ASIAN JOURNAL OF PHARMACEUTICAL AND CLINICAL RESEARCH

INNOVARE ACADEMIC SCIENCES
Knowledge to Innovation

Vol 17, Issue 12, 2024

Online - 2455-3891
Print - 0974-2441

Case Study

VARIED CLINICAL PRESENTATIONS OF CHANCROID: A CASE SERIES AND LITERATURE REVIEW

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Received: 03 September 2024, Revised and Accepted: 18 October 2024

ABSTRACT

Objectives: This study aimed to explore the diverse clinical manifestations of chancroid, investigate associated coinfections, and evaluate treatment outcomes.

Methods: A prospective case series was conducted involving six patients diagnosed with chancroid. Each patient underwent a detailed clinical evaluation, with photographic documentation of lesions. Laboratory investigations were performed to confirm chancroid and identify potential coinfections. Treatment was tailored according to the clinical findings and diagnostic results.

Results: The study revealed a spectrum of atypical ulcer presentations, including phagedenic ulcers, large ulcers, and small discrete lesions, suggesting the influence of coexisting STIs. Laboratory evaluations confirmed the presence of coinfections such as HIV, syphilis, and herpes in several cases.

Conclusion: Chancroid can present with diverse and atypical clinical features, often in the context of coexisting STIs. Early diagnosis and appropriate management are critical to preventing complications and improving patient outcomes.

Keywords: Chancroid, Sexually transmitted infections, Coinfections, Ulcer characteristics, Atypical presentations.

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INTRODUCTION

Chancroid, a sexually transmitted infection (STI) with varied atypical presentations, remains an intriguing yet underexplored entity in the landscape of genital ulcer diseases. Commonly presenting as painful ulcers and regional lymphadenitis, it poses diagnostic challenges due to its resemblance to other STIs such as syphilis, herpes, lymphogranuloma venereum (LGV), and donovanosis [1]. Chancroid is caused by the gram-negative bacterium Haemophilus ducreyi [2]. Despite its rarity in developed countries, it remains a significant public health concern.

Chancroid's true global incidence remains elusive due to diagnostic limitations. In the United States, only a handful of cases were reported to the CDC in 2016, involving diverse populations such as minorities, heterosexuals, and sex workers [1]. However, in resource-limited settings, particularly in sub-Saharan Africa and parts of Asia, chancroid remains more prevalent. Factors such as poverty, lack of access to healthcare, and high-risk sexual behaviors contribute to its persistence in these regions. Notably, uncircumcised males are at higher risk, and chancroid serves as a cofactor in HIV transmission [1]. Genital ulcers increase the risk of HIV infection, emphasizing the need for accurate diagnosis and management.

Haemophilus ducreyi, a fastidious gram-negative bacterium, is the causative agent of chancroid. Its unique features include a lack of capsule and the presence of a cytolethal-distending toxin. The toxin induces cell cycle arrest and contributes to ulcer formation [1]. Understanding these mechanisms is crucial for targeted therapeutic interventions.

Chancroid typically manifests as painful genital ulcers with a soft, ragged edge and a necrotic base. The classic "soft chancre" is often accompanied by regional lymphadenopathy, leading to bubo formation. Differential diagnosis includes syphilitic chancre, herpes genitalis, and other ulcerative conditions such as donovanosis and LGV. Diagnosing chancroid relies on clinical suspicion, microbiological culture, and polymerase chain reaction assays. However, due to limited laboratory resources and the need for specialized media, accurate diagnosis is a little bit time-consuming. Hence, that's why a clinician should be aware about the varied presentation of chancroid.

Traditionally, azithromycin or ceftriaxone has been the mainstay of treatment. However, emerging antibiotic resistance poses a concern. Monitoring susceptibility patterns is important.

Historically, chancroid has declined globally, but it persists in specific social and public health contexts [3]. Its precarious biological niche warrants further investigation. In this case series, we explore the varied presentations of chancroid in six patients, shedding light on its clinical manifestations. Our findings contribute to the understanding of this enigmatic infection.

METHODS

Study design

We conducted a prospective case study of 6 chancroid patients with varied clinical presentation. The study was carried out at Parul Sevashram Hospital (PSH), Limda, Waghodia, Vadodara.

