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CASE REPORT OPEN ACCESS

Chancroid: A Tenacious Old Foe of Mankind – Two Cases from the Foothills of the Himalayas

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Abstract

Sexually transmitted infections are a common problem worldwide. A typical presentations may sometimes occur so Chancroid should always be kept in mind as a differential diagnosis while dealing with genital ulcer disease (GUD) patients as Microbiological evidence may not always be available. We present two cases with GUD. Swabs were collected from the base and margins of the penile ulcers and sent to the bacteriology laboratory for Gram staining and aerobic routine culture. Gram-stained smears revealed numerous Gram-negative coccobacilli in a typical railroad track/school of fish appearance suggestive of *Haemophilus ducreyi* infection. No growth was observed on aerobic routine culture. The patients were started on single-dose azithromycin as per National AIDS Control Organisation (NACO) guidelines. Remarkable clinical improvement was observed in both patients on follow-up.

Keywords: Chancroid, GUD, *Haemophilus ducreyi*

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INTRODUCTION

Sexually transmitted infections (STIs) are a common problem worldwide. Chancroid is an STI caused by *Haemophilus ducreyi*, a fastidious Gram-negative *bacillus*. Chancroid was commonly reported in different nations until recently. However, due to sustained efforts of the health authorities to raise public awareness and ensuing changes in sexual behaviour, the incidence of this disease has markedly reduced globally, including India.[1,2] This condition usually presents as painful ulcerative genital lesions that may be associated with inguinal lymphadenitis, and it is known to facilitate the transmission of HIV.[3-5]

Here, we discuss two cases of chancroid from a tertiary care teaching hospital situated in the Indian state of Uttarakhand.

Case History

Case 1

A male in his mid-20s presented to the Dermatology outpatient department (OPD) with two painful ulcers on the glans associated with oozing pus (Figure 1). The patient denied sexual activity with any other person except his partner. His partner also complained of itching for the past one month. The rest of the physical examination was noncontributory. There was no evidence of lymphadenopathy, genital discharge, bleeding, or hepatomegaly. Viral markers (HBsAg, HCV, HIV-1 and HIV-2) and Rapid plasma regain (RPR) tests were negative. Swabs were taken from the mucosal lesions after taking all precautions and sent to bacteriology laboratory for Gram staining, Tzanck smear and culture. Tzanck smear was done to exclude Herpes infection. A presumptive clinical diagnosis of chancroid was made and treatment was started as part of syndromic management. The patient was treated with azithromycin 1 gm single dose as per National AIDS Control Organization (NACO) guidelines. His partner was offered counselling regarding safe sexual practices and treated empirically.

Figure 1. Two necrotic penile ulcers (on the glans)

Case 2

A male in his early-30s who was a follow-up case of genital ulcer disease (GUD) presented with a single, well-defined painless ulcer at the base of the frenulum which later progressed to erosion with slight beefy red margins. The patient revealed that he had a history of extramarital sexual intercourse. There was no abnormality detected on general physical examination. Viral

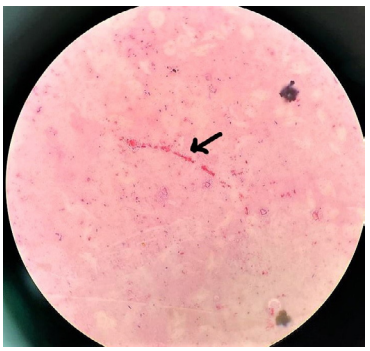

Figure 2a. Gram-stained smear (1000x) showing Gram-negative coccobacilli in a typical railroad track/school of fish appearance (Black arrow)

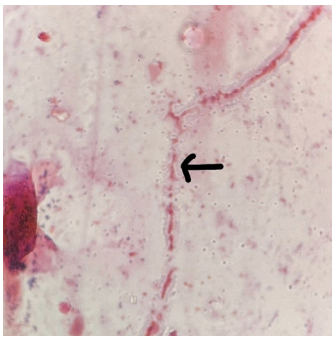

Figure 2b. Gram-stained smear (1000x) showing Gram-negative coccobacilli in a typical railroad track/school of fish appearance (Black arrow)

markers and Rapid plasma regain (RPR) tests were negative

The patient was treated with azithromycin 1 gm single dose as per National AIDS Control Organization (NACO) guidelines. His spouse received empirical treatment and was also counselled on safe sexual behaviour.

Microbiological Investigations

The Tzanck smear findings were insignificant. In both the cases, Gram staining revealed numerous polymorphonuclear cells and Gram-negative coccobacilli giving a typical "Railroad track appearance", suggestive of *Haemophilus ducreyi* infection (Figures 2a and 2b)

Both the samples were inoculated on Blood agar, MacConkey agar and chocolate agar plates. No selective media for *H. ducreyi* were used owing to non-availability. There was no growth in culture after 48 hours of aerobic incubation (5% CO_2) at 37°C.

