HIV infection	Medium for gay men	Known partners are traced but targeted education and screening are more important for this population
	High for all others	Low prevalences reduce awareness among other populations increasing the importance of contact tracing.
Chlamydial infection	High	Most infected contacts are asymptomatic, curable, and at risk of serious complications.
Genital herpes	Low	While regular partners may benefit from counselling, there is limited direct benefit in assessing asymptomatic contacts.
Genital warts	Low	As for genital herpes
Gonorrhoea	High	Contacts usually asymptomatic, curable, and at risk of serious complications. Often a HIV risk marker.
Hepatitis B	High	Contacts usually asymptomatic, can be protected by vaccination, and are at risk of serious complications.
Pelvic inflammatory disease	High	Most male partners have sub-clinical non-gonococcal urethritis. Repeat infection for the woman has serious consequences.
Syphilis	High	As for Gonorrhoea

AZITHROMYCIN IS THE V.D. KING!!

= a Macrolide; (interferes with protein synthesis) = sequestered in leucocytes and therefore available at the site of infection in higher concentrations than serum levels.

Management

CHLAMYDIA

use either **DOXYCYCLINE 100mg bd for 7-10 days**
or **AZITHROMYCIN 1g single dose**

if that fails, attack with **ERYTHROMYCIN 500 mg** for 14 days

GONORRHOEA

!! *Neisseria Gonorrhoeae* **QUICKLY ADAPTS TO ANTIBIOTICS**
CEFTRIAZONE 250 mg intramuscular single dose,
OR **CIPROFLOXACIN 500 mg oral single dose**

CANDIDIASIS

its only fungus- use **TOPICAL CLOTRIMAZOLE** or **ECONAZOLE**
ORAL KETOCONAZOLE or **FLUCONAZOLE**

BACTERIAL VAGINOSIS

its only stinking anaerobes: **METRONIDAZOLE 2g orally single dose**

HERPES

VALACYCLOVIR 500mg bd for 5-10 days

ACYCLOVIR 200mg 5 times a day for 5 – 10 days

Patients with repeated recurrences will need suppression therapy

GENITAL WARTS (HPV)

Burn, freeze, chop or **electrocauterise the wart.** Recurrence in 60%

SYPHILIS

DOXYCYCLIN or **PENICILLIN** intramuscular for 10-14 days

BIZARRE TROPICAL DISEASE

Most tropical infections respond to **AZITHROMYCIN**

Epidemiology + Public Health Issues of Sexual Transmission

Probability of transmission:

**ITS NOT YOUR NUMBER OF PARTNERS:
ITS THEIR QUALITY eg. where have they BEEN??
*But most people are MONOGAMOUS anyway***

HPV	>60%
T. pallidum	20-50%
N. gonorrhoeae	20-50%
HIV	<1%

Efficacy of condoms:

STRATEGIES FOR CONTROL:

- **Reduce transmission efficiency**
Eg. barrier devices, pre-exposure prophylaxis
- **Reduce number of new sexual partners**
Eg. Sex education in schools, safe sex messages, its illegal to sell alcohol in brothels
- **Reduce duration of infectiousness**
Contact tracing, routine screening, education of the public in regards to early symptoms

HIV infection	> 90%
Gonorrhoea	> 90%
Chlamydial infection	> 90%
Hepatitis B	? > 90%
Syphilis	? 50 - 90%
Genital herpes	? 20 - 50%
Genital warts	? 20 - 50%
Hepatitis A	0

You are at GREATER RISK if you are on the RECEIVING END of intercourse

LOWER ABDO PAIN: is it pregnancy? PREG. TEST IS MANDATORY

→ Pregnancy related causes of pain include

miscarriage (threatened, incomplete, complete or septic),
Rupture or haemorrhage of the corpus luteum in the ovary
Ectopic pregnancy, where the conceptus is implanted outside the uterus
untreated ectopic pregnancy = catastrophic intraperitoneal haemorrhage if the placenta invades a blood vessel.