Inclusion criteria

1. Patients with genital ulcers who were diagnosed with chancroid were included in the study.
2. Age and Gender:
   - All the patients ranging from 18 years to 45 years and who were sexually active were included in the study.
3. Consent and Enrollment:
   - Patients who were willing to provide informed consent in the participation were included in the study.

Exclusion criteria

1. Traumatic ulcers were excluded.
2. Patients who were unwilling to give consent for the study were excluded.

Overall study population

The study included a diverse group of patients presenting with painful genital ulcers, allowing us to explore the varied manifestations of chancroid across different demographics and clinical scenarios.

Data collection

1. Enrolment and Baseline Assessment:
- Patients meeting the inclusion criteria were enrolled consecutively.
- Detailed clinical history, including sexual exposure, symptoms, and duration of ulcers.
- Physical examination to document ulcer characteristics (size, location, edges, base, discharge).
- Inguinal lymphadenopathy assessment.

2. Laboratory Investigations:
- Ulcer swabs to identify H. ducreyi.
- Serological tests for other STIs (VDRL, RPR, HSV 1 and 2 IgG and IgM, HIV rapid and ELISA).

Treatment protocol

1. Chancroid Treatment:
- Oral azithromycin (1g stat) for all patients.
- Topical fusidic acid cream for ulcer management.
- Inj. Ceftriaxone (250 mg OD for 3 days) for patients with extensive ulcers and who were recalcitrant to conventional medical treatment.

2. Coinfection Management:
- HAART initiation for HIV-positive patients.
- Acyclovir for herpes coinfection.
- Inj. Benzathine penicillin-G 2.4 lakh IU for syphilis coinfection.
- Podowart solution for verrucae vulgaris coinfection.

Follow-up and outcome measures

1. Regular Follow-Up:
- Patients were followed up at scheduled intervals (e.g., weekly).
- All the patients were followed up for clinical assessment for 1 month.

Statistical analysis

Descriptive statistics

1. Ulcer Characteristics
- Ulcer Size:
- Mean ulcer size: 1.8 cm (standard deviation: 0.6 cm).
- Median ulcer size: 1.7 cm.
- Duration of Ulcers:
- Average duration: 12 days from symptom onset.

2. Coinfections
- HIV Coinfection:
- Prevalence: 1 out of 6 cases (16.7%).
- Syphilis Coinfection:
- Prevalence: 2 out of 6 cases (33.3%).
- Herpes Coinfection:
- Prevalence: 1 out of 6 cases (16.7%).
- Verrucae vulgaris coinfection.
- Prevalence: 1 out of 6 cases (16.7%)

Implications
- The majority of chancroid cases occurred with coinfections.
- Ulcer size and duration provide insights into disease severity and healing time.

Limitations

1. Sample Size:
- Our study included a small sample (n=6).
- Larger studies are needed for robust conclusions.

2. Coinfection Associations:
- Further investigation is required to explore associations between chancroid and specific coinfections.

CASE DISCUSSION

Case 1 (Figs. 1-3)

A 27-year-old married male patient presented with multiple ulcers over the coronal sulcus for 10 days. The patient also had swelling and discharge over the inguinal area for 10 days. The patient had a history of sexual exposure with a known female partner 20 days back, which was an unpaid, unprotected, peno-oral, and peno-vaginal route. Ulcers ranged from 2 to 5 cm in diameter, painful in nature, bled on touch, with ragged and undermined edges, a non-indurated base, covered with yellowish-grey slough. The swelling represented the inguinal lymphadenopathy associated with foul-smelling pus discharge. There was a presence of a disfiguring scar on the contra-lateral side. Gram staining has been done which shows gram-negative cocco-bacilli with a typical "school of fish" appearance which was suggestive of H. ducreyi infection. All the other necessary investigations for co-existent STDs (VDRL, RPR titer for syphilis, HSV 2 IgG and IgM, HIV rapid, and ELISA) were carried out and were negative. Partner tracing was not possible. The patient was advised to keep abstinence till the ulcers are dried up and resolved and the patient was also advised regarding safe sexual practices along with regular usage of condoms. The patient was treated with 1g oral azithromycin stat and fusidic acid ointment. The ulcer was resolved completely in the span of 10 days along with a disfiguring scar over the inguinal region.

