Genital Ulcer Disease

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  – Dr. Kees Rietmeijer/Denver Public Health Department
Case 1

• 28 year-old woman
• Complains of very painful lesions in vulvar area
• Increasing severity since 4 days
• Pain aggravated by urination
• She has a slight fever and also complains of headache and photophobia
Case 1

- History negative for STI
- In monogamous relationship with husband
- Pt not aware of genital or oral lesions
- Both tested HIV negative 6 months ago
Case 1

• Physical exam
  – Multiple erosive lesions vulva on both sides of labia minora
  – Extremely painful to the touch
  – Bilateral inguinal lymphadenopathy
How to proceed?
Genital Ulcers – Algorithm

1. Patient complains of a genital sore or ulcer
   - Take history and examine

2. Only vesicles present?
   - NO
   - Sore or ulcer present?
     - NO
     - Educate and counsel
     - Promote condom use and provide condoms
     - Offer HIV counselling and testing if both facilities are available
     - YES
     - Treat for HSV2
     - Treat for syphilis if indicated

3. Sore or ulcer present?
   - NO
   - YES
   - Treat for syphilis and chancroid
   - Treat for HSV2

WHO 2003
# Etiology of GUD - Uganda

<table>
<thead>
<tr>
<th></th>
<th>Total (%)</th>
<th>Positive</th>
<th>Negative</th>
<th>p Value‡</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TP alone</strong></td>
<td>7 (3.5)</td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>HD alone</strong></td>
<td>5 (2.5)</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td><strong>HSV alone</strong></td>
<td>80 (39.6)</td>
<td>41</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td><strong>HSV and S aureus</strong></td>
<td>12 (5.9)</td>
<td>6</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td><strong>S aureus alone</strong></td>
<td>21 (10.4)</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td><strong>Strep pyogenes alone</strong></td>
<td>2 (1.0)</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>HSV and HD</strong></td>
<td>1 (0.5)</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td><strong>HSV and Strep pyogenes</strong></td>
<td>2 (1.0)</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td><strong>No organism identified</strong></td>
<td>72 (35.6)</td>
<td>30</td>
<td>21</td>
<td>0.309</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>202</td>
<td>87</td>
<td>49</td>
<td></td>
</tr>
</tbody>
</table>
## Etiology of GUD

### Table 1  Genital herpes and HIV status in subjects with genital ulcers using a multiplex polymerase chain reaction (M-PCR) assay

<table>
<thead>
<tr>
<th>Study subjects</th>
<th>HSV (%)</th>
<th>HIV (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Africa</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maseru, Lesotho(^{48})</td>
<td>69 male STI, 36 female STI</td>
<td>26</td>
</tr>
<tr>
<td>Rakai, Uganda(^{49})</td>
<td>207 men and women</td>
<td>43</td>
</tr>
<tr>
<td>Carletonville, South Africa(^{50})</td>
<td>233 male and female STI</td>
<td>13</td>
</tr>
<tr>
<td>Capetown, South Africa(^{50})</td>
<td>213 male and female STI</td>
<td>22</td>
</tr>
<tr>
<td>Abidjan, Ivory Coast(^{51})</td>
<td>94 female sex workers</td>
<td>27</td>
</tr>
<tr>
<td><strong>Asia</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pune, India(^{52})</td>
<td>277 male STI, 25 female STI</td>
<td>26</td>
</tr>
<tr>
<td>Chiang Mai, Thailand(^{53})</td>
<td>8 male STI, 30 female sex workers</td>
<td>82</td>
</tr>
<tr>
<td>Phonm Penh, Cambodia(^{54})</td>
<td>17 female sex workers/men/reproductive health clinic clients</td>
<td>79</td>
</tr>
<tr>
<td><strong>Caribbean</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kingston, Jamaica(^{55})</td>
<td>252 male STI, 52 female STI</td>
<td>52</td>
</tr>
</tbody>
</table>

NG= not given.
Genital Herpes Trends

Harare and Durban: Percentage genital herpes of new STI diagnoses
Durban-2 and Johannesburg: HSV prevalence among GUD cases
Rwanda: HSV prevalence among HIV+ GUD cases

Genital Herpes
Genital Herpes

• HSV is most common cause of GUD in Africa

• Mucocutaneous retrograde infection along sensory nerves characterized by:
  – Recurrent localized vesicular eruption
  – Latent infection in cranial nerve or dorsal ganglia
Genital Herpes

