

# Prevention and treatment of sexually transmitted diseases

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# Content

- Concept of STD and common sexually transmitted diseases
- Clinical manifestation of common STDs
  - Precautionary measures
  - Therapeutic principle



# **Concept of STD and common sexually transmitted diseases**



➤ The incidence of sexually transmitted disease (STD) is growing very fast not only in advancing countries but also in advanced countries. It was regarded as a main hazard to human health which can cause both serious worldwide social economic problems and public health problems.



STDs are a series of transmissible diseases which infected through sexual activity or indirect contact transmission. STDs can affect both genitourinary apparatus and many other organs through lymphatic system or hematogenous dissemination.



# Classics venereal diseases

- Diseases which spread mainly through sexual intercourse were named classics venereal diseases in the past. Classics venereal diseases include five diseases as below:
  - syphilis
  - gonorrhoea
  - chancroid
  - granuloma inguinale
  - venereal lymphogranuloma



# Sexually transmitted disease

In 1975, the name sexually transmitted disease was given for a series of transmissible diseases which infected through sexual activity or indirect contact transmission by WHO. Thus the limit of venereal disease was enlarged. STDs also include the following diseases beside the above mentioned 5 classic venereal diseases:



- nongonococcal urethritis
- vaginitis
- genital herpes
- molluscum contagiosum
- Condyloma acuminatum
- trichomoniasis
- Candidiasis of the genitals
- scabies
- pediculosis inguinalis
- AIDS (acquired immuno deficiency syndrome)
- cytomegalovirus infection
- amebiasis
- tinea cruris ,etc



➤ Venereal diseases widely spread nowadays mainly include : syphilis、 gonorrhea、 nongonococcal urethritis、 genital herpes、 Condyloma acuminatum、 vaginitis、 chancroid、 venereal lymphogranuloma、 AIDS、 concurrent infection among sexually transmitted diseases



# Route of transmission

- sexual behavior (directly dissemination) the main mode of transmission, account for above **95% of the whole cases**
- indirect dissemination
- spread though blood and blood products
- organ transplantation
- atrogenic infection: germ-carrying medical appliance
- **spread though placenta**
- **spread though obstetric canal**
- ascending infection: birth membranes、 amniotic fluid

