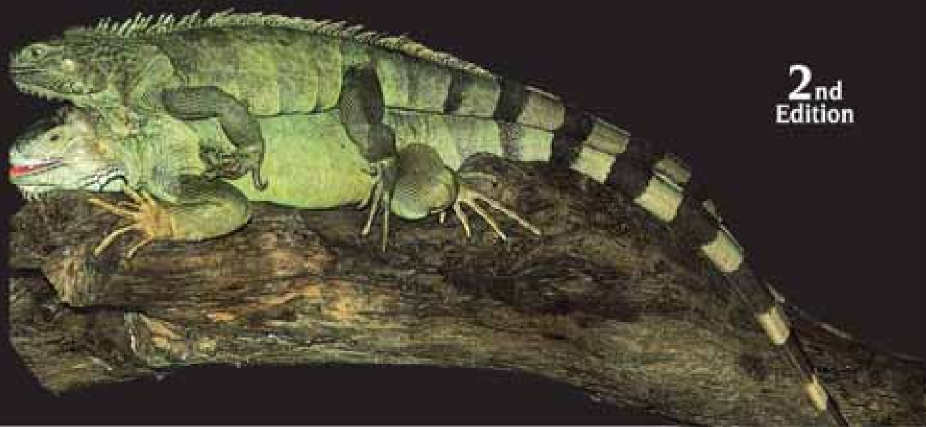
# *Bhutani's* Color Atlas of SEXUALLY TRANSMITTED INFECTIONS




*Editors*

**Neena Khanna**
**Sushruta Kathuria**

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*Bhutani's*

# Color Atlas of SEXUALLY TRANSMITTED INFECTIONS

Second Edition

*Editors*

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# Preface to the Second Edition

The profile of sexually transmitted diseases (oops infections!) has changed dramatically from the time, the first edition of the atlas was brought out by Professor LK Bhutani as an add-on to his immensely popular *Colour Atlas of Sexually Transmitted Diseases*. Several batches of postgraduate students were initiated into the field of 'venereology' by the colorful (in the era of black and white) book.

With the advent of HIV pandemic, sexually transmitted infections (STIs) have gained a new academic lease of life and have also changed their profile. The atlas is a pictorial journey of STIs from the past (rare photographs of tertiary syphilis) to the present (protean cutaneous manifestations of HIV). Though keeping the tradition of 'LKBism' (inimitable crisp style), an effort has been made to make the atlas more than just a visual treat, by incorporating diagnostic techniques (with several pictures clicked at the bench) and treatment. To make the atlas comprehensive, a section has been added on anatomy of genital tract and syndromic management.

**Neena Khanna**
**Sushruta Kathuria**

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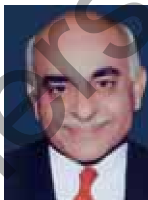
# Preface to the First Edition



Sexually transmitted diseases (STD) are defined as a group of infectious diseases in which sexual transmission is epidemiologically important. The term has supplanted the erstwhile designation of venereal diseases (VD), which conventionally had included syphilis, gonorrhea, chancroid, lymphogranuloma venereum and granuloma inguinale. STD is a broader concept and includes several additional diseases—non-gonococcal urethritis and nonspecific genital infections, genital herpes, venereal warts, pediculosis pubis and in certain situations conditions like scabies, cytomegalovirus and hepatitis B virus infections, trichomoniasis, candidiasis, and the most dreaded of them all—acquired immunodeficiency syndrome (AIDS).

Sexuality is a basic human (and animal) instinct. Sexually transmitted diseases have thus been with mankind since antiquity. Several factors, in the recent past, seem to have influenced pattern(s), incidence and prevalence of STD. The introduction of chemotherapeutic agents and antibiotics in the treatment of STD caused a dramatic and precipitous decline in the incidence and morbidity of these infections. The diseases that used to cause profound and protracted suffering could simply be 'cured' with a 'single-shot' therapy. Fear, doubt and anxiety were all too quickly replaced by confidence and a (partly justified) sense of security.

