

Case Report

Primary syphilitic proctitis associated with human immunodeficiency virus infection in a male patient who had sex with men: a case report

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Submitted: 9 April 2021 Accepted: 20 May 2021 Available online: 4 August 2021 Published: 8 February 2022

Abstract

Background: Men who have sex with men (MSM) have frequent rectal infections. Although a large increase in incidence of syphilis has been reported in recent years, rectal chancre is a rare manifestation that can easily be neglected. **Methods:** We describe a male patient who had sex with men and presented with protracted chronic proctitis and scaly rashes. A diagnosis of HIV infection and early syphilis with syphilitic proctitis (rectal chancre) was confirmed by the findings of ulcerative proctitis under colonoscopy, the presence of *Treponema pallidum* in rectal ulcer biopsy specimens by immunohistochemistry, and positive serologic test results for human immunodeficiency virus type 1 (HIV-1) and syphilis. **Results:** Intramuscular benzathine penicillin G (2.4 million Units) given once a week for three consecutive weeks resulted in complete resolution of rectal and skin lesions. The patient also began regular anti-viral therapy against HIV infection. **Conclusion:** Immunohistochemical detection of *Treponema pallidum* in the primary infection tissue is a useful complement to serologic tests for the diagnosis of syphilis by clinical laboratories. Healthy and protective sexual behavior is advocated to avoid possible infections in MSM.

Keywords: Rectal chancre; Syphilis; Immunohistochemical detection; HIV infection

1. Introduction

Syphilis is an infectious disease caused by the spirochete *Treponema pallidum*. The World Health Organization (WHO) has estimated the annual global incidence of syphilis to be about 12 million cases [1]. In addition, up to 92,000 human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS) cases were reported in China in 2011, with an incidence of 32 cases per 100,000 residents [2]. Currently, the clinical manifestation of syphilis is complicated by a variety of sexual behaviors, making it more difficult to diagnose this disease. One of the manifestations is syphilitic proctitis, a rare condition that usually lacks the classical symptoms of proctitis [3]. Moreover, syphilis is often accompanied by HIV infection [4]. In this report we describe a case of early syphilis with skin rash and primary rectal chancre associated with HIV infection in a man who had sex with men (MSM).

2. Case report

A 31-year-old man presented to our clinic complaining of a sore throat and mild itching and aching erythema on his thigh. The patient did not report any weight loss, fever, fatigue, headache or poor appetite. Physical examination showed scattered erythema and scales on his penis, glans, scrotum, trunk, limbs and scalp. No lesions were noticed on his palms and soles. No ulcers or hyperplasia were observed in his genital skin areas. He had been referred to a proctologist two weeks earlier because of a change in bowel habit with tenesmus, mucous discharge and hematochezia

for two months. Stool occult blood test was positive. Sigmoidoscopy showed mucosal thickening with multiple superficial ulcerations on the lower rectum (Fig. 1A). Biopsies were taken from these lesions and the subsequent histological findings were rectal mucosa erosion and necrosis, with densely infiltrating monocytes, lymphocytes and especially plasmacytes in the mucous layer (Fig. 2A). Since no lymph nodes were palpable clinically, an ultrasound B examination was ordered to rule out lymphoma. This showed swelling of cervical and axillary lymph nodes.

Further questioning revealed the patient had receptive unprotected anal intercourse with several men, the most recent occurring two months before the onset of his symptoms. Serology was then performed for *treponema pallidum*. The titer for the positive particle agglutination assay (TPPA) was 1:1280, while the titer for the rapid plasma reagin (RPR) assay was 1:256. Both the HIV-1 antibody test and the HIV-1 confirmatory Western Blot test returned positive results. The peripheral blood CD4 cell count was 15.9% (normal range 24–48%), while the CD4/CD8 ratio was 0.28. Immunohistochemical staining with anti-*Treponema* antibody (1:200, CP135A, 903-135-091520, Biocare Medical, LLC, Pacheco, CA, USA) revealed numerous spirochetes in the above biopsies (Fig. 2B). The patient was given a 3-week course of intramuscular benzathine penicillin G (2.4 million Units per week) for syphilis. He also began highly active anti-retroviral therapies (HAART) for HIV treatment. Two months later, the patient reported cessation of rectal symptoms. The skin lesions had also gradually disappeared. The titer for RPR de-



