

# Chancroid

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# CHANCROID

## Etiology

- Genital ulcer disease (GUD) due to *Haemophilus ducreyi* or chancroid. *H. ducreyi* is a fastidious Gram-negative rod.

## Epidemiology

- Chancroid has been widespread in areas of the world where sexually transmitted infection (STI) control is inadequate. Vulnerable females (particularly sex workers with limited access to care) who have multiple partners in spite of genital ulceration are the usual reservoir. Chancroid can only remain endemic in this context.<sup>1,2</sup>
- Reintroduction into societies in which chancroid has been eliminated occasionally occurs with travel. Clusters can occur around an index case (has been described in Canada).<sup>1</sup>
- It is readily eliminated with control activities directed toward sex workers, treatment of men with genital ulcers and enhanced attention to STI-control efforts.
- Chancroid is transmitted only by individuals with ulcerations; no latent reservoir of transmissible chancroid without active disease is known.
- The attack rate following intercourse with contacts who have not used protection is substantial (probably >50% of exposed men or women); incubation period is 5–14 days.
- In endemic areas, as many as 10% of chancroid patients may have concomitant herpes simplex virus (HSV) infection. *Treponema pallidum* may also co-exist with *H. ducreyi*.
- Chancroid gained significance as an important STI when its role in the transmission of HIV became apparent during the 1980s.<sup>3</sup>
  - Accelerated increases in HIV prevalence have occurred in societies in which chancroid was endemic.
  - **The risk of HIV transmission increases by 10–50-fold following sexual exposure to an individual with concomitant *H. ducreyi* and HIV infection.**<sup>2,3</sup> As a result, extensive research has been directed toward *H. ducreyi* and chancroid.<sup>4</sup>
- Control can be achieved in most societies with limited infrastructure and resources.<sup>2</sup>
  - Has been essentially eliminated during the past decade from many areas of the world in which it was previously endemic, including much of eastern and southern Africa.<sup>2</sup>
  - Importation into other countries where it has already been eliminated will likely occur with reduced frequency.

## Prevention and Control

- Conventional STI-control measures are very effective: reducing the number of partners, the promotion and use of condoms for all high-risk sexual activities and early diagnosis in countries where chancroid is endemic.
- Female sex workers need to be trained to recognize genital ulceration and should have access to medical care.
- In an outbreak, microbiological diagnosis, enhanced education of sex workers and clients, and syndromic treatment of ulcers have together been very successful at limiting spread and eliminating *H. ducreyi* infection locally.<sup>2</sup>
- Male circumcision also reduces susceptibility to *H. ducreyi* infection; chancroid has been shown not to spread in populations where all men are circumcised.

## Manifestations

- A papule develops following exposure, and this rapidly progresses to one or more pustular lesions. These rupture to form painful, purulent, shallow ulcers with a granulomatous base that readily bleeds.
  - In males, lesions occur on the prepuce, coronal sulcus and shaft of the penis.
  - In females, lesions can occur widely on the external genitalia but are rarely seen in the vagina or on the cervix.
- Multiple ulcers are common, particularly in women.
- Painful inguinal lymphadenitis occurs in 30% of patients, and lymph nodes may suppurate, become fluctuant and spontaneously rupture.
- Chancroid can mimic other genital ulcer diseases, particularly syphilis; however, chancroid lesions are usually painful, and classic primary syphilis chancres are generally painless.
- Chancroid rarely spreads from the genital tract and does not cause systemic disease.<sup>5</sup>