The post-war era witnessed a laxity in sexual standards in the Western world. Several factors contributed to this change. The influence of religion waned; young people became economically independent and lived individually and separately; the family fabric disintegrated. Cinema, television and other mass media played on the sexual and erotic impulses; once 'infamous' pornographic literature enjoyed social acceptability—even respectability. Sex is no longer taboo.

The 'counter-culture' of the 1960s caused sociocultural upheavals. The uninhibited approach to sex encouraged freer heterosexual, homosexual or bisexual relationships—more particularly among the teenagers. Heterosexual relationships became promiscuous also due to easy accessibility to oral and conventional contraceptives thus removing the fear of unwanted pregnancies. The monogamous relationships—marital or extramarital—became less stable. Polygamous relationships, often casual and brief, brought acquisition and spread of sexually transmitted diseases. Chastity ceased to be a cherished virtue; sex experience as a preliminary to marriage almost became a norm. High divorce rate, broken homes, collapse of the traditional family structure caused a rupture in the accepted human relationships and drove parents and children alike into the wilderness—seeking affection and often finding (sexual) gratification and sexually transmitted diseases. The use of drugs and alcohol coupled with communal living aggravated matters further. The effects were noticed in an upswing of gonorrhea, non-gonococcal urethritis, genital herpes and genital warts. Genital herpes caused widespread scare and anxiety accentuated by its possible relationship to cervical cancer and neonatal infections. Non-gonococcal infections caused persistent and/or recurrent discomfort.

Changes in patterns of sexuality brought into sharper focus conditions like gonococcal pharyngitis, gonococcal proctitis and AIDS. AIDS emerged almost as a direct consequence of homosexual contact. This viral (HTLV-III/LAV) infection caused a specific depletion of T-helper/inducer cells with consequent immunodeficiency. Kaposi's sarcoma and opportunistic bacterial, viral and fungal infections in the lungs, brain, skin and other organs caused a high morbidity and mortality.

The picture for sexually transmitted diseases looks bright! Permissiveness is spreading in the developing world too (with the possible exception of the Islamic countries where the influence of religion is strong), as indeed is the use of drugs and alcohol. There is a very real danger that most countries will show an upward trend in the incidence of STD as urbanization and economic improvement occurs.

The book may seem to have an understandable bias towards the so-called tropical sexually transmitted diseases. Ease of travel and widespread migration have increased the intermingling of populations, and consequently many diseases are no longer restricted within geographical regions. The conceptual division between tropical and non-tropical sexually transmitted diseases thus seems to be less relevant today than in the past.

The Utopia of 'STD-Zero' does not appear on the horizon!

**LK Bhutani**

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# Acknowledgments

It is a proud albeit emotional time for us to be revising after a gap of almost three decades, a color atlas on sexually transmitted diseases, the first edition of which initiated many of us into the field of venereology. We are indeed indebted to Dr (Mrs) Bhutani for reposing faith in us and believing that we could carry out the task of bringing out the atlas. And had it not been her unflinching encouragement, the work would not have fructified.

The present work would not have been possible without the exceptional contribution of the Residents of the Department (at AIIMS), who thoroughly fine-tooth combed the original manuscript and metamorphosed it to the present shape. We would especially like the thank Drs Riti, Priyanka, Aanchal, Neetu, Rajeshwari, Sunil and Vishal, for prompt and detailed response, whenever and wherever needed.

We are grateful to Drs Ramam, Lalit Dhar, Benu Dhawan and Saurabh Singh, for allowing us to use photographs from their large collection. So also my gratitude to my faculty colleagues (many of who were Dr Bhutani's students), for letting us photograph their 'in-patients'.

Several 'pairs of hard working hands' and 'pairs of astute eyes' assisted us (almost) meet the deadlines. My office colleagues Tanu and Meenu helped endlessly at word processing the manuscript.

