Case Report

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Primary Rectal Syphilis Mimicking Lymphoma: A Case Report and Literature Review

림프종으로 오인될 수 있는 원발성 직장 매독: 증례 보고와 문헌 고찰

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Primary rectal syphilis is a rare disease that can be misdiagnosed as lymphoma or other rectal cancers on sigmoidoscopy or CT. Here, we report a case of primary rectal syphilis mimicking rectal malignancy in a 23-year-old male who presented with a rectal mass and multiple lymphadenopathies. In this case report and literature review, we focused on the CT findings and endoscopic observations of primary rectal syphilis. Infectious diseases, such as rectal syphilis, should be considered in the differential diagnosis of young patients with unusual rectal lesions and disproportionately extensive lymphadenopathies.

Index terms Rectum; Syphilis; *Treponema pallidum*

INTRODUCTION

Syphilis can affect multiple organs, leading to a range of symptoms, including genital or oral ulcers, skin rashes, ocular issues, and neurological dysfunctions (1, 2). However, rectal involvement in syphilis is rare and its diagnosis presents challenges owing to the diverse array of potential symptoms that manifest when the rectum is affected (3). Here, we present a case of primary rectal syphilis mimicking rectal malignancy in a 23-year-old male. We have also included a literature review focusing on the CT features of rectal syphilis.

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CASE REPORT

A 23-year-old male presented to the emergency department with a 2-week history of a right-sided inguinal mass. Physical examination revealed tenderness in the right inguinal area, and laboratory tests indicated mild leukocytosis ($10.81 \times 10^3/\mu L$), elevated C-reactive protein level (5.36 mg/dL), and normal serum lactate dehydrogenase level (189 IU/L).

Contrast-enhanced portal-phase abdominopelvic CT revealed multiple enlarged lymph nodes measuring up to 15 mm in diameter in the right inguinal area, mesorectum, presacral area, and along the inferior mesenteric vessels (Fig. 1A). The enlarged lymph nodes showed homogeneous enhancement with smooth borders. Segmental and circumferential wall thickening for an approximate 10-cm length from the rectum to the anal canal was observed. The rectal lesion showed a relatively homogeneous enhancement with a preserved wall layer and mild perirectal fat stranding. There was no evidence of bowel obstruction on the CT scans.

We primarily suspected rectal malignancy, specifically lymphoma. These suspicions were based on the disproportional enlargement of the lymph nodes and absence of overt signs of bowel obstruction related to rectal wall thickening. We also considered inflammatory diseases as part of the differential diagnosis. This included inflammatory bowel disease or infectious proctitis given the patient's young age and the evident perirectal fat stranding observed on the CT images.

Further investigation of the patient's bowel habits and gastrointestinal symptoms revealed a history of chronic constipation spanning several years accompanied by recurrent episodes of diarrhea and hematochezia.

For pathological confirmation, biopsies of the rectum and right inguinal lymph nodes were performed by sigmoidoscopy and ultrasonography, respectively. Sigmoidoscopy revealed edematous hyperemic mucosa and mass-like wall thickening of the rectum. The endoscopist suspected lymphoma (Fig. 1B).