# **Clinical manifestation of common STDs**



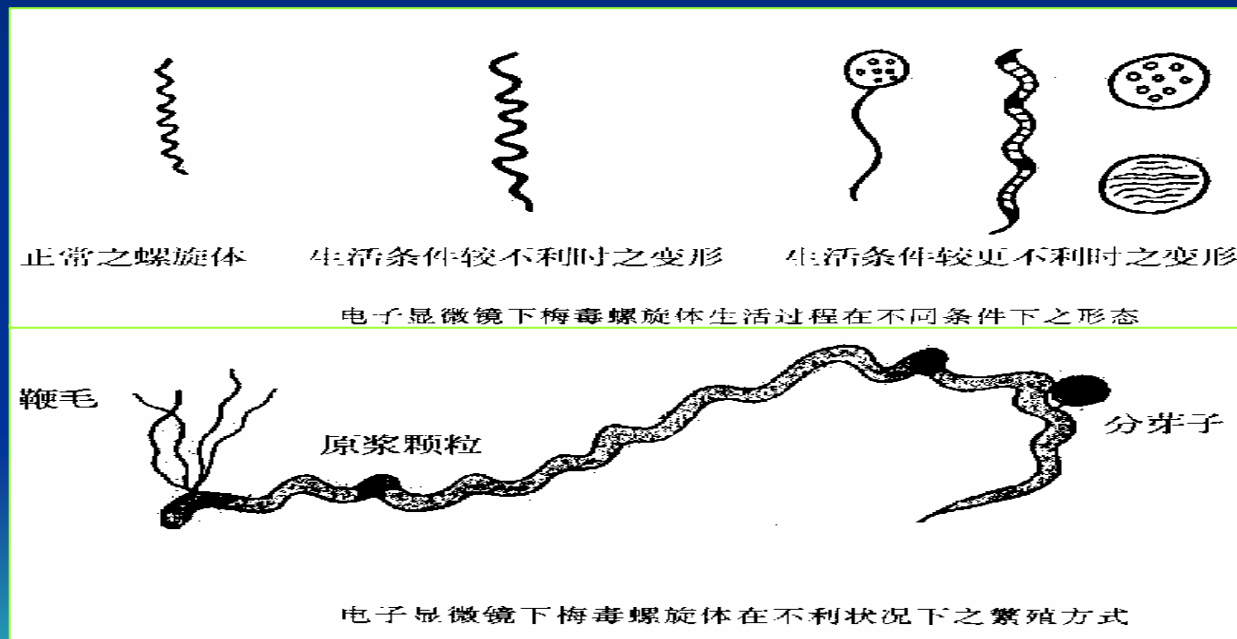
# Syphilis

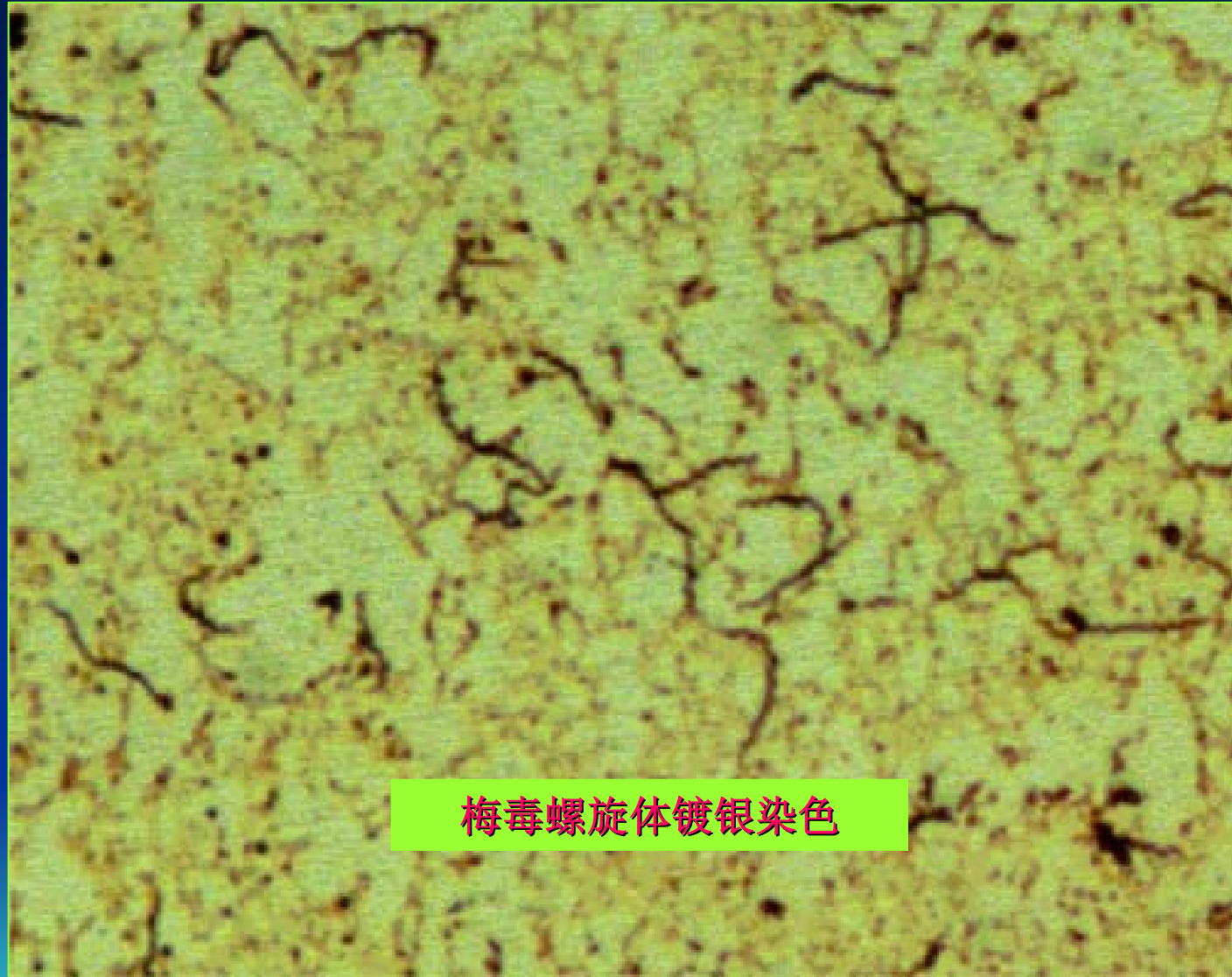
- Syphilis is caused by the *treponema palidum*. mainly infected through sexual behaviour or placental infection. Organs all over the body can be affected.