We would be failing in our duty if we did not thank the *behind the scene* people. Anil and Sanjeev who put up with sharing our time with the laptop. Chandni, Abhishek and Siya who did not get quality time with one of their parents.

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# Chapter 3

# Chancroid

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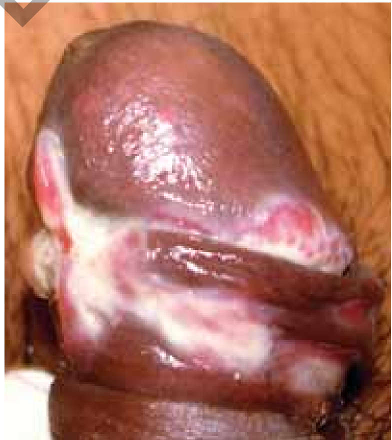
**Chancroid:** Dwarf variant. Multiple, small, shallow, painful ulcers with dirty floor on inner aspect of prepuce.

**Chancroid:** Giant variant. Urethral meatus involved with a large ulcer with irregular margins, necrotic slough on floor, and a non-indurated base.

**Chancroid:** Involvement of prepuce with multiple, well-defined, small ulcers forming a rosette. Ulcers have irregular margins and necrotic material on floor. Patient is developing a phimosis.



**Chancroid:** Extensive involvement of glans and inner surface of prepuce with multiple ulcers covered with necrotic slough.

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Also known as soft sore; soft chancre; ulcus molle.

## ETIOLOGY

### Etiological Agent

- *Haemophilus ducreyi.*
- Gram-negative short rods with rounded ends (coccobacillus). Found in clumps or short chains of 5-20 bacilli—"school of fish" appearance. Intracellular and extracellular distribution.
- *Fastidious organism:* Cultured with difficulty on blood-containing media.

### Transmission

- Sexually transmitted.

## EPIDEMIOLOGY

### Geographic Distribution

- Worldwide distribution but prevalence declining. Rare in developed countries. Now, also uncommon in India.
- Reported from South East Asia, Africa, South America.
- Regarded as disease of socially under-privileged with poor personal hygiene.

### Demographic Distribution

- Prevalence 10 times higher in men, probably because infection mostly 'asymptomatic' in women.
- Commercial sex workers act as carriers.

## CLINICAL FEATURES

### Incubation Period

1-8 days.

### Morphology

- ***Initial lesion:*** Erythematous macule or papule. Rapidly evolves (often through a vesicle) to a pustule which ruptures to form ulcer.
- ***Ulcer:*** Shallow, undermined edge painful, tender, sharply circumscribed. Dirty (slough-covered) easily-bleeding floor. Non-indurated with ragged edges.
- Multiple lesions due to auto-inoculation; so in different stages of evolution. Form 'rosette' on prepuce resulting in phimosis. Or serpiginous ulcer on coronal sulcus.

### Sites

- ***Sites of most intimate contact and trauma during sex act affected:*** Prepuce, glans penis, coronal sulcus, frenulum in males; fourchette, labia, cervix in females.
- Rarely perianal region, thighs, scrotum.

### Lymphadenopathy

- Occurs (10-40%) within a week of ulcer.
- Often unilateral, sometimes bilateral.
- Painful and tender; suppurate to form a unilocular abscess (bubo); adheres to the overlying skin which becomes inflamed.
- Bubo may rupture through skin to form a sinus with its mouth resembling chancroidal ulcer.

### Variants

Several variants described

- ***Dwarf chancroid:*** Small herpetiform ulcers.
- ***Giant chancroid:*** Usually single large ulcer.
- ***Follicular chancroid:*** On hair bearing areas.
- ***Phagedenic chancroid:*** Leads to destruction of genitalia.