→ Its probably pregnancy if there is

- amenorrhoea
- breast tenderness
- urinary frequency
- morning sickness
- History of unprotected sex

Non pregnancy related causes of pelvic pain, classified by structure:

1. **ovarian** - cyst (benign or malignant), infection, haemorrhage into cyst, torsion of enlarged ovary. endometriosis (endometrial tissue within the ovary), rupture of a cyst as occurs at ovulation (usually pain is limited to 1-2 hours)
2. **tubal** - infection/inflammation
3. **uterine**- endometritis, degenerating fibroid, prolapse, period pain (dysmenorrhoea)
4. **vaginal** - infection/inflammation eg precipitated by foreign body (retained tampon)
5. **peritoneum** - infection/inflammation, endometriosis, carcinomatosis, ?pelvic congestion
6. **bowel** - constipation, infection, inflammatory bowel disease, irritable bowel, prolapse
7. **bladder** - infection/inflammation, prolapse
8. **referred pain** - eg: from thoraco-lumbar spine

THE PREGNANCY TEST:

Trying to detect the B subunit of the **HUMAN CHORIONIC GONADOTROPIN** (placental hormone; v. specific)

As blood or protein can interfere with the result of the urinary test, the blood test is used in the emergency situation;

Blood test works 7-10 days after conception

Urine test takes 4 weeks to work

YOUNG PEOPLE AND HEALTH BEHAVIOUR: another Susan Hayes pearl

Health behaviour =

- 1) the actions people directly engage in to enhance or protect their health, e.g. vaccinations
- 2) the actions people avoid in order not to harm their health e.g. not smoking

HEALTH BEHAVIOUR IS INFLUENCED BY YOUR HEALTH BELIEFS: 3 theories

health belief model,

people will engage in health behaviour when

- a) they believe they are **susceptible to an illness,**
- b) they believe that the **consequences of an illness are severe,**
- c) they believe that the **benefits outweigh the costs** of enacting the behaviour,
- d) they are **cued to action e.g. they experience symptoms,** they are socially influenced to act or health education campaigns prompt them to act,
- e) they are **motivated or ready to be concerned** about health matters.

health locus of control construct

if you believe that you're in control, you will do something to improve your health.

If you believe that your health is not under your control, why bother?

and self-efficacy theory.

Its just the above two theories plus **the belief that you are ABLE TO DO SOMETHING ABOUT YOUR HEALTH (optimistic self-belief)**

70-90% of young people in Western countries see a health service at least once a year.

GIRLS MORE OFTEN THAN BOYS

OLDER MORE OFTEN THAN YOUNGER

young people will not use services if:

a) they believe *the doctor will not maintain confidentiality*

and in particular may tell their parents about the consultation,

b) they think *the doctor will be judgmental and not respect their wishes,*

c) they are *embarrassed about their presenting condition*

(female adolescents express a strong preference for female doctors in sexual health matters).

CONFIDENTIALITY and age of consent

When not to respect confidentiality:

- reporting child abuse or neglect
- public health safety (eg. ebola or HIV)
- when the patient consents to it

YOU DO NOT TELL ANYTHING
TO THEIR FAMILY, EVER !!

WITH ADOLESCENTS: you can dob them in to their parents ONLY IF:

- Its in the greater interest of the young person (or their parents) – eg. risk of infection
- OR if the parents will be responsible for health care decisions on their kids behalf

YOU DO NOT NEED TO TELL THE PARENTS IF:

- The teenager will **UNDERSTAND YOUR ADVICE**
- The teenager cannot be persuaded to tell them him/herself
- The teenager's best interests involve the parents not knowing (eg. threat of abuse)

CONSENT: 4 bodies who can give consent for a minor:

- (a) a parent of the child
- (b) a person to whom the parent has given the right to give consent
- (c) a legally appointed guardian of the child,
- (d) a court with the appropriate jurisdiction to make such a decision

EXCEPTIONS TO THIS RULE:

- Emergencies where you cant delay lifesaving treatment
- Over 14s can consent to non-serious treatment (provided they understand it)
- Special procedures (eg. tube ligation, addictive non-cancer drugs,)
= need green light from Supreme Court

EMBRYOLOGY OF FEMALE GENITALIA: in simple steps

1. Primordial germ cells (proto-spermatogonia and oogonia) @ wall of yolk sack
2. 3rd - 4th week: **amoeboid migration into the mesoderm**
3. End up near the developing spinal column
4. **WAIT FOR THE RIGHT GENE: Y-chromosome means Sertoli cells + Leydig cells**