# Etiopathogenesis

- The pathogen is *Treponema pallidum*. It is also called *Spirochaeta pallida*.





梅毒螺旋体镀银染色

# Clinical manifestation

- acquired syphilis
  - ◆ primary syphilis
  - ◆ secondary syphilis
  - ◆ tertiary syphilis
- congenital syphilis
  - ◆ morning congenital syphilis
  - ◆ advanced stage congenital syphilis
  - ◆ congenital latent syphilis



# Primary syphilis

- Main feature of is chancre
  - hardness as cartilage
  - single or several
  - without subjective symptom
  - pink color of surface, secretion is parum
  - a great quantity treponema pallidum exist in the ulceration
  - regional lymphadenopathy
  - spontaneous cure after 3~4 weeks





一期梅毒（示硬下疳）

何春淦 提供





# Secondary syphilis

## ➤ Clinical manifestation of secondary syphilis

Pleomorphism of the lesions: macula, maculopapule, papule, scale, usually occur in 3-4 weeks after extinction of hard chancre, precursory symptom includes low-grade fever, headache, nostalgia, neuralgia, ache of four limbs usually occur before eruption, last for 3-5 days, relieve after eruption



## ➤ Clinical characteristic of secondary syphilis

- ◆ The eruptions are polymorphous, generalized, have clear boundary
- ◆ Both skin and mucosa can be involved
- ◆ Condyloma in anus and external genitals
- ◆ Accompanied with leukodermis, alopecia
- ◆ Lesions extinct automatically
- ◆ Scarce subjective symptom





二期梅毒（手掌鳞屑型红斑）

于建斌 提供



二期梅毒（跖部鳞屑型红斑）

于建斌 提供



二期梅毒（肛周扁平湿疣）

于建斌 提供



二期梅毒（黏膜损害）

于建斌 提供

# Tertiary syphilis

- 2 years after infection, the latest can be 20years.  
The constituent ratio was about 30% in all syphilis patients
- Clinical characteristic of clinical characteristic of secondary syphilis
  - ◆ slow-moving course of disease
  - ◆ viscera、 skeleton、 entral nervous system all can be affected besides skin and membrana mucosa



# Clinical characteristic of tertiary syphilis

- Several lesion, asymmetry distributed, it is hard to find TP in the lesion
- no infectiousness
- severe histoclasia, severe tissue defect or organ damage may occur
- The positive ratio of serum reaction of lipid antigen is about 80%







# Syphilis congenita

- Syphilis congenita is acquired from a mother with early syphilis. It is generally believed that syphilis congenita rarely occurs before 4 months in infants because the immune system has not fully developed.



# Clinical characteristic of syphilis congenita

- No sulcus chancr occurred, already in the second stage after birth
- Early pathological changes are severe than acquired syphilis, but later changes is lighter
- It is common that cardiovascular system affected ,also
- In eye、 ear、 nose
- It is common that physical development affected and skeleton damaged