The patients were stable and showed significant improvement after seven days of treatment. On follow up in both patients, the lesions were nearly resolved and healed in comparison to the lesions at the time of first presentation.

DISCUSSION

Chancroid is characterized by necrotic genital ulcers usually associated with inguinal lymphadenopathy or buboes. It is a highly contagious yet curable disease.[6,7] The results of the literature search indicate that there are fewer reports of chancroid both in India and internationally. Prior to the year 2000, Chancroid was the most prevalent GUD found in STD clinics, with a prevalence of 0 to 69%.[8] Currently, the prevalence of this disease has declined to <10% in India and other countries like USA, Jamaica, Dominican Republic.[8] From 2014 to 2016, few cases were documented in England, Paris, and the Czech Republic.[9-11] The probable causes for reduction in the number of cases are, increased sexual health awareness public health measures, major changes in the socioeconomic status and introduction of syndromic management, respectively.[12,13] However occasional reports of cases may indicate that this disease is not yet eliminated and still persists in some social networks.[11] One sexual contact has been reported to have a 0.35% chance of transferring the illness to an affected person.[14] Estimating the true global incidence of chancroid is a big challenge because of non-availability of facilities for microbiological diagnosis in most places and the difficulty in isolating the causative organism on routine culture media, as was seen in both the cases discussed above. CDC suggests diagnostic criteria for clinical and surveillance which includes the following criteria:

1). One or more painful genital ulcers in a patient.
2). Clinical features, genital ulcers with regional lymphadenopathy are characteristic of chancroid.
3). There is no evidence of *T. pallidum* infection by direct fluorescent microscopy, NAAT or by serologic tests for syphilis performed at least 7–14 days after appearance of ulcers.
4). HSV-1 or HSV-2 NAAT or HSV culture performed on the ulcer exudate or fluid are negative.[15,16]

Moreover, the ulcerative STI syndromes overlap, so history and physical examination help in the diagnosis. Though all the criteria for diagnosis have been established yet more than a quarter of the cases may never have a confirmed diagnosis due to above mentioned difficulties.[16] So here comes the role of age-old diagnostic tool, Gram-staining which can be used to rapidly diagnose chancroid in GUD patients in resource limited settings, although the sensitivity and specificity of this method are low.[17] On Gram staining, long strands of Gram-negative coccobacilli are seen in a "school of fish" or "railroad track" arrangement.[18] Although, this characteristic microscopic finding is not consistently reported, but its presence can be a valuable aid to corroborate the correct clinical diagnosis. Definitive diagnosis of chancroid requires isolation of *H. ducreyi* on special culture media (rabbit blood agar or chocolate agar enriched with 1% isovitalex and addition of vancomycin). However, these media are not readily available in most Microbiology laboratories in the low middle income countries. According to CDC, chancroid can be diagnosed if *H. ducreyi* is isolated on special culture media but the drawback is that it is not widely available from commercial sources; and also, its sensitivity is <80%.[19] No FDA-cleared NAAT for *H. ducreyi* is available; however, such testing can be performed by clinical

laboratories that have developed their own NAAT and have conducted CLIA verification studies on genital specimens. Presence of one or more deep and painful genital ulcers along with tender suppurative inguinal adenopathy is suggestive of chancroid.[9,20]

To conclude, chancroid should always be kept in mind as a differential diagnosis, and empirical treatment should be started while dealing with GUD patients, as supportive Microbiological evidence may not always be available but basic diagnostic tool like gram staining may prove as a valuable diagnostic tool.[14,17,20,21]Appropriate history-taking is essential for contact tracing and adequate treatment. Social stigmas towards STIs in many societies pose a challenge to eradicate these curable infectious diseases. The question as to whether chancroid is rare or under-reported owing to lack of expertise and non-availability of microbiological diagnostic facilities, remains unanswered till date.

CONCLUSION

- Chancroid should always be kept in mind as a differential diagnosis while dealing with GUD patients as Microbiological evidence may not always be available.
- Syndromic management of GUD cases using country specific guidelines should be the mainstay of treatment.
- Treatment outcomes are usually satisfactory.

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None.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

AUTHORS' CONTRIBUTION

AS and MB conceptualized the study. AS, MB, NK and NKK contriubuted to intellectual content. AS and MB wrote the manuscript. AS, MB, NK, NKK reviewed and edited the manuscript. All authors read and approved the final manuscript for publication.

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DATA AVAILABILITY

All datasets generated or analyzed during this study are included in the manuscript.

ETHICS STATEMENT

This article does not include any results of experiments conducted on humans or animals. The confidentiality of the patients has been maintained in the article.

INFORMED CONSENT

Written informed consent was obtained from the participants before enrolling in the study.

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