Case 2 (Figs. 4-7)

A 32-year-old unmarried male patient presented with an ulcer over the shaft of the penis for 16 days. The patient also had a history of hyperpigmented macules and patches over palms and soles for 3 months and an ulcer over the tongue for 10 days. On elaborating his sexual history, he had a history of having multiple exposures in the period of one month back with multiple male partners, being the active partner, had multiple exposures in the form of peno-oral and peno-anal routes which were unpaid, unprotected in nature. In elaborating partner history, the partner also had perianal lesions but a detailed history of which is not available. The patient showed a single well-defined ulcer measuring 3x4 cm with ragged undermined edges, necrotic base, and discharge. There was no evidence of any inguinal lymphadenopathy. The patient also presented with palmo-plantar hyperpigmented patches since 3 months, which are suggestive of a macular type of secondary syphilis. There was a single well-defined ulcer present on the tongue which was painless, hard to touch with ragged edges. Other typical lesions of syphilis were absent. On detailed investigation, the patients' VDRL test was positive and RPR titers were high (1:64) and gram staining from the pus showed gram-negative cocco-bacilli. This patient had chancroid with coinfection with syphilis, which was confirmed by the specific tests for syphilis. All the other necessary investigations for co-existent STDs (HIV rapid and ELISA, HSV 2 IgG and IgM) were carried out and were negative. The patient was advised to keep abstinence till the ulcers are dried up and resolved, and the patient was also advised regarding safe sexual practices along with regular usage of condoms. The patient was treated with 1g oral azithromycin stat and fusidic acid ointment. The chancroidal ulcer was resolved completely in the span of 14 days. The patient was also given 3 doses of Inj. Benzathine penicillin-G 2.4 lahks IU divided into each buttock after a negative test dose, 1 week apart. Resolution of syphilitic chancre occurred in the span of 1 month.

Case 3 (Fig. 8)

A 35-year-old unmarried male patient with recurrent ulcers on the glans penis and coronal sulcus for 10 months, aggravated for 7 days, and the presence of recurrent bursting and healing lesions over the inguinal region for 6 months. On elaborating the history, the patient had sexual intercourse with a commercial sexual worker 20 days back, which was paid, unprotected, and peno-vaginal in nature. The patient had multiple exposures with the same partner. He presented with two well-defined ulcers measuring 2×3 cm and 2×1cm in size, respectively, which were tender, bled on touch, everted edges with an erythematous base, and foul-smelling discharge. The patient also had bilateral, tender, fluctuating, inguinal swellings which were suggestive of inguinal lymphadenopathy. There was a bursting of a lymph node which led to sinus formation with foul discharge. On detailed investigation, it was found that the patient was positive for HIV rapid test and HIV ELISA along with gram-negative cocco-bacilli infection which was suggestive of HIV coinfection with chancroid. All the other causes of genital ulcers were ruled out, including syphilis and herpes with negative tests.

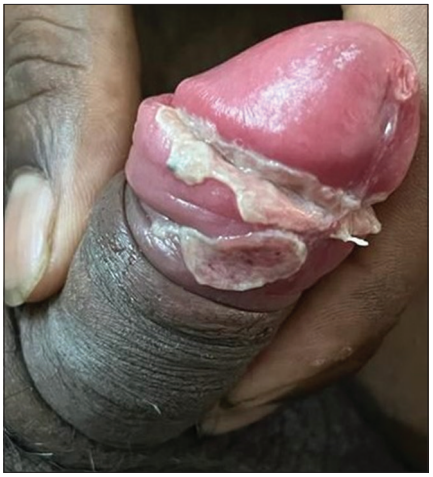

Fig. 1: Serpiginous chancroid ulcer with characteristic appearance

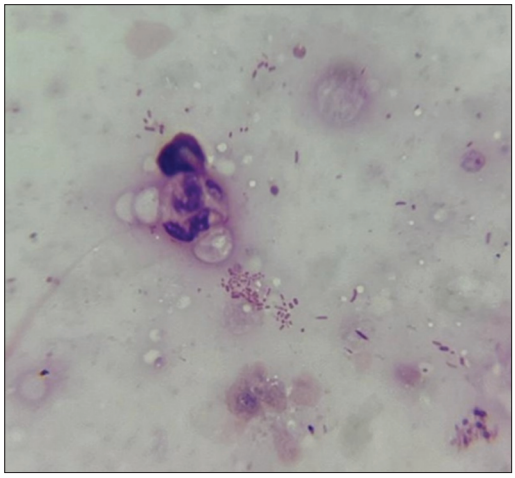

Fig. 2: Gram staining shows typical school of fish appearance of the *H. ducreyi*

Fig. 3: Inguinal lymphadenopathy

Partner tracing was not possible. The patient was advised to keep abstinence till the ulcers are dried up and resolved and the patient was also advised regarding safe sexual practices along with regular usage of condoms. The patient was started on HAART for HIV infection and a tablet Azithromycin 1g stat and topical fusidic acid cream. The lesion resolved within 1 month, and it healed with hyperpigmentation.