早期先天梅毒

樊翌明 提供



早期先天梅毒

于建斌 提供

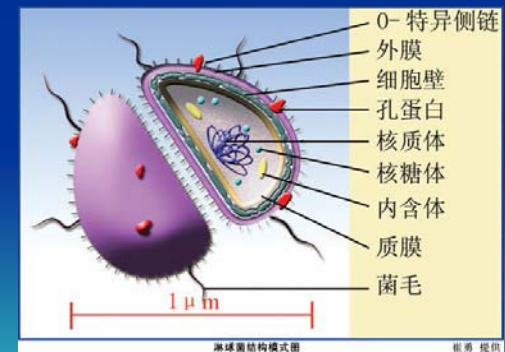
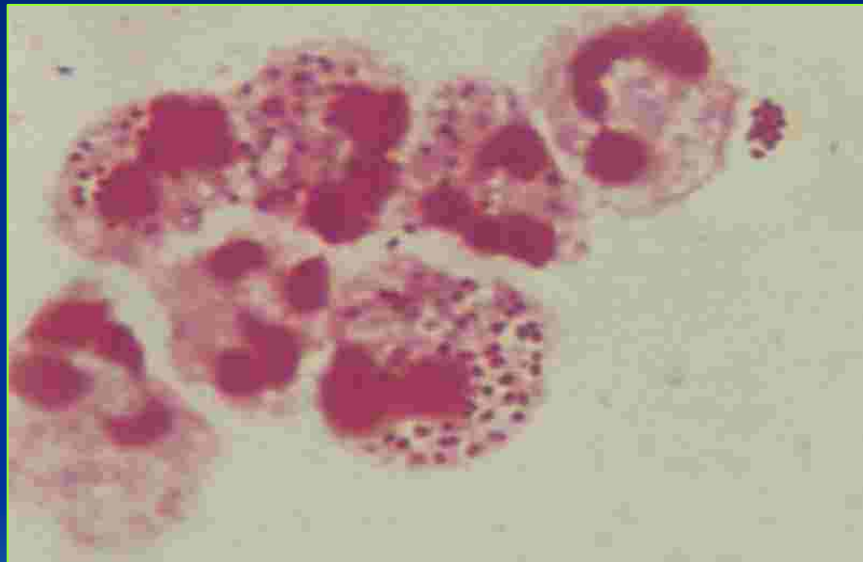


晚期先天梅毒 (Hutchinson齿)

樊翌明 提供

# Gonorrhoea

Etiopathogenesis: N. Gonorrhoeae



# Clinical manifestation of gonorrhoeal

- gonorrhoeal in male patients
- gonorrhoeal in female patients
- gonorrhoeal in infant patients
- other situations



# Gonorrhoeal in male patients

➤ Latency is 1-10 days, 3-5 for average

Begins with frequent micturition, urgency, odynuria, dysuresia, follows with balanitis, gonococcal fistula and lymphadenectasis in inguinales,

later with posterior urethritis, frequent micturition, urodialysis, blood urine in the end, pyuria is scarce. Constitutional symptoms such as hyperpyrexia, shiver may occur in several patients

# Complications

- prostatitis
- antiparastatitis
- epididymitis
- vesiculitis
- ankylo-urethria developed in later stage





gonococcal urethritis



Gonococcus fistula in penis



Urethritis, accompanied with balanitis



Double gonococcus fistula in glans



淋菌性尿道炎（男性，急性）

杨森 提供



**淋菌性附睾炎**

# Gonorrhoeal in female patients

- ◆ Urethritis: symptoms are not obvious
- ◆ Cervicitis: Acute erosive cervicitis occurs in 10~20% patients
- ◆ Others: pelvic inflammation、bartholinitis、endometritis、salpingitis、infertility、exfetation, etc



# Complication

- pelvic inflammation
- bartholinitis
- endometritis
- salpingitis
- infertility and ectopic pregnancy



# Gonorrhoea in infant patients

- Gonococcal vaginitis in young girl  
red swelling of vulva, pain, purulent secretion in vagina
- gonococcal conjunctivitis in neonatus  
Occur in 2-3 days after birth, common in both side  
Swelling eyelid, conjunctival congestion and Pyorrhoea



新生儿淋菌性结膜炎



幼女淋菌性阴道炎



# Others

- Gonorrhoea of rectum and throat  
Caused by heterosexual or homosexual promiscuity
- May accompanied with endocarditis, meningitis and arthritis
- Gonococcal dermatitis

# NonGonococcal Urethritis

- nongonococcal urethritis has obvious symptom of urethritis, but gonococcus can not be found in film preparation and cultivation
- Pathogen: Chlamydia trachomatis、mycoplasma urealytium etc.