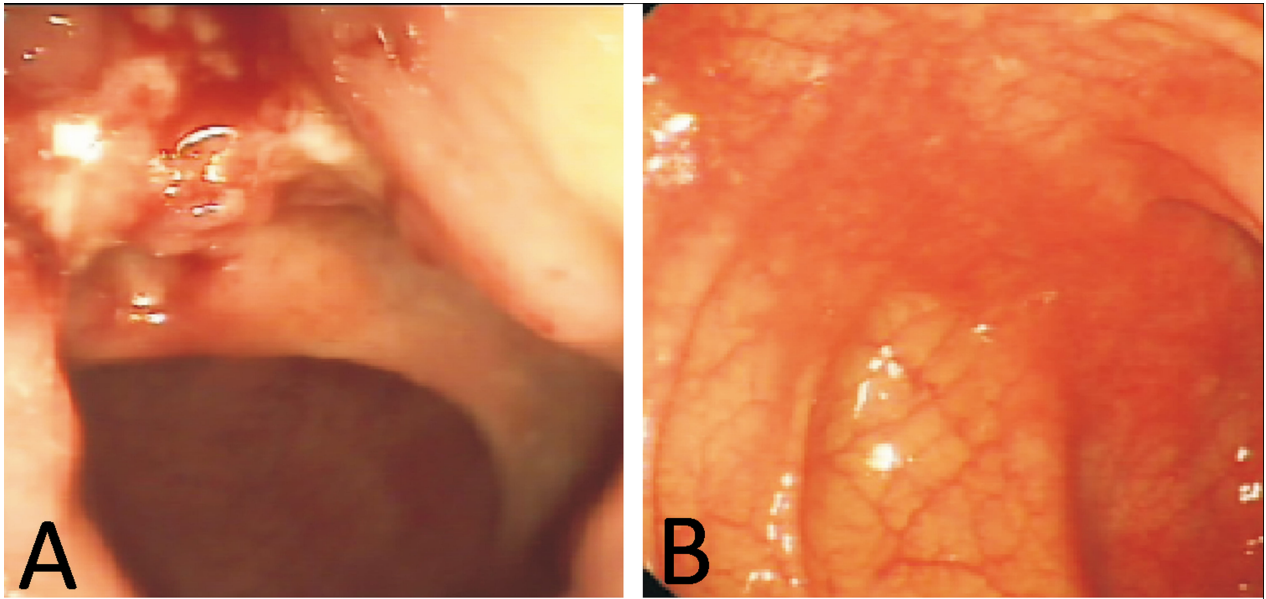


Fig. 1. Endoscopic images of the rectum. (A) Sigmoidoscopic findings indicate the rectal chancre was located on the posterior wall of the rectum. (B) Follow-up sigmoidoscopy after 2 months revealed incomplete regression, leaving a slight thickening of the wall and grainy hyperplasia at the ileocecal junction.