- Two variants
  - HSV-2
    - Most commonly associated with genital herpes
  - HSV-1
    - Most commonly associated with oral/labial herpes
    - However, increasing (up to 25%) cause of genital herpes
Clinical Presentation of Genital HSV

• First Episode Infection
  – Primary: First infection with HSV-1 or -2 (20%)
  – Non-primary: Prior infection with opposite type (40%)
  – First clinical episode of longstanding infection (40%)

• Recurrent genital herpes: second or subsequent recognized outbreak

• Subclinical infection: ~ 60-90% of infections
  – Truly asymptomatic
  – Unrecognized
Transmission of Genital HSV

- Requires contact of viable HSV and abraded skin/mucous.
- More efficient during primary than recurrent episodes due to higher viral titer.
- Can be transmitted from asymptomatic patients.
- HSV antibody (prior HSV-1 infection) may offer partial protection against acquisition, although more consistent effect is reducing/preventing symptoms.
- Fomite transmission extremely rare.
- Incubation period after acquisition: 2-28 days.
First Episode Genital Herpes

• More severe in those without prior HSV infection
  – Vesiculopustular lesions
  – Cervicitis, urethritis
  – Lymphadenopathy
  – Neuropathic manifestations
  – Systemic manifestations (fever, headache, etc.)
• Progression of lesions: papules → vesicles → (pustules) → ulcers → crusts → healed
• Local Symptoms last 10-21 days
• Systemic symptoms in 40 - 70%  
  – Fever, headache, malaise, myalgias
Recurrent Infection

- 90% of patients with symptomatic primary genital HSV-2 have symptomatic recurrences within 12 months
  - Median recurrence rate 4.5 episode/yr
    - Males: 5.2 episodes/yr
    - Females: 4.0 episodes/yr
  - 38% > 6 episodes / yr
  - 20% > 10 episodes / yr
- Often heralded by prodrome:
  - Tingling, itching, burning (neuralgia)
Recurrent Infection

• Rate gradually declines over several years
• Recurrence after initial HSV-1 infection (n=83)
  – 1.3 in Year 1
  – 0.7 in Years 2 and beyond
  – 38% had no recurrences
Predictors of Recurrent Genital Herpes

- HSV-2 > HSV-1
- Prolonged primary episodes
- No good data to support role of
  - Stress
  - Diet
  - Menstruation
Asymptomatic Genital HSV-2

- 25-40% of sexually active adults in the U.S. are HSV-2 Antibody positive
  - 50% with no history of clinical genital herpes
- Asymptomatic infections can recur symptomatically
  - Majority (65%) will note lesions after education/counseling
HSV Viral Shedding

- HSV-2 shedding
  - Occurs in 60-65% of both symptomatic and asymptomatic patients
  - Similar in women and men
  - Occurs on 3% (0-15%) of asymptomatic days
  - Most common within first year of primary symptomatic herpes (5-6% of days)
  - Low probability of transmission, but responsible for the majority of new genital HSV-2 infections

- HSV-1 shedding
  - Relatively uncommon
Genital Herpes - Diagnosis

- Ulcer
  - Culture
  - PCR (including multiplex PCR)
  - Cytology (Tzanck): insensitive - don’t use
- Serology
  - Based on glycoprotein G
  - Type-specific
  - Caveat: Because of high HSV-2 sero-prevalence, the negative predictive value of serology is greater than the positive predictive value in the differential diagnosis of GUD
HSV Treatment
First Clinical Episode

• Acyclovir, 200 mg orally, 5 times daily for 7 days
  OR
• Acyclovir, 400 mg orally, 3 times daily for 7 days
  OR
• Valacyclovir, 1 g orally, twice daily for 7 days
  OR
• Famciclovir, 250 mg orally, 3 times daily for 7 days
HSV Treatment
Recurrent Infection

• Acyclovir, 200 mg orally, 5 times daily for 5 days
  OR
• Acyclovir, 400 mg orally, 3 times daily for 5 days
  OR
• Acyclovir, 800 mg orally, twice daily, for 5 days
  OR
• Valacyclovir, 500 mg orally, twice daily for 5 days
  OR
• Valacyclovir, 1 g orally, once daily for 5 days
  OR
• Famciclovir, 125 mg orally, twice daily for 7 days
HSV Treatment
Suppressive Treatment

• Acyclovir, 400 mg orally, twice daily, continuously
  OR
• Valacyclovir, 500 mg orally, once daily
  OR
• Valacyclovir, 1 g orally, once daily
  OR
• Famciclovir, 250 mg orally, twice daily

Some experts recommend discontinuing acyclovir after one year of continuous use so that the recurrence rate can be reassessed. The lowest continuous dose that will suppress recurrences in an individual can only be determined empirically.
Topical Acyclovir or Penciclovir for HSV Treatment

- Ineffective: do not use
Genital Herpes
Why a Public Health Issue?