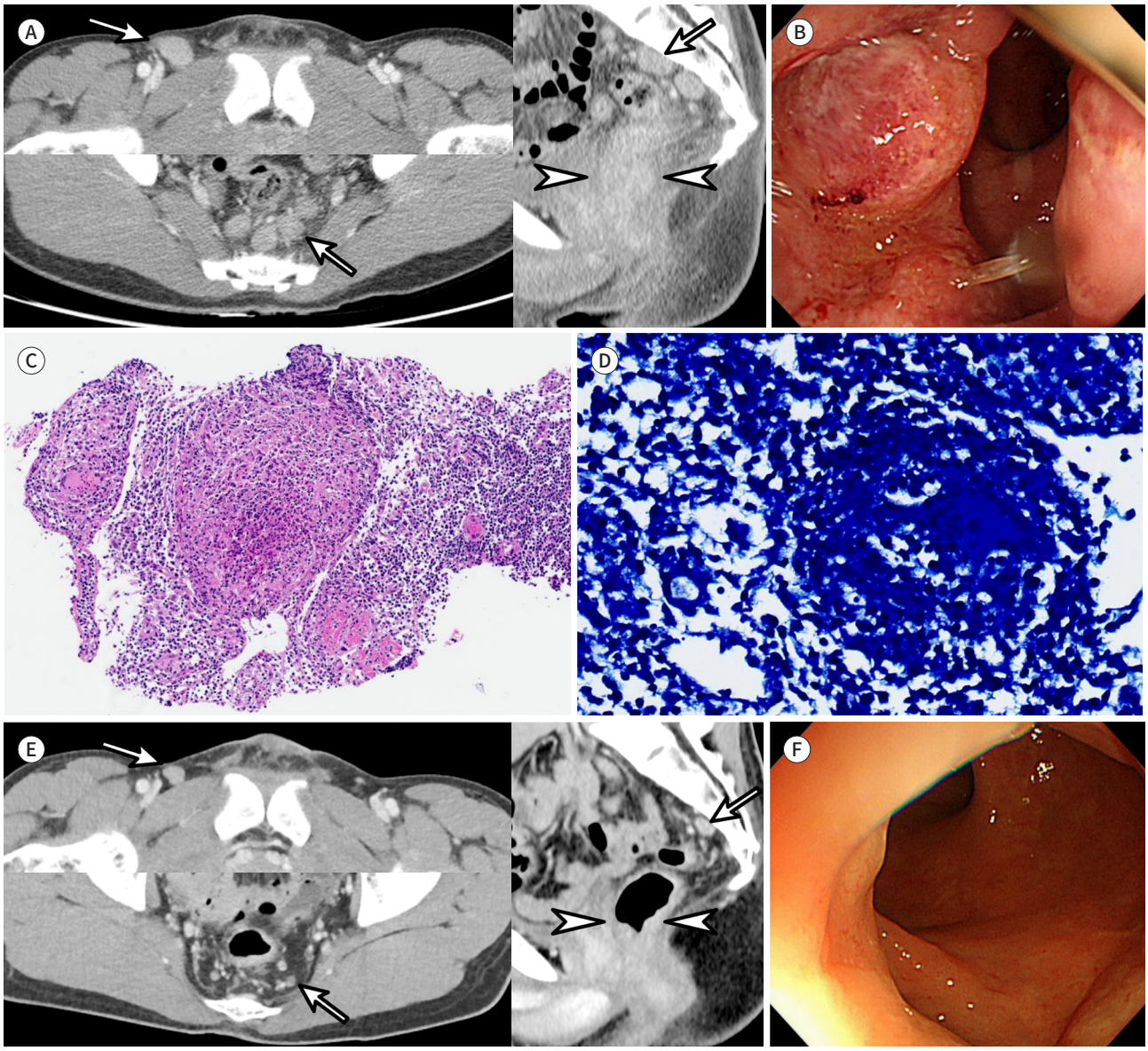
Sigmoidoscopic biopsy specimens from the rectum revealed dense infiltration of polymorphic lymphoid cells and histiocytes in the lamina propria with ulcers and increased numbers of plasma cells and eosinophils, suggesting inflammatory lesions. Ultrasound-guided biopsy of the right inguinal lymph node revealed chronic granulomatous inflammation with focal necrosis and an abscess suggestive of reactive hyperplasia with chronic granulomatous inflammation (Fig. 1C, D). Therefore, the pathologist recommended a further workup for inflammatory conditions, including infectious diseases.

Following various serum tests for further evaluation, the rapid plasma reagent (RPR), a non-treponemal test for syphilis screening, returned reactive with a titer of 1:64. Subsequent fluorescent treponemal antibody absorption testing yielded positive results and confirmed the diagnosis of syphilis.

Upon investigating the patient's sexual history, no homosexual relationships or recent anal intercourse was reported. Furthermore, human immunodeficiency virus (HIV) antigen/antibody test results were negative.

The patient received intramuscular injections of benzathine penicillin G 2.4 megaunits single dose for primary rectal syphilis. After treatment, the size of the right inguinal mass notably decreased and the patient's gastrointestinal symptoms were alleviated. A 3-month fol-

Fig. 1. Rectal involvement of syphilis in a 23-year-old male patient.
A. Contrast-enhanced abdominopelvic axial (left-upper and left-lower) and sagittal (right) CT images reveal multiple enlarged lymph nodes in the right inguinal area, mesorectum, and presacral area (arrows). The sagittal image demonstrates segmental and circumferential wall thickening from the rectum to the anal canal, accompanied by peri-rectal fat stranding (arrowheads).
B. Sigmoidoscopic finding of mass-like wall thickening with hyperemia is visible in the rectum.
C. Hematoxylin and eosin staining of a specimen from the right inguinal lymph node shows chronic granulomatous inflammation (× 100).
D. No spirochete was found on Wright-Giemsa staining of the specimen (× 400).
E. Follow-up contrast-enhanced abdominopelvic axial (left-upper and left-lower) and sagittal (right) CT images after 3 months show improvement of rectal wall thickening (arrowheads) and lymphadenopathy (arrows).
F. Follow-up sigmoidoscopy reveals complete resolution of wall thickening with hyperemia.



low-up CT scan revealed improvement in the rectal wall thickening and lymphadenopathy (Fig. 1E). The previously observed mass-like wall thickening with hyperemia completely resolved on follow-up sigmoidoscopy (Fig. 1F). To evaluate treatment effectiveness, a 3-month follow-up RPR titer was performed and revealed a decrease from 1:64 to 1:16, signifying suc-

cessful treatment; a four-fold or greater reduction in the RPR titer within 12 months indicates successful treatment.