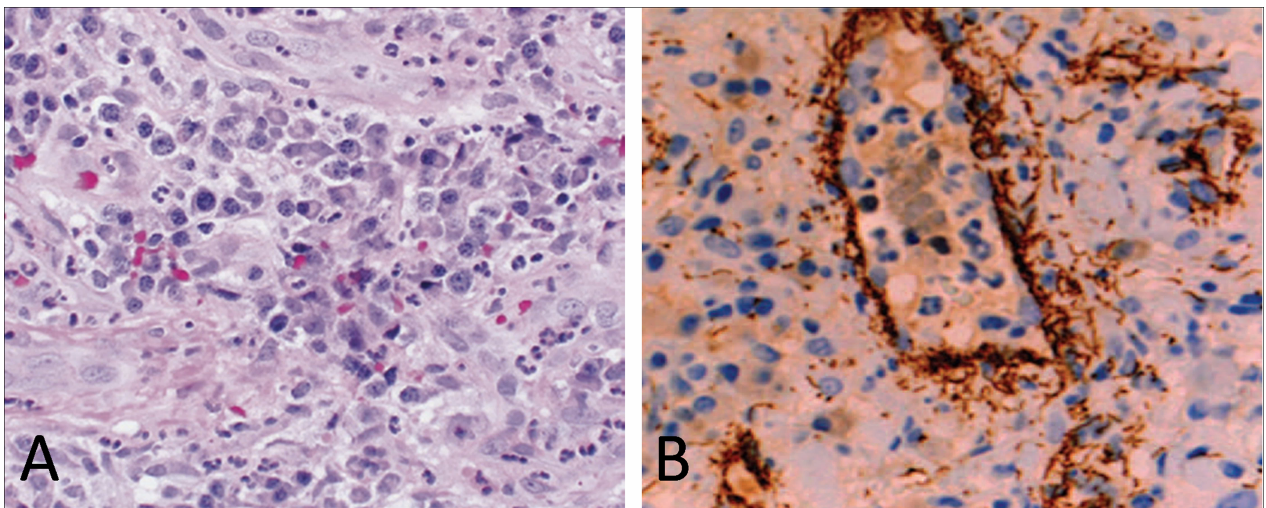


Fig. 2. Pathological and immunohistochemical results for the rectal chancre. (A) Hematoxylin and eosin staining of rectal biopsy specimen. Rectal mucosa with dense infiltration by monocytes and plasmacytes ($\times 400$). (B) Immunohistochemical staining for *T. pallidum* showing numerous typical spiral and thread-like organisms highlighted by brown chromogen in the rectal biopsy specimen, especially around the small vessels ($\times 400$).

clined to 1:64 and the stool occult blood test became negative. Sigmoidoscopy showed grainy hyperplasia at the ileocecal junction with sporadic erosion of the rectal mucosa (Fig. 1B).

3. Discussion

Rectal chancre is rare, with only a few reports having been published to date [3,5–7]. This condition may be the third most common cause of symptomatic anorectal infections in young MSM, after herpes simplex virus

and gonococcal infections [8]. In contrast to other rectal STDs, anorectal syphilis can present with considerable variability in terms of clinical symptoms and morphologic features. The most frequent features are anal lesions such as fissures, ulcers and condylomata lata, although these are often asymptomatic. The most common macroscopic presentation of primary rectal syphilis is a cancer-like mass with varying degrees of erosion and ulceration suggestive of cancer and often prompting unnecessary surgical referral [5], as in the present case.

A positive RPR and TPPA serum test result is diagnostic for syphilis, but there was no direct evidence to suggest the rectal symptoms in our case were caused by syphilis. For further verification, dark field examination or silver staining of the biopsy specimen is strongly recommended [3]. We were constrained from performing dark field examination, while the results from silver staining were negative. However, immunohistochemical staining with anti-*Treponema* antibody revealed brown, thread-like organisms. This method is reportedly more sensitive and specific than silver staining [9]. Based on these findings, a diagnosis of syphilis proctitis was made. Moreover, as with other syphilitic cases, benzathine penicillin therapy resulted in rapid regression of skin lesions and rectal symptoms and a dramatic decline in RPR titer. Interestingly, our case proceeded to secondary syphilis without relief of the primary rectal chancre. This is somewhat unusual and probably due to immunosuppression in HIV-positive patients, or because rectal chancre tends to be less self-limiting than other common locations of chancroid sores [4].

Although not diagnostic by itself, histological examination is important for the purpose of excluding cancer. The suspicion of infection should be raised when chronic inflammation is present. Acute inflammation of the rectum is frequent in MSM, whereas chronic inflammation is infrequent. However, chronic inflammation is strongly associated with syphilis, herpes simplex virus type II, or *Chlamydia trachomatis* infection [4,10].

HIV infection and other STDs can often occur together in the same patient. The number of reported STD cases is increasing, reflecting an increased frequency of sexual behavior that allows transmission of both STDs and HIV, such as anal sex without condom protection. Moreover, having an STD may increase the risk of acquiring or transmitting HIV [11]. An overall prevalence of 4.9% for HIV and 11.8% for syphilis was found amongst MSM in China in 2009, with syphilis-positive MSM having the highest HIV prevalence of 12.5% [12]. STD patients with inflammatory or ulcerative lesions have been estimated to have 2- to 5-fold increased susceptibility to HIV infection [9]. The incidence of syphilitic proctitis is also increasing [7], particularly in sexually active MSM and in AIDS patients. Bassi *et al.* [3] emphasized that endoscopists should bear in mind the rising incidence of syphilis. Syphilitic proctitis should be considered whenever anorectal lesions are found.