GIRL IS THE DEFAULT SETTING FOR A BABY

Sertoli cells secrete **anti-Mullerian hormone**

Leydig cells make **Testosterone**

Anti-Mullerian Hormone + Testosterone →

→ differentiation of genitalia into scrotum + penis

5. **BUT!!** No chromosome Y, no Anti-Mullerian Hormone, no testosterone...
→ the gonads will be female!
6. The ova will then divide like crazy (seven million @ mid-gestation)
7. **SIXTHS WEEK OF GESTATION:** paired ducts

Mesonephric (Wolffian) + paramesonephric (Mullerian) ducts

Wolffian duct = Everything female except the lowest two-thirds of the vagina

@ week 12: boys + girls still looks the same externally

in presence of maternal estrogens, the folds around the urogenital opening differentiate

- *Clitoris develops from the genital tubercle (by slight elongation)*
- *Labia minora develop from the genital folds (by remaining separate)*
- *Labia majora develop from the genital swellings (by enlarging greatly)*
- *Vestibule develops from the lower most part of the urogenital sinus.*

In the male:

- the genital tubercle enlarges to form the penis,
- the urethral folds fuse on the ventral side of the penis to form the penile urethra
- the genital folds fuse to form the scrotum.

Moral of the story:

- **We are all female by default until the Y chromosome interferes**
- **The development of one set of gonads inhibits development of the other**
- **WOLFFIAN vs MULLERIAN ducts: week SIX**
- **External gonads: WEEK TWELVE**

Pelvic Inflammatory Disease: anything from the uterus up

IN AUSTRALIA → CHLAMYDIA MOST PREVALENT

- = endometritis
- = salpingitis with scarring of the inner and or outer linings,
- = tubo-ovarian abscesses
- = peritonitis
- = adhesions at liver capsule (Fitz-Hugh Curtis Syndrome)
- = peri-appendicitis.

SEQUELAE: sub-fertility, ectopic pregnancy, chronic pain,

Two peaks of incidence:

YOUNG SEXUALLY ACTIVE WOMEN

- Get cervix infected, then PID in days or weeks

ANCIENT CRONES

- Normal anaerobes, not STDs
→ tubo-ovarian abscesses

CLINICAL DIAGNOSTIC CRITERIA:

- lower abdominal pain (of less than 3 weeks),
- lower genital tract infection,
- cervical motion tenderness