## COMPLICATIONS

- Phimosis. Or paraphimosis.
- Suppurative balanoposthitis.
- Secondary bacterial infection with *Borrelia vincentii* and *Fusobacterium fusiformis* causing destructive phagedenic lesions.

## HIV AND CHANCROID

- ***Effect of chancroid on HIV:*** Chancroidal ulcers facilitate transmission of HIV ten fold.
- ***Effect of HIV on chancroid:***
  - Ulcers of chancroid (may be) atypical (more in number, larger, extragenital lesions).
  - Reduced response of chancroid to therapy, so single dose regimens avoided.

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**Chancroid:** Multiple ulcers with ragged margins and necrotic slough. Small lesion on prepuce—lesions in different stages of evolution on coronal sulcus and glans penis.

**Chancroid:** Multiple painful ulcers on coronal sulcus with necrotic slough.

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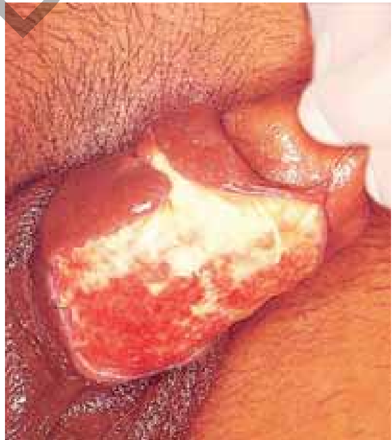
**Chancroid:** Single ulcer can occur occasionally. Non-indurated base and necrotic material on floor suggests that it is chancroid and not chancre.



**Chancroid:** Phagedenic variant: most of the shaft of penis involved.

## DIAGNOSIS

### Based on Clinical Features

- Combination of painful genital ulcer.
- And tender suppurative inguinal adenopathy suggests diagnosis of chancroid.

Probable diagnosis of chancroid made if **all** following criteria met:
- Presence of one or more painful genital ulcers.
- Clinical presentation, appearance of genital ulcers and, if present, regional lymphadenopathy typical for chancroid.
- No evidence of *T. pallidum* infection by darkfield examination of ulcer exudate. Or by serologic test for syphilis performed at least 7 days after onset of ulcers.
- Negative HSV test performed on ulcer exudate.

### Laboratory Investigations

#### *Isolation and Identification of Organism*

- ***Direct:***
  - *Gram stain of smear from ulcer or bubo:* gram negative coccobacilli in typical school of fish or rail road arrangement. Not sensitive.
  - *Antigen detection by immunofluorescence:* very sensitive, but less specific.
- ***Culture:*** Difficult. Fastidious organism requiring expensive supplements. Commonly used media include Mueller-Hinton, chocolate agar with vancomycin, Gonococcal agar with 2% bovine hemoglobin and 5% fetal calf serum. Colonies yellow/waxy, opaque, of different sizes. Can be slided on plate. Confirmed by Gram staining and biochemical tests.
- ***Polymerase chain reaction (PCR):*** Though not FDA approved, several CLIA approved PCR tests available. Multiplex PCR for *H. ducreyi, T. pallidum* and *HSV–1,2* commercially available with excellent sensitivity and specificity.

#### *Other Tests*

- ***Serological tests:*** Complement fixation test of limited value due to cross reactivity with other bacteria.
- ***Ito-Reenstierna's skin test:*** Intradermal innoculation of heat-killed *H. ducreyi*. Limited value and obselete.

## TREATMENT

### Specific Treatment

- Treatment guidelines depend on sensitivity pattern (Table 3.1).
- Often managed syndromically (genital ulcer syndrome).

**Chancroid:** Gram stained smear of ulcer exudate showing Gram negative bacilli in parallel chains, the so called "school of fish" appearance (100x).

**Chancroid:** Culture: Close up view of *H. ducreyi* colonies which are yellowish, waxy (opaque) and of variable size. Colonies can be slided on plates.