4. Conclusions

MSM have frequent rectal infections. Our patient reported a change in bowel habit for two months accompanied by scaly skin rashes. The diagnosis of HIV infection and early syphilis with syphilitic proctitis (rectal chancre) was confirmed by the findings of ulcerative proctitis under colonoscopy, *Treponema pallidum* in rectal ulcer biopsy specimens, and positive serologic test results for syphilis and HIV-1. The initial clinical history of this patient did

not indicate homosexuality, and he admitted to anorectal intercourse only after further questioning. Therefore, health care providers should specifically inquire about rectal intercourse whenever rectal syphilis is suspected. Protective sexual behavior is advocated for MSM in order to avoid the possibility of infection.

Author contributions

JW performed the experiments and clinical investigation, WYC wrote the paper.

Ethics approval and consent to participate

The patient gave his informed consent for inclusion before he participated in the study. The study was conducted in accordance with the Declaration of Helsinki, and the protocol was approved by the Ethics Committee of Zhejiang Hospital (approval number: 2021-CA-8).

Acknowledgment

The authors thank the patient to share his information.

Funding

This research received no external funding.

Conflict of interest

The authors declare no conflict of interest.

References

- [1] World Health Organization, Department of HIV/AIDS. Global prevalence and incidence of selected curable sexually transmitted infections: overview and estimates. Geneva, 2001. Available at: http://www.who.int/hiv/pub/sti/who_hiv_aids_2001.02.pdf (Accessed: 1 November 2001).
- [2] Li JH, Cai YM, Yin YP, Hong FC, Shi MQ, Feng TJ, *et al.* Prevalence of anorectal *Chlamydia trachomatis* infection and its genotype distribution among men who have sex with men in Shenzhen, China. *Japanese Journal of Infectious Diseases*. 2011; 64: 143–146.
- [3] Bassi O, Cosa G, Colavolpe A, Argentieri R. Primary syphilis of the rectum—Endoscopic and clinical features. Report of a case. *Diseases of the Colon & Rectum*. 1991; 34: 1024–1026.
- [4] Torrone EA, Bertolli J, Li J, Sweeney P, Jeffries WL, Ham DC, *et al.* Increased HIV and primary and secondary syphilis diagnoses among young men—United States, 2004–2008. *Journal of Acquired Immune Deficiency Syndromes*. 2011; 58: 328–335.
- [5] Voinchet O, Guivarc'h M. Syphilis of the rectum mimicking neoplastic disease (author's transl). *Gastroenterologie Clinique et Biologique*. 1980; 4: 134–136. (In French)
- [6] Song SH, Jang I, Kim BS, Kim ET, Woo S, Park MJ, *et al.* A case of primary syphilis in the rectum. *Journal of Korean Medical Science*. 2005; 20: 886–887.
- [7] Javanbakht M, Murphy R, Harawa NT, Smith LV, Hayes M, Chien M, *et al.* Sexually Transmitted Infections and HIV Prevalence among Incarcerated Men who have Sex with Men, 2000–2005. *Sexually Transmitted Diseases*. 2009; 36: S17–S21.
- [8] Bignell C; IUSTI/WHO. 2009 European (IUSTI/who) Guideline on the Diagnosis and Treatment of Gonorrhoea in Adults. *International Journal of STD & AIDS*. 2009; 20: 453–457.
- [9] Martín-Ezquerro G, Fernández-Casado A, Barco D, Jucglà A,

- Juanpere-Rodero N, Manresa JM, *et al.* Treponema pallidum distribution patterns in mucocutaneous lesions of primary and secondary syphilis: an immunohistochemical and ultrastructural study. *Human Pathology*. 2009; 40: 624–630.
- [10] Surawicz CM, Goodell SE, Quinn TC, Roberts PL, Corey L, Holmes KK, *et al.* Spectrum of rectal biopsy abnormalities in homosexual men with intestinal symptoms. *Gastroenterology*. 1986; 91: 651–659.
- [11] Katz DA, Dombrowski JC, Bell TR, Kerani RP, Golden MR. HIV Incidence among Men who have Sex with Men after Diagnosis with Sexually Transmitted Infections. *Sexually Transmitted Diseases*. 2016; 43: 249–254.
- [12] Wu Z, Xu J, Liu E, Mao Y, Xiao Y, Sun X, *et al.* HIV and syphilis prevalence among men who have sex with men: a cross-sectional survey of 61 cities in China. *Clinical Infectious Diseases*. 2013; 57: 298–309.