• Significant morbidity both physically and psychologically

• Neonatal Herpes
  – Relatively rare
  – Most common when primary infection occurs in vulvo/vaginal region around time of delivery
  – Significant neonatal morbidity and mortality

• Co-factor in HIV transmission
Case 2

• 28 year-old man with ulcer on shaft penis for 1 week – relatively painless
• Also non-tender right-sided lymphadenopathy
• Reports unprotected vaginal sex with sex worker 3 weeks ago
• No history of STI
• HIV status: negative (> 6 months ago)
Case 2
How to Proceed?
Genital Ulcers – Algorithm

- Patient complains of a genital sore or ulcer
- Take history and examine
  - Only vesicles present?
    - Yes: Treat for HSV2, treat for syphilis if indicated¹
    - No: Sore or ulcer present?
      - Yes: Treat for syphilis and chancroid, treat for HSV2²
      - No: Educate and counsel
        - Promote condom use and provide condoms
        - Offer HIV counselling and testing if both facilities are available
Genital Ulcers – Algorithm

- Educate and counsel
- Promote condom use and provide condoms
- Offer HIV counselling and testing if both facilities are available
- Ask patient to return in 7 days

Ulcer(s) healed?

- NO
- Ulcer(s) improving?
  - NO → Refer
  - YES

Ulcer(s) healed?

- YES
  - Educate and counsel on risk reduction
  - Promote condom use and provide condoms
  - Manage and treat partner
  - Offer HIV counselling and testing if both facilities are available

Ulcer(s) improving?

- NO
  - Continue treatment for a further 7 days
- YES
Syphilis
Syphilis

- Organism: *Treponema pallidum*
- Most transmissible of STIs
- Can cross skin with only microabrasions
- Can cross intact mucous membranes
- Approximately 1 of 3 contacts to early syphilis will become infected
Syphilis

Characterized by stages of infection:

- Primary
- Secondary
- Tertiary
- Neurosyphilis: can occur in all stages
- Congenital infection
  - Fetal demise, mental retardation, long-term disability

Pose greatest risk for transmission
Syphilis

• Early latent: No symptoms - infection within 1 year
• Late latent: No symptoms - infection for > 1 year
• Latent of unknown duration: no convincing evidence of early infection but RPR titer ≥ 1:32
Primary Syphilis

• Chancre
  – Indurated, raised border, red smooth base, scant serous secretions, usually painless
• Chancre often solitary, but multiple lesions can occur
• Chancre may occur anywhere at site of contact
  – includes oro-pharyngeal area: lip, tongue, tonsil
• Chancres in “hidden” areas (vagina, rectum) often not detected
Primary Syphilis

- Onset within 3 weeks of exposure
- Indolent; has “punched out” appearance typically (but can be ragged ulceration)
- Regional lymphadenopathy
  - genital tract: inguinal nodes
  - oropharyngeal tract: cervical nodes
- Usually precedes secondary sx (rash)
- Resolves 3-6 weeks without treatment
2º Syphilis: Clinical presentation

- Onset from a few weeks to 6 months from exposure
- Rash – can involve palms and soles
  - Papulosquamous, maculopapular, papular, annular, papulopustular, eczematous
- Systemic symptoms - may include:
  - Fever, headache, malaise, anorexia, diffuse lymphadenopathy, sore throat, myalgias, weight loss, patchy alopecia
Tertiary Syphilis

- Occurs after 1 - 30 years or more
- Characterized by destructive lesions of brain, heart, any organ
Congenital Syphilis

- Congenital
  - In-utero transmission
  - Leads to increased risk of fetal death
  - Wide range of clinical manifestations in survivors, from asymptomatic to life threatening or disabling
  - Worldwide disability and death may match or exceed that of perinatally acquired HIV/AIDS
Neurosyphilis