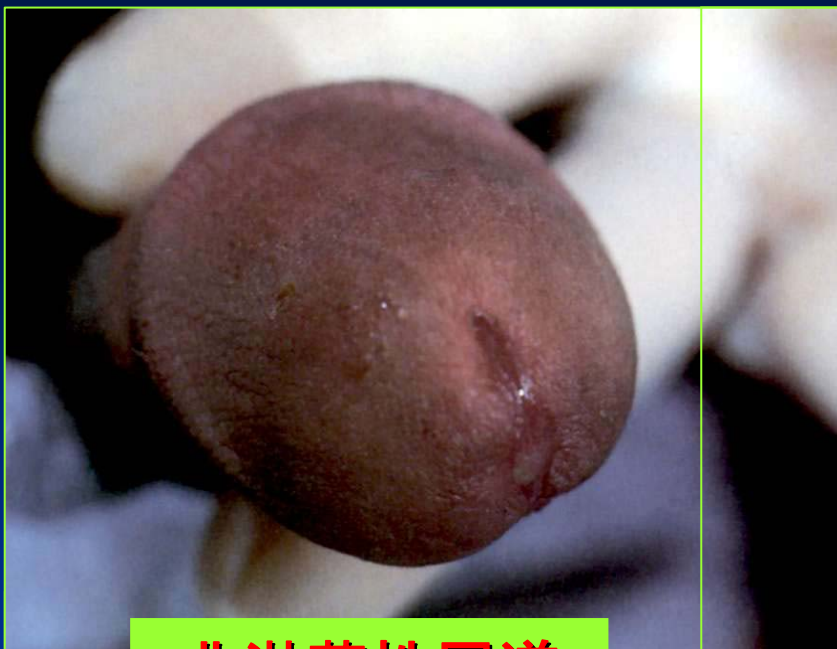


# Clinical manifestation

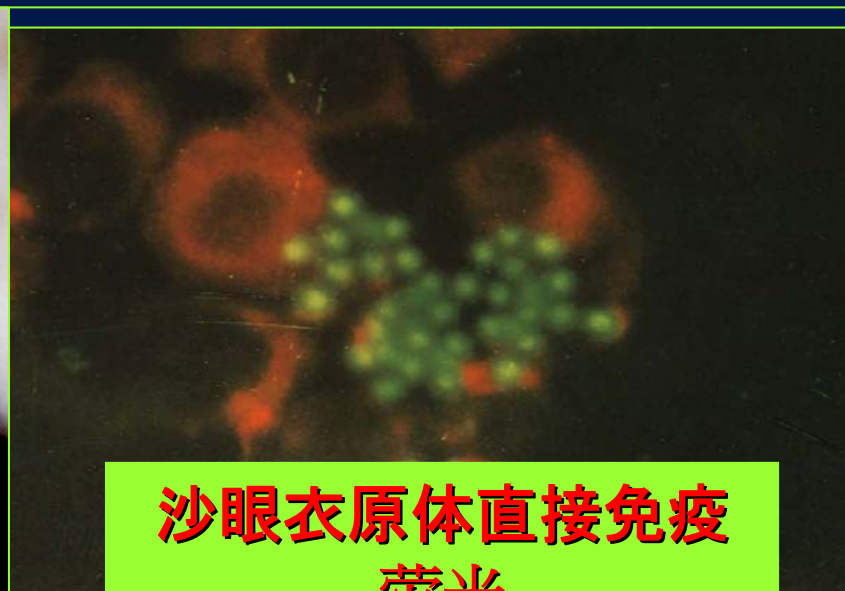
- Delitescence is 1-3 weeks, manifestation in male patients is urethritis which is lighter than gonococcal urethritis. Many female patients have light cervicitis or increased leucorrhea or have no symptom at all.

Very rare patients may accompanied with Reiter symptom complex.





**非淋菌性尿道炎  
炎**



**沙眼衣原体直接免疫  
荧光**



**非淋菌性尿道炎  
尿道分泌物涂片可  
见大量Gram阴性  
杆菌**



非淋菌性尿道炎（男性，尿道口轻度红肿）

崔东斌 提供

# Condylomata acuminata

- Condylomata acuminata, also called genital warts, is induced by papillomavirus
- Pathogen:  
papillomavirus, has above 80 kinds of antigens. Type 6、 11、 40~44、 51 are belong to low danger type and 16、 18、 31、 33、 35、 39、 45、 55、 56 are belong to high danger type which have close relationship with canceration.



# Clinical manifestation

- **Location** : exterior genitalia、 anus. rarely appears in armpit、 fovea umbilicalis、 breast
- **Lesion**: looks like nipple or cauliflower, gray color, easy to hemorrhage
- **course of disease** vary from several months to several years, easy to recur
- **Some Genital wart** in vagina、 penis or crissum may transform to squamous cell carcinoma in 5-40 years.