and **at least one of**

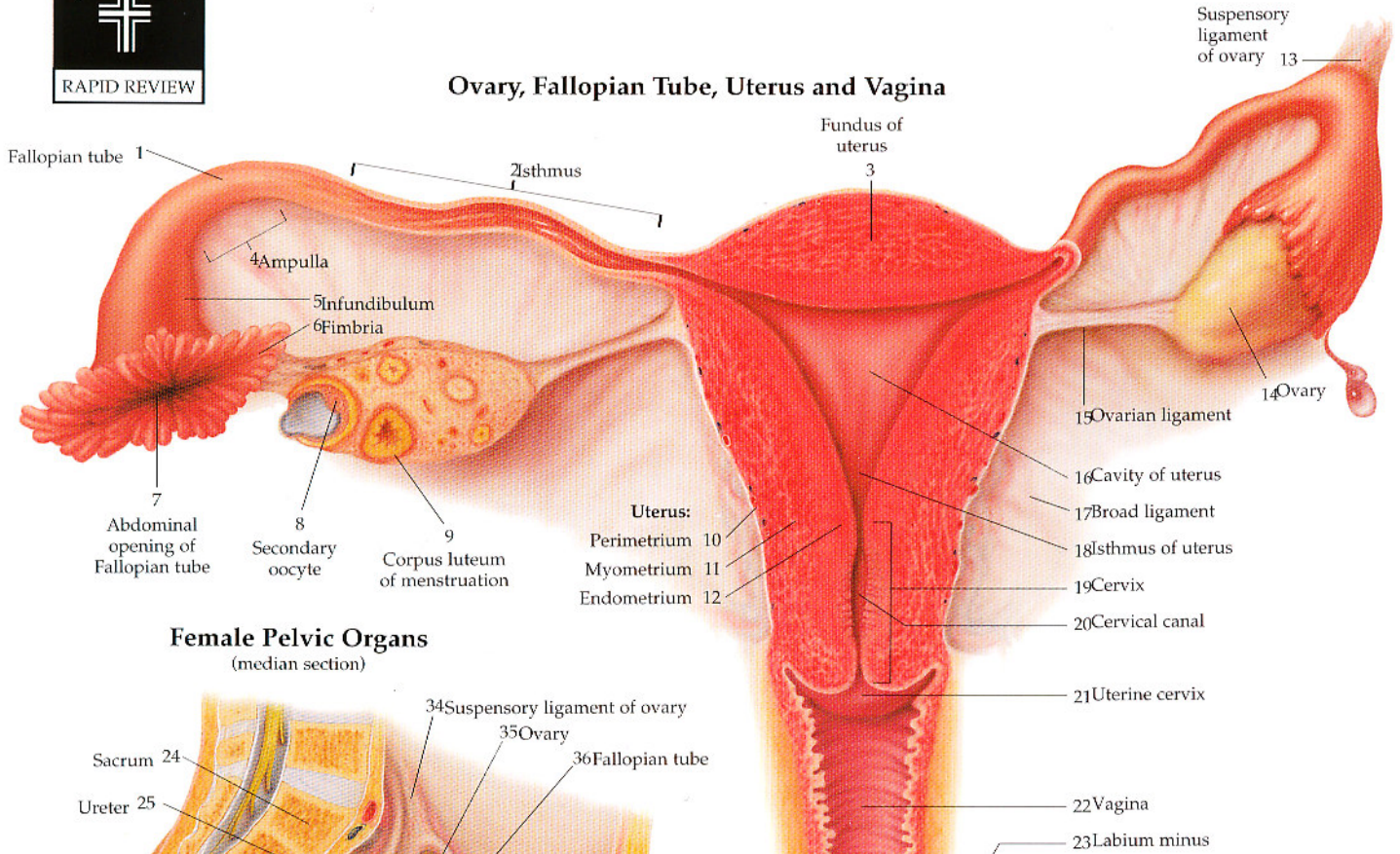
1. raised ESR,
2. raised temperature
3. palpable mass.

DEFINITIVE DIAGNOSTIC CRITERIA: Endometrial Biopsy, Trans-vaginal Ultrasound and Laparoscopy.

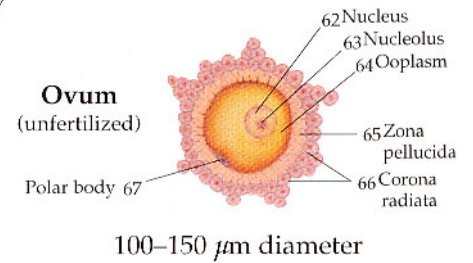
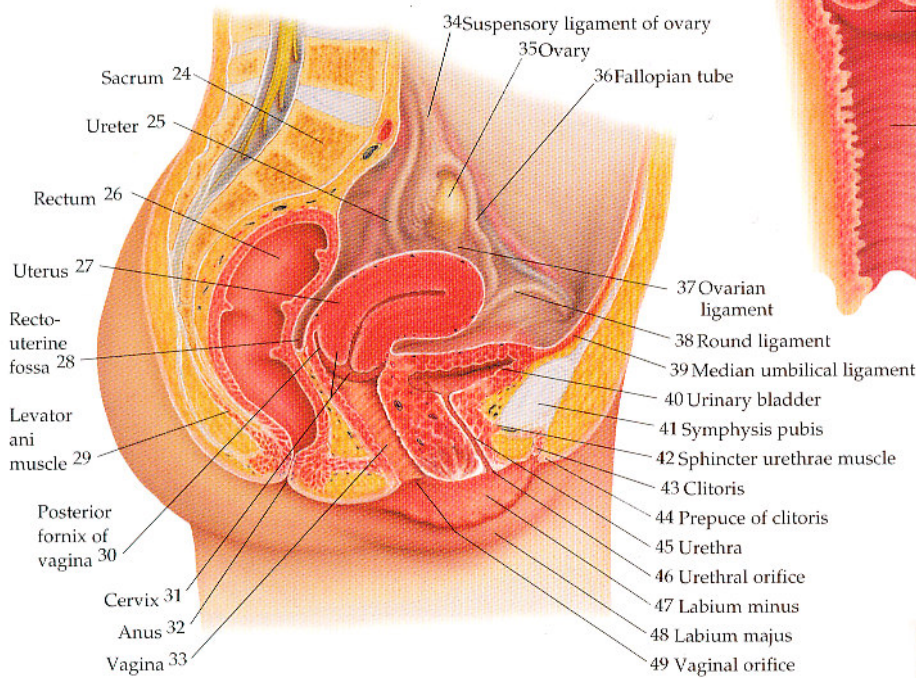
Screening individuals with high risk factors for chlamydia has shown to be beneficial in preventing chlamydial PID. This would include young women, and women with new partners or any new symptoms.