Fig. 4: Palmar papules and plaques of syphilis

Fig. 5: Plantar papules and plaques of syphilis

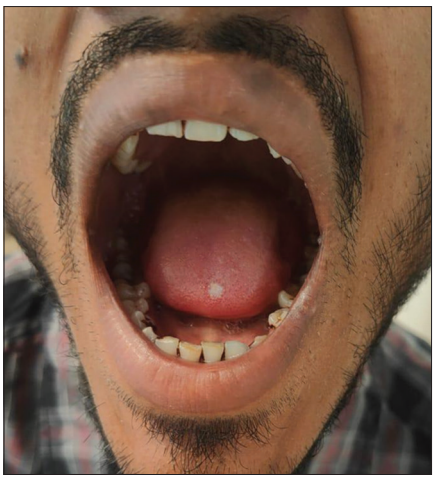

Fig. 6: Syphilitic chancre on tongue

Case 4 (Fig. 9)

A 25-year-old unmarried male presented with an ulcer over the shaft of his penis for 12 days. On elaborating his history, he had multiple sexual exposures in the past 1 month, the last exposure being 18 days back, which was with a known female partner, unpaid, unprotected, peno-oral, peno-vaginal, and peno-anal in route. The ulcer was 3×5 cm in size, tender, bleeding on touch, irregular ragged edges with foul-smelling discharge, and a necrotic base with sloughing present over the shaft of the penis. There was no evidence of inguinal lymphadenopathy. On doing all the other investigations for genital ulcers (VDRL and RPR for syphilis and HSV 1 and HSV 2 IgG and IgM, HIV rapid and ELISA) were negative. The gram staining showed gram-negative cocco-bacilli along with long slender bacilli with different morphology. To confirm the diagnosis, silver impregnation staining was done and under the microscope long, slender, spiral bacteria were seen which was suggestive of borrelia infection, which is a fusospirochete. Partner tracing was not possible. The patient was advised to keep abstinence

Fig. 7: Syphilitic hard chancre on penis

Fig. 10: Herpetic chancroid

Fig. 8: Kissing chancrodial ulcers in HIV patients

Fig. 11: Chancroid with penile warts

Fig. 9: Phagedenic chancroid

till the ulcers are dried up and resolved and the patient was also advised regarding safe sexual practices along with regular usage of condoms. The patient was treated with Inj. Ceftriaxone 250 mg stat. The lesions resolved in 3 weeks.

Case 5 (Fig. 10)

A 36-year-old married male patient presented with a single ulcer on the glans penis for 10 days. The patient also had a history of multiple fluid-filled lesions surrounding the ulcer since 4 days, which burst on their own to form multiple ulcers in the span of 2 days. On elaborating his exposure history, he had multiple exposures with 4 different partners in the span of 20 days. These were unpaid, unprotected, Peno-vaginal, peno-oral in nature. On examination, there was a single ill-defined ulcer measuring about 1×5cm along with multiple small ulcers which were present on the glans penis. The ulcers were tender, painful, bled on touch, ragged, undermined edges with necrotic slough over the base, and associated with stinging and burning pain while micturition. There was no evidence of inguinal lymphadenopathy. On the gram staining, there was the presence of gram-negative cocco-bacilli and HSV-2 IgG and IgM were positive, which was suggestive of chancroid coinfection with herpes genitalis. All the tests for other causes of genital ulcers were negative (VDRL and RPR titer for syphilis, HIV rapid, and ELISA for HIV). Partner tracing was not possible. The patient was advised to keep abstinence till the ulcers are dried up and resolved, and the patient was also advised regarding safe sexual practices along with regular usage of condoms. The patient was treated with a tablet Azithromycin 1g stat along with the tablet Acyclovir 800 mg 5 times/day, fusidic acid cream twice per day, and calamine lotion twice per day. The ulcers resolved within 2 weeks.