## Diagnosis

- Clinical etiologic diagnosis is frequently erroneous; in Canada, careful etiologic investigation of an ulcer should be carried out, since chancroid is not known to be endemic.
  - Should include, wherever possible, culture for *H. ducreyi* using specialized culture or transport media; these vary by location (check with your local laboratory for more information).
  - Other causes of GUD should be ruled out by performing either a dark-field analysis, direct/indirect fluorescent antibody (DFA/IFA) or nucleic acid amplification testing (NAAT, e.g., PCR) for *T. pallidum* for primary syphilis and a culture for HSV.
  - There are no useful serologic tests for diagnosis of *H. ducreyi*. Gram stain with Gram-negative coccobacilli in a “school of fish” pattern may be useful.
- Culture for *H. ducreyi* requires specialized media.<sup>4</sup> In Kenya, the use of both gonococcal and Mueller Hinton agar facilitated the growth of most strains in prospective studies. Specimens should be collected from the base of ulcers into thioglycolate hemin-based transport media, as this can permit bacterial survival (2–3 days at 4°C) while the medium is being prepared.<sup>4</sup> *H. ducreyi* grow optimally at 32°C in a humid atmosphere containing 5% carbon dioxide.
- Nucleic acid amplification tests (NAATs) including a multiplex polymerase chain reaction (M-PCR) technique that identifies *H. ducreyi*, *T. pallidum* and HSV can be used but are not available in most laboratories.

## Management

- Syndromic management is used globally for the immediate treatment of GUD at first contact with the health care system; it has been particularly effective at controlling both syphilis and chancroid. Intermittent, careful investigation should be performed in most societies to determine which microbial etiologies require syndromic management.
- Outbreak investigation and control should be routine in all countries in which syphilis and chancroid have been “eliminated.” A rapid-response mode should be available to immediately address the appearance of either of these ulcerative diseases, with strategies to achieve effective re-establishment of regions “free” of both *H. ducreyi* and *T. pallidum*.
- All patients diagnosed with chancroid should undergo testing to rule out co-infection with other STIs, including HIV.

## Treatment

- Syndromic treatment for chancroid consists of a single oral dose of 500 mg of **ciprofloxacin**, which has a cure rate of >90% [A-I].<sup>6</sup>
- A 1-week course of **erythromycin**, 500 mg PO tid, also provides an excellent cure rate of >90%<sup>6</sup> but is associated with poorer compliance [A-I].
- Another macrolide, **azithromycin**, has cured over 90% of patients when prescribed as a single oral 1 g dose [A-I].<sup>7-9</sup>
- **Ceftriaxone** 250 mg IM has been successful, but failures have commonly occurred in HIV co-infected individuals [A-I].<sup>7,9,10</sup>
- Treatment failures should be carefully evaluated with respect to both the etiology and the possible co-existence of other pathogens. Buboec should be aspirated or incised to relieve pain and prevent spontaneous rupture.

## Reporting and Partner Notification

- All individuals who had sexual exposure to the index patient during the 2 weeks prior to the date of initial symptoms should be empirically treated with a quinolone or another antibacterial known to be effective for index case(s) regardless of clinical findings and without waiting for test results.
- The length of time for the trace-back period should be extended:
  - 1) to include additional time up to the date of treatment
  - 2) if the index case states that there were no partners during the recommended trace-back period, then the last partner should be notified
  - 3) if all partners traced (according to recommended trace-back period) test negative, then the partner prior to the trace-back period should be notified.

## Consideration for Other STIs

- Patients suspected of having chancroid should also be considered for the following STIs:
  - Lymphogranuloma venereum
  - HSV
  - Syphilis
  - Donovanosis (granuloma inguinale)
- All patients with presumed chancroid should also be tested for syphilis and HIV infection at presentation and 3 months later. Patients should also be tested appropriately for gonorrhoea.
- Immunization for hepatitis B should be offered to non-immune patients.
- The opportunity to provide safer-sex counselling should not be missed.
- Discuss HPV vaccine with women as per the recommendations outlined in the Canada Communicable Disease Report, Volume 33 ACS-2, (2007) *National Advisory Committee on Immunization (NACI) statement on Human papillomavirus vaccine*.

## Follow-up

- Repeat diagnostic testing for the detection of *H. ducreyi* is not routinely indicated if a recommended treatment is given and taken AND symptoms and signs disappear AND there is no re-exposure to an untreated partner.