Ovary, Fallopian Tube, Uterus and Vagina

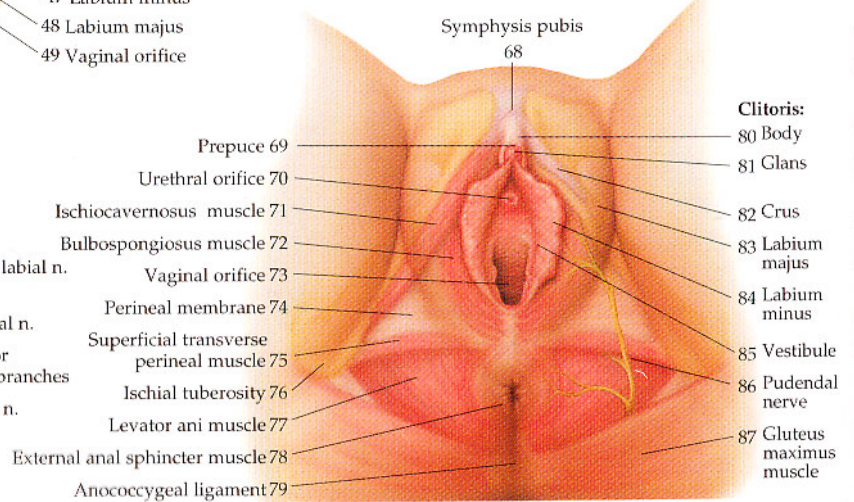
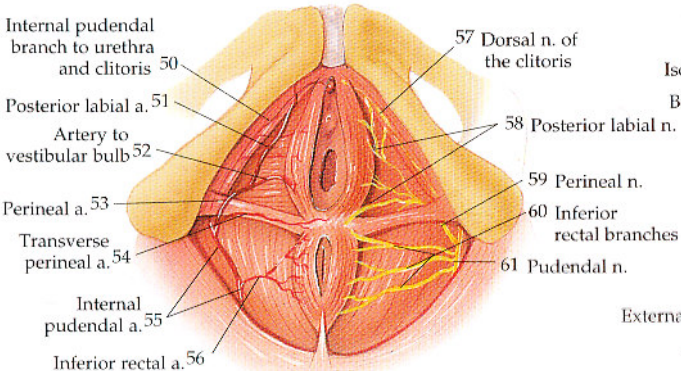


Female Pelvic Organs (median section)



Perineum

Perineal Vessels and Nerves



PATHOGENESIS of Chlamydia and Pelvic Inflammatory Disease

INTRODUCED BY INTERCOURSE

ELEMENTARY BODY:
metabolically inactive form;
Gram negative (i.e there is an LPS wall but NO PEPTIDOGLYCAN); a UNIQUE STRUCTURE which prevents phagocytosis