Case 6 (Fig. 11)

A 24-year-old unmarried male patient presented with an ulcer on the coronal sulcus for 12 days, associated with cauliflower-like lesions for 4 months. On elaborating his sexual history, he had sexual exposure 25 days back with a female commercial sex worker, paid, unprotected, peno-vaginal in nature. The ulcer was 5×3 cm in size, which was painful

Table 1: Chancroid with concurrent STIs

Case	Clinical Features	Coinfections	Treatment	Resolution time
1	Multiple painful ulcers over the coronal sulcus	None	Azithromycin, fusidic acid	10 days
2	Well-defined ulcer on penis shaft, syphilis macules	Syphilis	Azithromycin, penicillin-G	1 month
3	Recurrent ulcers, bursting lymph nodes	HIV	HAART, azithromycin	Variable
4	Ulcer on penis shaft, silver impregnation staining	Fusospirochetes	Azithromycin, ceftriaxone	3 weeks
5	Fluid-filled lesions, HSV-2 IgM positivity	Herpes	Azithromycin, acyclovir	2 weeks
6	Cauliflower-like lesions, verrucous appearance	HPV	Azithromycin, podowart solution	2 months

1. Syphilis Coinfection: Case 2 presented with both chancroid and syphilis, emphasizing the importance of comprehensive STI screening.
2. HIV Coinfection: Case 3 had recurrent ulcers and HIV coinfection, necessitating tailored management and addressing overall health.
3. Silver Impregnation Staining: Case 4 confirmed borrelia infection using silver impregnation staining, highlighting diagnostic complexity.
4. HSV-2 IgM Positivity: Case 5 demonstrated chancroid with concurrent herpes, requiring targeted antiviral therapy.
5. Verrucous Component: Case 6 involved both ulcer and verrucous lesions, emphasizing combined treatment approaches

in nature, did not bleed on touch, had ragged undermined edges, and had an erythematous base. The ulcer was associated with multiple verruca vulgaris-like lesions on the coronal sulcus. There was no evidence of inguinal lymphadenopathy. On detailed investigation, there was the presence of gram-negative cocco-bacilli, which was suggestive of *H. Ducreyi* infection. Partner tracing was not possible. The patient was advised to keep abstinence till the ulcers are dried up and resolved, and the patient was also advised regarding safe sexual practices along with regular usage of condoms. The patient was treated with a tablet Azithromycin 1 g stat along with fusidic acid cream twice per day. The verrucous lesions were treated with a podowart solution. The ulcer subsided in the span of 3 weeks, and the warty lesions subsided in the span of 2 months.

RESULTS (Table 1)

Case 1: Serpiginous chancroid

- A 27-year-old male presented with multiple painful ulcers over the coronal sulcus.
- Inguinal lymphadenopathy and foul-smelling pus discharge were evident.
- Gram-negative cocco-bacilli with the characteristic "school of fish" appearance on staining.
- Resolution occurred within 10 days with azithromycin and fusidic acid ointment.

Case 2: MSM syphilis coinfection

- A 32-year-old male with a well-defined ulcer on the penis shaft.
- Hyperpigmented macules and patches on palms and soles.
- Positive VDRL and high RPR titers indicating concurrent syphilis.
- Resolution of chancroidal ulcer occurred within 14 days with azithromycin.
- Resolution of syphilitic chancre occurred within 1 month with injection Benzathine penicillin-G 3 doses, each dose 1 week apart.

Case 3: HIV coinfection in a CSW

- Recurrent ulcers on the glans penis and inguinal region.
- Bursting lymph nodes leading to sinus formation.
- Successful resolution with HAART, azithromycin, and fusidic acid.

Case 4: Fusospirochete phagedenic chancroid

- Ulcer on the penis shaft with inguinal swelling.
- Silver impregnation staining confirmed borrelia infection.
- Resolution within 3 weeks with injection of ceftriaxone.

Case 5: Chancroid coinfection with herpes genitalis

- Fluid-filled lesions surrounding a glans ulcer.
- HSV-2 IgM positivity alongside gram-negative cocco-bacilli.
- Successful treatment with azithromycin and acyclovir.
- Healing within 2 weeks.

Case 6: Verrucous chancroid

- Cauliflower-like lesions associated with a coronal sulcus ulcer.
- Gram-negative cocco-bacilli suggestive of H. *ducreyi* infection.
- Resolution of chancroidal ulcer occurred within 3 weeks with azithromycin and resolution of warts with podowart solution occurred in the span of 2 months.