DISCUSSION

Syphilis is a sexually transmitted infection caused by the spirochetal bacterium *Treponema pallidum* (1, 4). Despite a recent global increase in syphilis prevalence (5), rectal involvement remains rare (6). The symptoms of rectal syphilis include itching, bleeding, tenesmus, diarrhea, obstruction, and anal discharge, although patients can also be asymptomatic. Endoscopic and CT findings associated with rectal syphilis are diverse and include proctitis, ulcerations, and mass formation. These variations in presentation can lead to misdiagnosis, often resembling inflammatory bowel disease, lymphoma, or rectal cancer (3).

To the best of our knowledge, only 40 case reports of rectal syphilis have been published in the English language. Among these, CT findings were available for only 14 cases (Supplementary Table 1), whereas sigmoidoscopic findings were documented in 36 cases. CT scans often show circumferential, concentric, or irregular rectal wall thickening, whereas sigmoidoscopy typically reveals hyperemia, ulcers, or rectal masses. Of the 40 patients, 18 exhibited features suggestive of malignancy due to rectal wall thickening observed on CT or rectal masses during sigmoidoscopy. Additionally, among the 14 cases with CT findings, perirectal fat stranding was noted in two.

Among these 14 cases, 11 demonstrated enlargement of the perirectal lymph nodes, suggesting that the majority of rectal syphilis cases involved perirectal lymph node enlargement. Although relatively uncommon, 21% (3) of the 14 cases exhibited inguinal lymph node involvement, like our observed case.

The incidence of rectal syphilis is increasing, particularly among homosexual male (7, 8). Among the 40 English language case reports, excluding six cases without available information on sexual preference, 88% (30 out of 34) of the documented cases involved homosexual male or individuals engaged in anal intercourse. By contrast, our patient, a heterosexual male, reported no recent sexual activity, including anal intercourse. The mechanism underlying the syphilis transmission in our patient remains unclear.

There is a well-established association between syphilis and HIV infection (4). Among the previously mentioned 40 case reports of rectal syphilis, 14 had no recorded mention of HIV status. Among the remaining 26 patients, 46% (12) were coinfected with both HIV and syphilis.

In summary, current literature indicates that when presenting with rectal wall thickening or a rectal mass, rectal syphilis can mimic a rectal malignancy, necessitating differentiation. It often coincides with multiple perirectal lymphadenopathies, while inguinal lymphadenopathy, although uncommon, can also manifest. Given its prevalence among homosexual men and individuals with a history of anal intercourse, a thorough inquiry into their sexual habits is essential. Moreover, testing for HIV coinfection is imperative given that approximately half of cases demonstrate such coexistence.

To our knowledge, only three case reports of primary rectal syphilis exist in Korea (3, 8, 9), all of which feature ulcerative rectal lesions in young men aged 30–45 years. However, this is the first reported case of rectal syphilis presenting as a rectal mass rather than an ulcerative

lesion accompanied by extensive lymphadenopathies.

Physicians should consider the potential diagnosis of an infectious disease such as rectal syphilis when encountering a clinical scenario of a rectal mass accompanied by multiple lymphadenopathies.

Supplementary Materials

The online-only Data Supplement is available with this article at http://doi.org/10.3348/jksr.2023.0155.

Author Contributions

Conceptualization, B.H., C.J.; data curation, B.H., C.J.; formal analysis, B.H., C.J.; investigation, B.H., C.J.; methodology, B.H., C.J.; project administration, B.H., C.J.; resources, B.H., C.J., N.H.Y., P.J.H.; supervision, B.H., C.J.; writing—original draft, B.H., C.J.; and writing—review & editing, all authors.

Conflicts of Interest

The authors have no potential conflicts of interest to disclose.

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림프종으로 오인될 수 있는 원발성 직장 매독: 증례 보고와 문헌 고찰

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원발성 직장 매독은 드문 질환으로 대장내시경이나 컴퓨터단층촬영에서 림프종이나 다른 직장암으로 오진될 수 있다. 이에 저자는 직장 병변과 다수의 림프절병증으로 발현하여 직장 종양으로 오인되었던 23세 남자 환자의 원발성 직장 매독 증례를 보고하고자 한다. 이 증례 보고는 원발성 직장 매독이라는 드문 질환의 컴퓨터단층촬영과 내시경 소견에 초점을 둔다. 이와 같이 비전형적인 직장 종괴와 이에 비해 광범위한 림프절병증을 가지고 있는 젊은 환자를 진료할 때 우리는 직장 매독과 같은 감염성 질병을 감별 질환으로 고려해 볼 수 있다.

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