尖锐湿疣（男性）

于建斌 提供





尖锐湿疣龟头包皮



尖锐湿疣尿道口



尖锐湿疣扁平型



尖锐湿疣女阴



尖锐湿疣尿道口、肛周

# Genital herpes

- **Genital herpes is a kind of common, easy to recrudescence sexually transmitted disease caused by herpes simplex virus II through sexual encounter.**



## Clinical manifestation

- Primary genital herpes:
  - Delitescence: 3-14 days.
  - Characteristic of lesions: sporadic or clustering arranged phlysis, anabrosis、ulcer
  - Distribution: exterior genitalia, crissum
  - Symptoms by systems: have a temperature, acratia, lymphadenectasis



➤ Recurrent genital herpes:

Recurrent in 1-4 months after the extinction of lesions of Primary genital herpes

➤ Sub-clinical genital herpes:

also called asymptomatic genital herpes, untypical lesion





生殖器疱疹（男性）

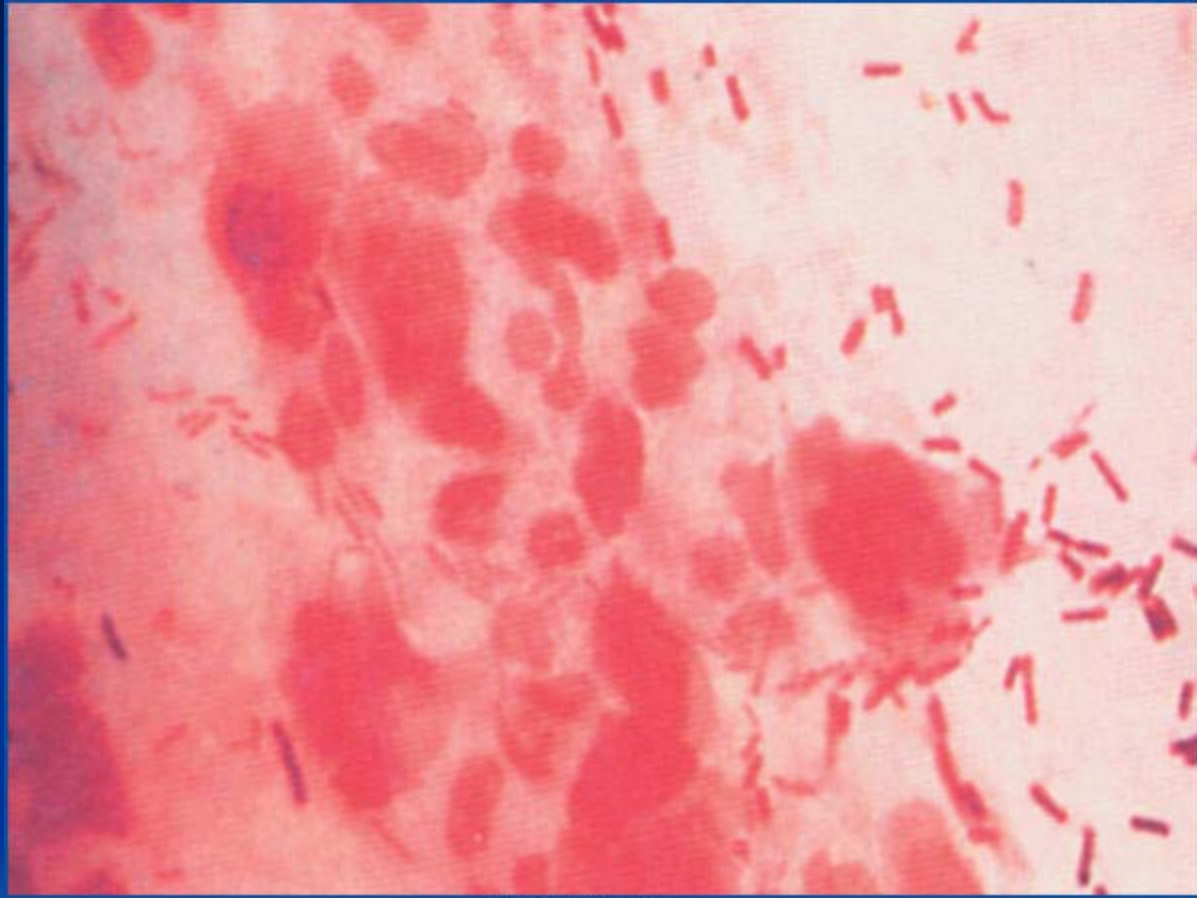
于建斌 提供

# Chancroid

➤ Chancroid is a kind of sexually transmitted disease caused by *Haemophilus ducreyi* through sexual encounter.