- Can occur at all stages of syphilis:
  - Cognitive dysfunction
  - Motor or sensory deficits
  - Ophthalmic or auditory symptoms
  - Cranial nerve palsies
  - Symptoms or signs of meningitis
- May be aggravated in persons with HIV infection
- Uveitis and other ocular manifestations are frequently associated with neurosyphilis
- CSF examination is indicated
Serologic Tests for Syphilis

• Darkfield microscopy
  – Primary syphilis - chancre
  – Secondary syphilis – mucosal lesions

• Non-treponemal tests (VDRL, RPR)
  – Time-correlated with disease activity; becomes negative after treatment
  – Confirm with treponemal test
  – Used for screening and to assess response to treatment

• Treponemal tests (FTA-ABS, TPPA, MHA-TP, TPHA)
  – Confirms nontreponemal test
  – Unaffected by treatment
  – Usually positive for life

• Treponemal ELISA (TREP-SURE)
  – Increasingly used as screening test with non-treponemal test follow-up to assess disease activity
Syphilis - Treatment

• Primary, Secondary and Early Latent
  – Benzathine penicillin G: 2.4 MU single IM dose

• Late ( >1 yr) or Tertiary
  – 2.4 MU benzathine penicillin G IM x 3 weeks

• Second Line Treatment
  – Primary or secondary syphilis
    • doxycycline or azithromycin
  – Tertiary and Neurosyphilis
    • penicillin (after desensitization)
    • ceftriaxone
Syphilis
Treatment with Azithromycin?

• Promising characteristics
  – Active against *T. pallidum*
  – Favorable pharmacology: Oral, prolonged activity (single dose)
  – Animal model data

• Clinical trials: 2.0 g single dose effective against primary and secondary syphilis
  – Uncontrolled early studies
  – Two large RCTs (versus BPG)

• Evolving resistance (ribosomal RNA mechanism)
  – First documented for erythromycin 1970s
  – Rapid selection and spread in some populations (San Francisco, Dublin)
  – Apparently uncommon in Madagascar; no other geographic data exist

• Use with caution if at all, IF local resistance not documented, and ONLY IF CLOSE FOLLOW-UP CAN BE ASSURED
Neurosyphilis

• Recommended: aqueous crystalline penicillin G, 18-24 million units per day for 10 -14 days
  – Either in 3-4 million units IV every 4 hours
  – Or continuous infusion

• Alternative: ceftriaxone 2 g daily either IM or IV for 10-14 days
  – Can be considered in case of penicillin allergy
  – However, cross-reactivity exists
Preventing Congenital Syphilis is Feasible!

- Screening for syphilis should occur during the first prenatal visit, ideally in first trimester
- In high-risk areas, repeat at 28 weeks and at term
- Syphilis treatment in pregnancy is the same as in non-pregnant women
Preventing Congenital Syphilis is Feasible!

- All infants born to seropositive women should be treated regardless of symptoms
  - Procaine penicillin G 50,000 IU/kg in a single intramuscular injection
- Symptomatic infants, infants with abnormal CSF, or with syphilis titers 4-fold higher than the mother’s titer should be treated for congenital syphilis, e.g.,
  - Procaine penicillin G 50,000 IU/kg single dose IM/day for 10 days
Case 3

• 32 year-old man complaining of painful ulceration tip of foreskin since 4 days
• Also left-sided painfully swollen lymphnode leaking pus
• No history of previous STI
• Pt is a sailor on leave with history of multiple contacts with sex workers in Africa, Asia, and South America
Genital Ulcers – Algorithm

Patient complains of a genital sore or ulcer

Take history and examine

Only vesicles present?

YES

TREAT FOR HSV2
TREAT FOR Syphilis IF INDICATED\(^1\)

NO

Sore or ulcer present?

YES

TREAT FOR Syphilis
AND CHANCROID
TREAT FOR HSV2\(^2\)

NO

- Educate and counsel
- Promote condom use and provide condoms
- Offer HIV counselling and testing if both facilities are available
Genital Ulcers – Algorithm

- Educate and counsel
- Promote condom use and provide condoms
- Offer HIV counselling and testing if both facilities are available
- Ask patient to return in 7 days

Ulcer(s) healed?

YES
- Educate and counsel on risk reduction
- Promote condom use and provide condoms
- Manage and treat partner
- Offer HIV counselling and testing if both facilities are available

Ulcer(s) improving?