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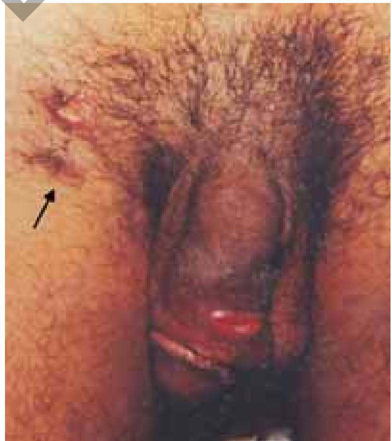
**Chancroid:** Ulcers with ragged erythematous margins present on vaginal introitus.

**Chancroid:** Multiple deep, soft ulcers with necrotic slough on floor.

**Chancroid:** Single, irregular, necrotic ulcer on prepuce with grossly enlarged and inflammed left inguinal lymphadenopathy.



**Chancroid:** Multiple soft dirty ulcers on sulcus and penile shaft along with suppurating right inguinal buboes.

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### General Measures

- Clean lesions with normal saline.
- If phimosis and balanoposthitis, irrigate sub-preputial sac. And if severe, slit prepuce along the dorsum (dorsal slit).
- Aspiration (sometimes 2-3 times) from non dependent area of the fluctuant bubo may be done. Or incision and drainage from non dependent area.

### Partner Management

Treat partner (symptomatic and asymptomatic) who have had sexual contact with patient in preceding 10 days.

### Pregnant Woman

Azithromycin 1 gm single oral dose. Ciprofloxacin avoided.

### In HIV Infected

- Treatment failure and slower response.
- Avoid regimens with single dose. Erythromycin 1.5 gm daily × 7 days or till healing of all ulcers preferred, which ever later.

### Follow-up

- Re-examine 3-7 days after treatment for healing of ulcers. Spontaneous (without treatment) healing may take 2 weeks.
- Healing of lymph nodes is slower.

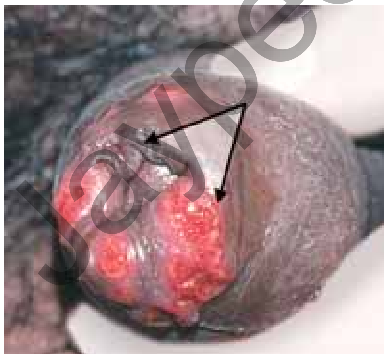
### Other Considerations

- Rule out HIV, HBV and syphilis at first visit.
- If negative, retest for syphilis and HIV 3 months after initial visit.

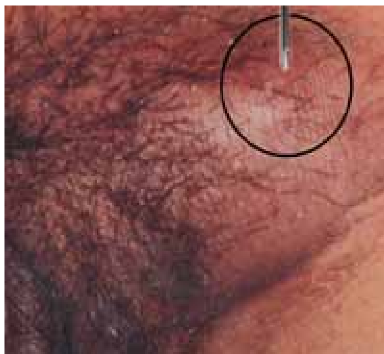
**Table 3.1:** Recommended treatment guidelines for chancroid

| CDC 2010 | WHO 2003 | NACO 2007 |
|---|---|---|
| • Azithromycin 1 gm SOD*<br>OR<br>• Ceftriaxone 250 mg IM stat<br>OR<br>• Ciprofloxacin 500 mg bid × 3 days<br>OR<br>• Erythromycin base 500 mg tid × 7 days | • Ciprofloxacin 500 mg bid × 3 days<br>OR<br>• Azithromycin 1 gm SOD*<br>OR<br>• Erythromycin base 500 mg qid × 7 days | • Azithromycin 1 gm SOD*<br>OR<br>• Ciprofloxacin 500 mg bid × 3 days |

*SOD: Single oral dose



**Chancroid with phimosis:** Treated with local hygiene, dorsal slit (marked) and specific antibiotics.



**Chancroid with bubo:** Aspirated from nondependent (marked) area with wide bored (gauge 18) needle.

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