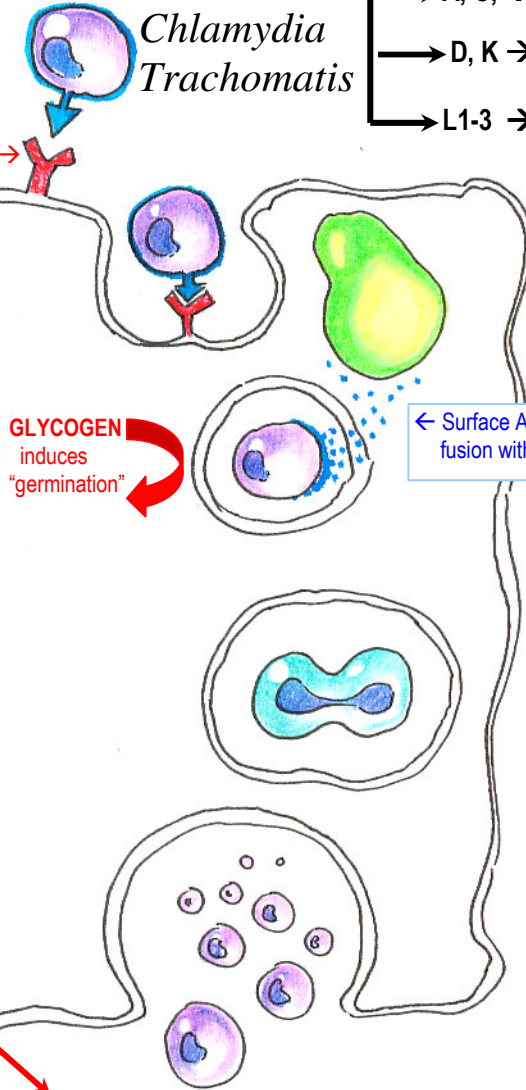
Serotypes:

- A, C, → endemic trachoma, blindness
- D, K → typical STD, + conjunctivitis
- L1-3 → Lymphogranuloma Venereum

Attaches to Sialic Acid Receptor →

ENDOCYTOSIS into SQUAMO-COLUMNAR MUCOSA

- EYES
- THROAT
- GENITALS



6-8 hours of metabolic inactivity

24 hours of germination

7 to 21 days of incubation

GERMINATES into "Reticulate Body"
Then: BINARY FISSION every 2-3 hrs
UNTIL about 100 to 1000

EXOCYTOSIS out of cell =return to elementary body form

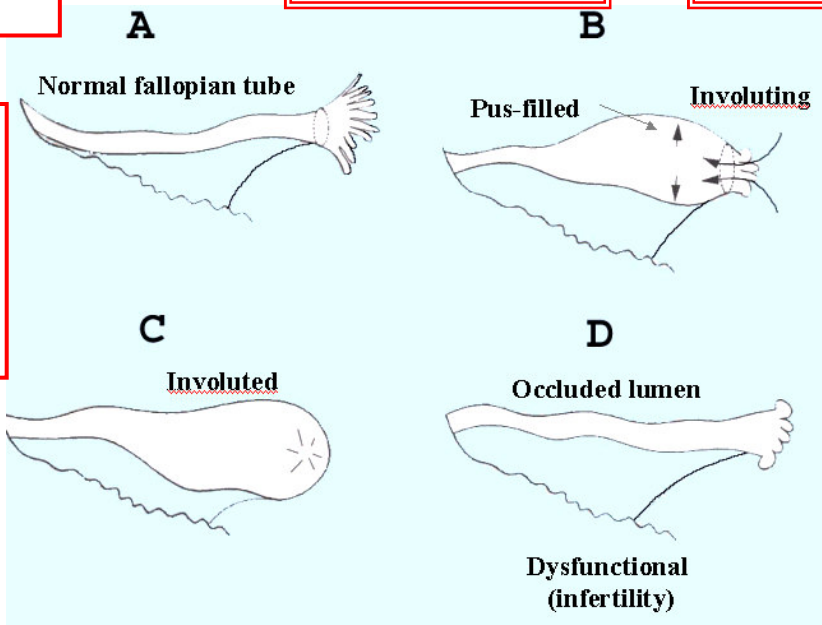
HUMOURAL IMMUNITY:
Antibodies form against a 57kD Heat Shock Protein

? cross-reactivity with human self antigen ?
? propulsion up the genital tract?

INFLAMMATION
@ external os of cervix + conjunctiva or anus

DISCHARGE
of exudate

- SALPINGITIS
- PERITONITIS
- ADHESIONS OF HEPATIC PERITONEUM (Fitz Hugh Syndrome)



Months until complications;

If untreated, **YEARS OF INFECTIOUSNESS**