➤ Manifestations are multiple, aching ulcers in genitals, accompanied with intumescence, maturation, and affected inguinal lymph nodes.





杜克雷嗜血杆菌

## Clinical feature

- Delitescence: 2-3 days
- subjective symptom: pain
- Location: external genitalia or crissum
- Characteristic of the lesions: inflammatory papula → pustule → ulcer with unkempt borderline, granulo-granulation tissue at the bottom, a great quantity purulent secretion in the surface, foul smell, satellite ulcers locate around



# Complication

- lymphadenitis
- lymphangeitis occurred in phallosome
- leak of urethra
- ankylo-urethria
- elephantiasis in scrotum and penis



# Venereal lymphogranuloma

- Lymphogranuloma venereum is also called Lymphogranuloma inguinale, fourth venereal disease. It is commonly called ulcerous bubo, inguinal bubo, the majority of patients are male.



# Etiopathogenesis

- pathogen: L1、L2、L3 Chlamydia trachomatis
- Chlamydia trachomatis is the main pathogen which can cause infectious diseases in membrana mucosa, such as trachoma



# Clinical feature

- Delitescence: 1-4 weeks, 1 week for average
- Early symptom: ulcers
- intermediate stage symptom: slot sign



➤ advanced stage symptom: elephantiasis 、  
proctostenosis.

➤ constitutional symptom: lymphadenectasis、  
shiver、 hyperpyrexia、 arthralgia、 acratia、  
splenohepatomegalia、 erythema polymorphe、  
erythema nodosum、 conjunctivitis、 sterility arthritis  
meningismus.





性病性淋巴肉芽肿

叶顺章 提供



沟槽征

腹股  
沟淋  
巴结  
炎综  
合征

痕癥及肿芽肉疡溃

# Precautionary measures



- Countermeasure of prevention and cure for STDs nowadays is precaution crucial, combination of prevention and cure, composite management .



# Protective measure of social prevention

Propaganda and healthy education:

Object: crowd、 high risk group、 adolescent .



# Clinical protective measure

- Clinical protective measure should include infection sources, route of entry, anatomic site of the infection.



- Genital herpes is a kind of limit Disease of skin and mucous membrane, it can involve nerves and sensory ganglion;
- Systemic disease of STDs comprise of AIDS、 cytomegalovirus infection、 syphilis、 disseminate gonorrhoea. Humour and tissue of systemic diseases should be think as contagious.



# Measure in specific

- Transform of sexual behavior
- Monogamy which is an efficient way for protection of venereal disease is deserved to be advocated.



- Refrain from some mode of sexual behavior can reduce the risk of venereal diseases.
- Coitus in ano and finger-anal sexual behavior are more likely to damage the mucous membrane than sexual intercourse in vagina. So to avoid such sexual behavior can reduce the possibility of infection.



## Barricade method

- condom
- diaphragm contraceptive
- spermicide



## **Condom:**

Correct use of condom can prevent people from many venereal diseases efficiently including AIDS.



## Diaphragm contraceptive

Diaphragm contraceptive which was placed properly can act as a mechanical barricade to pathogenic bacteria .



## Diaphragm contraceptive

Diaphragm contraceptive may acts as a kind of chemical barricade to pathogenic bacteria and spermatozoa. active component of diaphragm contraceptive can blanch the pathogens of STDs in vitro.



## **Oral antibiotic**

oral antibiotic after sexual intercourse may have some effect for the prevention of STDs, but it is not suitable to recommend.



Adopt precautionary measures  
according to different venereal  
diseases



# Prevention of syphilis

- Enhance propaganda for prevention and cure of syphilis
- Emphasis is early discovery, early treatment, preventing dissemination.
- screen origin of blood, serological test of syphilis should be performed for every blood donor.
- serological test of syphilis should be performed in before marriage and antepartum

## Methods of examination

Primary syphilis and second stage syphilis:  
one of directly film preparation、dark field  
detection of TP, USR, RPR, VDRL,  
FTA-ABS, TPHA.

Advanced stage syphilis: serum positive in  
60% patients, hyper-brain pressure,  
protein in neurolymph increased, etc.