Overall observations

- Chancroid presents with diverse clinical features, emphasizing the need for early diagnosis.
- Coinfections (HIV, syphilis, herpes) complicate management and require tailored approaches.

DISCUSSION

Clinical heterogeneity of chancroid

Chancroid, though relatively uncommon, exhibits a wide spectrum of clinical presentations. Our case series highlights several key observations:

1. Diverse ulcer characteristics
- The ulcers varied in size, shape, and appearance, emphasizing the need for individualized assessment.
- Ragged edges, foul-smelling discharge, and necrotic bases were common features.
2. Coinfections and Diagnostic Challenges:
- Coinfections (e.g., syphilis, herpes, HIV, HPV) complicated the clinical picture.
- Accurate diagnosis required comprehensive serological testing and specialized staining techniques.
3. Treatment Approaches:
- Azithromycin remained effective in most cases, consistent with previous studies.
- Tailored management for coinfections (e.g., penicillin-G for syphilis, acyclovir for herpes, ceftriaxone for fusospirochete, and podowart for HPV) was crucial.

Implications for clinical practice

1. Early Diagnosis Matters
- Clinicians should maintain a high index of suspicion for chancroid, especially in regions with STI prevalence.
- Prompt diagnosis prevents complications, reduces transmission, and guides appropriate treatment.
2. Partner Tracing and Counseling
- Partner notification is challenging due to multiple sexual exposures.
- Safe sexual practices and condom usage are essential for prevention.
3. Immune Status and Treatment Response
- HIV coinfection influenced ulcer healing time.
- HAART initiation played a pivotal role in overall management.

Comparison with other studies

1. Loh *et al.* (2021) [4].
- Their meta-analysis highlighted similar diagnostic complexities.
- Our study adds real-world clinical context to their findings.
2. World Health Organization (WHO) Guidelines [5]
- Our prevalence rates for coinfections align with the WHO estimates.
- Consistency across studies reinforces the importance of considering coinfections.

Implications and future directions

1. Clinical Decision-Making
- Clinicians should consider coinfections and immune status when managing genital ulcers.
- Our data contribute to evidence-based decision-making.

2. Long-Term Follow-Up
- Longer observation periods would enhance our understanding of recurrence rates.

Limitations

1. Sample Size and Generalizability
- Our study included a small sample, limiting statistical power.
- Larger multicenter studies are needed to validate our findings.

2. Recurrence Rates and Long-Term Follow-Up
- Longer follow-ups would provide insights into recurrence rates and treatment durability.

CONCLUSION

Chancroid remains an intriguing diagnostic challenge due to its varied presentation. Clinicians must consider coinfections, immune status, and sexual history to optimize patient care. Our findings contribute to the growing body of knowledge on this fascinating yet elusive STI.

ACKNOWLEDGMENTS

We thank Dr. Prima Dalwadi, Dr. Krut Patel, Dr. Bhakti Thakkar, and Dr. Dhara Patel for editorial and graphic support. We also thank all the study participants, without whom the study would not have been completed.

CONFLICTS OF INTEREST

None.

AUTHORS CONTRIBUTION

Spandan Shah - Introduction, Discussion, Conclusion, Dhara Patel - Abstract formulation, Krunal Tralsawala- Table formulation, Som Lakhani- Overall supervision.

AUTHOR SOURCE OF FUNDING

Nil.

REFERENCES

1. Irizarry L, Velasquez J, Wray AA. Chancroid. Treasure Island, FL: StatPearls; 2020.
2. Best BM. Practice. Chancroid - Symptoms, diagnosis, and treatment 2023. Available from: https://bestpractice.bmj.com/topics/en-gb/932
3. World Health Organization. Eradicating Chancroid. Geneva: World Health Organization; 2008.
4. Loh AJ, Ting EL, Wi TE, Mayaud P, Chow EP, Santesso N, *et al*. The diagnostic accuracy of syndromic management for Genital Ulcer disease: A systematic review and meta-analysis. Front Med (Lausanne). 2021;8:806605. doi: 10.3389/fmed.2021.806605, PMID 35071282
5. World Health Organization. Eradicating Chancroid. Public Health Reviews. Geneva: World Health Organization; 2001;79(9):818-826.