NO
- Refer

YES
- Continue treatment for a further 7 days

1 Indications for syphilis treatment:
  - RPR positive; and
  - Patient has not been treated for syphilis recently.

2 Treat for HSV2 where prevalence is 30% or higher, or adapt to local conditions.
Chancroid
Chancroid

• Also known as: Soft Chancre or Ulcus Molle
• Organism: *Haemophilus ducreyi*
• Epidemiology
  – Endemic in Africa, Asia, Latin America
  – Incidence declining; no longer the most common cause of GUD in Africa
  – Male-to-Female ratio 9:1
  – Risk factors: lack of circumcision, prostitution, travel to endemic areas, drug use
  – Co-infection common
Chancroid - Clinical

- Incubation period: 4-7 days
- Painful, undermined, necrotic ulceration
- Multiple lesions may be present
- Painful lymphadenopathy in 50%
  - Erythema of overlying skin
  - Spontaneous rupture
- Few constitutional symptoms
Chancroid - Diagnosis

- Gram stain of exudate showing short chains of Gram-negative bacilli is suggestive
- Isolation of *H. ducreyi* by culture requires special media
- Nucleic acid amplification (e.g. PCR)
Chancroid - Treatment

**WHO 2003**
- ciprofloxacin, 500 mg orally, twice daily for 3 days
- erythromycin base, 500 mg orally, 4 times daily for 7 days
- azithromycin, 1 g orally, as a single dose

**CDC 2006**
- Ceftriaxone, 250 mg IM in a single dose
Chancroid – Follow-Up

• Ulcers should improve within 7 days of treatment
• Lymphadenopathy resolves slower
• Monitor patients until healing is complete
• Contacts:
  – Any sexual partner within 10 days of disease onset need exam and treatment
Case - 4

- In February 2003, a 39 year-old bisexual male presented at the Rotterdam STD clinic with:
  - Painful perianal ulcer
  - Bilateral swollen lymph nodes
  - General malaise
Case - 4

• History
  – One episode of receptive anal sex in past 6 months
  – History of recurrent oral herpes
  – No history of STDs
  – Not known to be HIV+
  – No other conditions / no systemic drugs
  – Denied injection drug use
  – No overseas travel

Nieuwenhuis et al. Sex Transm Infect 2003;79:453-455
Case 4
Case 4
Genital Ulcers – Algorithm

1. Patient complains of a genital sore or ulcer
2. Take history and examine
3. Only vesicles present?
   - YES: Treat for HSV2, treat for syphilis if indicated
   - NO: Sore or ulcer present?
4. Sore or ulcer present?
   - YES: Treat for syphilis and chancroid, treat for HSV2
   - NO: Educate and counsel
5. Promote condom use and provide condoms
6. Offer HIV counselling and testing if both facilities are available
Case 4

• Pt was initially treated for herpes with valaciclovir
• However, lesion worsening subsequently
• Treated presumptively for chancroid with azithromycin
Case 4

- Lab results
  - TPPA/FTA positive; VDRL negative
  - HIV+
    - Viral load > 100,000 copies/ml
    - CD4: 270x $10^3$/ml
  - Ulcer biopsy: dense granulating infiltrate; no treponemes
  - Ulcer multiplex PCR: negative for H. ducreyi, T. pallidum, or HSV
  - Urine and rectal swab PCR: positive for C. trachomatis
  - C. trachomatis genotyping: serovar L2 in both urine and rectal specimen

Nieuwenhuis et al. Sex Transm Infect 2003;79:453-455
Lymphogranuloma Venereum (LGV)

• Organism: *Chlamydia trachomatis*, serovars L1, L2, L3

• Epidemiology
  – Endemic in East and West Africa, India, Southeast Asia, South America, Caribbean
  – Male to female ratio 5:1
Lymphogranuloma Venereum Stage I

- Primary Infection
  - Incubation period: 3-12 days
  - Frequently asymptomatic
  - Small ulcer at site of exposure (penile, vaginal, anal): herpetiform, papule, shallow
  - Lesions heal rapidly
  - NGU may be present in males with penile infection
  - Ulcer often absent when patient presents
Lymphogranuloma Venereum Stage II

• Inguinal Syndrome
  – Incubation period 10 – 30 days, up to 4 – 6 months
  – Unilateral in 65%
  – Acute lymphadenitis with bubo formation
  – Site of primary LGV infection determines subsequent site of lymph node involvement
  – “Grove sign”
  – Constitutional symptoms
Classic “groove sign”
Lymphogranuloma Venereum Stage II