# Gonorrhoea

methods of examination

- 1. film preparation of secretion
- 2. Cultivation of *Neisseria gonorrhoeae*
- 3. Polymerase chain reaction (PCR)



# NGU

## Methods of examination

- Urethral secretions film preparation
- Direct fluorescent antibody method
- Cell culture



# Condyloma acuminatum

methods of examination

- Acetic Acid white test
- Pathology
- chain reaction and PCR



# Genital herpes

methods of examination

- Cultivation
- tissue culture
- Direct detection of virus antigen



# Chancroid

methods of examination

1.direct film preparation

2. cultivation



# venereal lymphogranuloma

methods of examination:

- microimmunofluorescence test
- Cultivation of chlamydia

# Therapeutic principle



# Therapeutic principle of syphilis

- precise diagnosis
- regular treatment
- follow up
- spouse and sex partner should be treated and examined at the same time
- sexual intercourse is forbidden during pretherapy and stage of therapy



## ➤ Treatment

Principle :early、 full dosage、 sufficient course. Penicillin is the best selection.

- ◆ early syphilis
- ◆ Advanced stage syphilis
- ◆ Syphilis in gestation

- ◆ Cardiovascular syphilis: aqueous penicillin G im, 100 thousand u for the first day, 200 thousand u for the second day, 400 thousand u for the third day, then 4800 thousand u for 15 days, pause for 2 weeks, then 4800 thousand u for 15 days.
- ◆ Neurosyphilis: aqueous penicillin G 12000 thousand u ~24000 thousand u/d for 14 days, Benzathine Benzylpenicillin 2400 thousand u ,im,qw × 3.
- ◆ Congenital syphilis: aqueous penicillin G 100-150 thousand u kg/d × 14days.

## follow-up and criterion of cure

- ◆ follow-up period
- ◆ early syphilis: recheck 1 time every 3 months in the first year, every 6 months in the second year. follow-up period of other stage syphilis is 3years.
- ◆ criterion of cure
- ◆ Clinical cure



# Gonorrhoea

- Early treatment, principle is apply drugs promptly, quantity sufficiently , Regularly.
- sex partner be treated at the same time.
- Caution of other STDs.



# Treatment of gonorrhoea

- ◆ Ceftriaxone 250mg im , Spectinomycin 2.0 im, Ofloxacin 400mg iv drop.
- ◆ Erythromycin 500mg qd po, Azithromycin 1.0g, Doxycycline 100mg bid × 7days
- ◆ gonococcal conjunctivitis in infant:  
1% Silver Nitrate eyedrop application

# Nongonococcal urethritis

- ◆ Tetracycline, Erythromycin, Azithromycin
- ◆ Quinolones: Sparfloxacin, Gatifloxacin
- ◆ other drugs: Minocycline, Roxithromycin.



# Genital herpes

- Antiviral therapy
- Primary genital herpes: acyclovir, Famciclovir ,7-10 days;
- Recurrent genital herpes: acyclovir, Famciclovir ,5 days;
- Frequently recidivist: acyclovir, Famciclovir ,4months-1year
- Regional treatment
- 1% Penciclovir Cream, 3% Aciclovir Cream, phthiobuzone linimentum

# Treatment of chancroid

- Azithromycin 1g, Erythromycin 2g/d × 7days, cefatrizine 250mg im.
- Drug for external use: 1 : 5000 liquor potassic permanganate, 3% hydrogen peroxide

# Chancroid

- Observation of post-treatment
- Recheck in 3-7 day after beginning of the treatment.



# Condyloma acuminatum

- antiviral therapy: Interferon、  
valaciclovir
- Regional treatment : Podophyllotoxin
- Physiotherapeutics: laser、 freezing、  
microwav
- Big wart: excis by operation



# Venereal lymphogranuloma

- Curative effect of venereal lymphogranuloma is better in the early stage of the course.
- It is necessary to perform operation in the later stage of the disease because of the Severe complication.
- Treatment of venereal lymphogranuloma comprise of treatment regional and all over the body.



## Drugs frequently used:

- ◆ Doxycycline: 0.1, bid, 21 days;
- ◆ Tetracycline: 0.5, qid, 14 days;
- ◆ Erythrocin: 0.5, qid, 14 days;
- ◆ Minocycline: 0.1, bid, 21 days.

## Other treatment:

- Mature lymphaden: draw out pus by puncture, then inject antibiotics
- proctostenosis: expansion
- elephantiasis: ablate by plastic operation



Thank You