- Anogenitalrectal syndrome
  - Seen in women and homosexual men
  - Proctocolitis: multiple, superficial ulcerations
  - Chronic inflammatory process with fibrosis
LGV – Stage III

• Complications
  – Fibrosis, elephantiasis, perirectal abscess, fistulas, strictures
Outbreak of *Chlamydia trachomatis* Serovar L2 Proctitis among MSM in the Netherlands

- Following the initial case and 2 subsequent cases, a prospective study was conducted to identify sexual partners of index cases in previous 6 months
- 54 men were identified; all were part of a large international sexual network: 36 Dutch, 11 German, 2 Belgian, 2 UK, and 1 French.
- 15 subjects were investigated
- 11/13 tested were HIV+
International case reports LGV

Rotterdam: 13 PROCTITIS
LGV in MSM
NL: 2004: 77 2005: 18
France: 169 LGV in MSM
2002/2003: retrospective 21
2004: 103
June 2005: 45
United Kingdom: 113 LGV in
MSM 64 in 2005
Retrospective: 5
Germany: 33 LGV / 5 INGUIN
and 21 PROCTITIS
MSM: 63%
Antwerp: 8 PROCTITIS LGV
MSM: all
Linked to Rotterdam
Stockholm: 3 INGUINAL LGV
in MSM
Retrospective evaluation of
200 specimens MSM
Barcelona: 2 PROCTITIS
LGV in MSM
Linked to Amsterdam
Italy: Turin: 1 INGUINAL
LGV MSM
Geneva: 1 LGV in HIV
negative MSM

Courtesy: Marita van der Laar, RIVM, Netherlands
Lymphogranuloma Venereum Diagnosis

- Serology: non-specific; provides indirect support for diagnosis
  - Microimmunofluorescence (MIF; >1:128)
  - Complement fixation (CF; >1:64)
  - Enzyme immunoassay (EIA); should be confirmed with CF/MIF

- Nucleic acid amplification tests (NAAT)
  - NAAT (PCR or SDA) for Chlamydia trachomatis
    - Not specific for LGV
  - NAAT (PCR) for LGV (reference labs)
    - Nested PCR and RFLP specific for L1, L2, and L3
  - DNA sequencing available at selected labs

- Chlamydia culture
  - Serovars: L1, L2, L3
  - DNA sequencing available at selected labs
Lymphogranuloma Venereum Treatment

• **WHO 2003**
  - Recommended: Doxycycline 100 mg orally, twice daily for 14 days
  - OR: erythromycin, 500 mg orally, 4 times daily for 14 days
  - Alternative: tetracycline, 500 mg orally, 4 times daily for 14 days

• **CDC 2006**
  - Recommended: doxycycline 100 mg bid for 21 days
  - Alternative: erythromycin 500 mg 4x/day for 21 days
  - Azithromycin 1 gram once weekly for 3 weeks may be effective
Lymphogranuloma Venereum Follow-Up

- Weekly for at least 4 weeks or until symptoms resolve
- Sexual contacts within 90 days should be clinically evaluated
  - If symptomatic: treatment as above
  - If asymptomatic:
    - Azithromycin 1 gram in a single oral dose
    - Doxycycline 100 mg bid for 7 days
Granuloma Inguinale
Donovanosis

• Organism: *Calymmatobacterium granulomatis*

• Epidemiology: Rare everywhere; pockets in:
  – Papua New Guinea
  – Australia
  – India
  – Africa
Granuloma Inguinale

Clinical

• Incubation Period: 8 – 80 days
• Ulcer clean, painless, granulomatous
• Fibrosis occurs with extension of primary lesion with phimosis and lymphedema
• Pseudobubos
Granuloma Inguinale Diagnosis

- Crush preparation stained with Wright or Giemsa stain
- “Donovan Bodies”: clusters of encapsulated organisms within the cytoplasm of mononuclear cells
Granuloma Inguinale Treatment

• Minimum duration of therapy: 21 days and until all lesions have completely healed
  – Doxycycline 100 mg BID
  – Azithromycin 1 gr daily
  – Ciprofloxacin 750 mg BID
  – Erythromycin 500 mg QID
  – Trimethoprim-sulfamethoxazole 1 DS BID

• Contacts
  – Routine STD evaluation and treatment
  – Empiric treatment for GI can be offered but value has not been established
Thanks!

Download presentation from: www.stdpreventiononline.org

Contact Kees Rietmeijer at kees.rietmeijer@dhha.org