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Hypovolemic Shock Due to Lower Gastrointestinal Tract Bleeding Secondary to Primary Rectal Syphilitic Ulcer. Case Report and Literature Review

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ABSTRACT

Syphilis is a sexually transmitted disease caused by the spirochete Treponema pallidum, it has a well-defined course with several stages throughout its natural history ranging from primary to tertiary.

Rectal syphilis is a rare syphilis presentation and can occur in both primary and secondary syphilis, either in a syphilitic ulcer or proctitis. It's generally doesn't have symptoms, however it can cause rectal bleeding that in most cases tends to be self-limiting. The diagnosis is established when it's possible with direct observation studies; However, in cases of concomitant contamination by spirochetes of the usual rectal flora, the sensibility and specificity of direct observation tests decreases, so the diagnosis requires an adequate clinical, serological and, if necessary, histopathological correlation. The treatment and follow-up is the same as in other syphilis types and depends on the time of evolution and specific conditions of the patient in question.

We present the case of a male patient with primary rectal syphilis that during his course triggered a state of hypovolemic shock secondary to massive rectal bleeding.

KEYWORDS: Syphilis, Treponema Pallidum, Proctitis, Ulcer, Rectal bleeding.

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INTRODUCTION

Syphilis is a sexually transmitted disease (STD) caused by the spirochete *Treponema pallidum* and has an infectivity of around 30% [1,2].

T.pallidum is an obligate human pathogen recognized for its immune evasiveness and invasiveness [1]. Its infection occurs mainly in men who have sex with men (MSM).

The associated risk factors are a greater number of sexual contacts (sporadic or anonymous), drug use, being HIV positive and, above all, unprotected sexual relations.

Syphilis has variable presentation forms and ranges from primary to tertiary syphilis, each one with its particular characteristics.

The incubation period of *T.pallidum* infection goes from the inoculation to symptomatology onset and usually lasts 3 weeks later, however it can occur in a range from 3 days to 3 months [3].

Primary syphilis consists in a primary initial lesion (chancre) and regional lymphadenopathy. The chancre usually heals in 4 to 6 weeks even without treatment; In some cases, the primary lesion goes unnoticed [4].

Secondary syphilis is a systemic disease and occurs in about 25% of cases of untreated primary syphilis some weeks or months later, in this time *T.pallidum* disseminates to all organs and is associated with systemic signs. The typical clinical manifestations at this stage are a maculopapular rash distributed on thorax and proximal extremities with associated palmoplantar involvement, generalized lymphadenopathy, and constitutional symptoms. Like primary syphilis, the manifestations of secondary syphilis resolve spontaneously in 1 to 6 months.

Tertiary syphilis is the last infection stage and is characterized by multisystemic manifestations such as aortitis, meningeal syphilis, uveitis and syphilitic gummas [5].

Syphilitic proctitis is a rare manifestation and can be associated within primary syphilis if it manifests with a chancre or with secondary syphilis in the absence of the

chancre and an nonspecific inflammation. Most cases are observed in patients who practice anal sex, especially when its receptive, with an estimated proportion of 75% [6,7].

Generally is non symptomatic disease, however rectal bleeding can be part of the clinical picture. It has been described in the majority of case reports as mild and may even go unnoticed therefore, its association with profuse bleeding capable of causing a state of hypovolemic shock is considered an unusual manifestation.

CASE REPORT

We present the case of a 23-year-old male patient who presented one month prior to the onset of his current illness an ulcer at the base of the penis, oval, painless, with an indurated base, bright red border and an exudative bottom with subsequent development of generalized, erythematous, non-pruritic dermatosis, that affected palms and soles as well as the presence of painful palpable lymphatic nodes in the cervical, axillary and inguinal region with no fever association, diaphoresis, diarrhea or weight loss.

His current condition began after the improvement of his dermatosis with the presence of intermittent mild rectal bleeding with no symptoms associated, subsequently he presented moderate lower digestive tract bleeding on approximately 3 times, so he came to our evaluation with the following vital signs: T/A 113/63 mmHg, HR 73x´, RR 24x´, T 36º, physical examination showed slightly painful palpable lymph nodes in the bilateral cervical, inguinal and axillary regions approximately of 1.5cm, the largest were in the inguinal region, the rectal examination did not find suggestive data of hemorrhoidal disease, anal fissure or tumors. The following laboratories were requested: Leukocytes 7.1 K/ul, hemoglobin 12.9 g/dl, hematocrit 40.3% platelets 318 K/ul, however during his hospitalization he presented severe rectal bleeding in six times, causing hemodynamic instability: T/A 80/60 mmHg, HR 140x', RR 24x', crystalloid solutions were administered and new laboratories were requested: hemoglobin of 9 g/dl was detected, hematocrit 27%, 2 erythrocyte concentrates were transfused with subsequent improvement in the shock state, after stabilization he underwent colonoscopy with findings of a rectal ulcer with raised edges, a whitish center with areas of thickening and bleeding, immediately superior to the dentate line (Fig 1).

Multiple biopsies were taken from the edge and center of the ulcer (Fig 2). Subsequently, as part of the lymphadenopathies diagnostic approach and due to suspicion of secondary syphilis, VDRL was requested with a positive result as well as simple and contrasted of thorax, abdomen and pelvis tomography which reported multiple inguinal and bilateral axillary lymphadenopathies (Fig 3). An inguinal lymph node excisional biopsy was performed, which reported a Lymphoid hyperplasia of infectious origin compatible with syphilitic lymphadenitis (Fig 4a).

After applying immunostaining in both biopsies (Rectal ulcer and lymph node), the diagnostic suspicion was confirmed by directly observing the presence of spirochetes compatible with *T.pallidum* (Fig 4b).

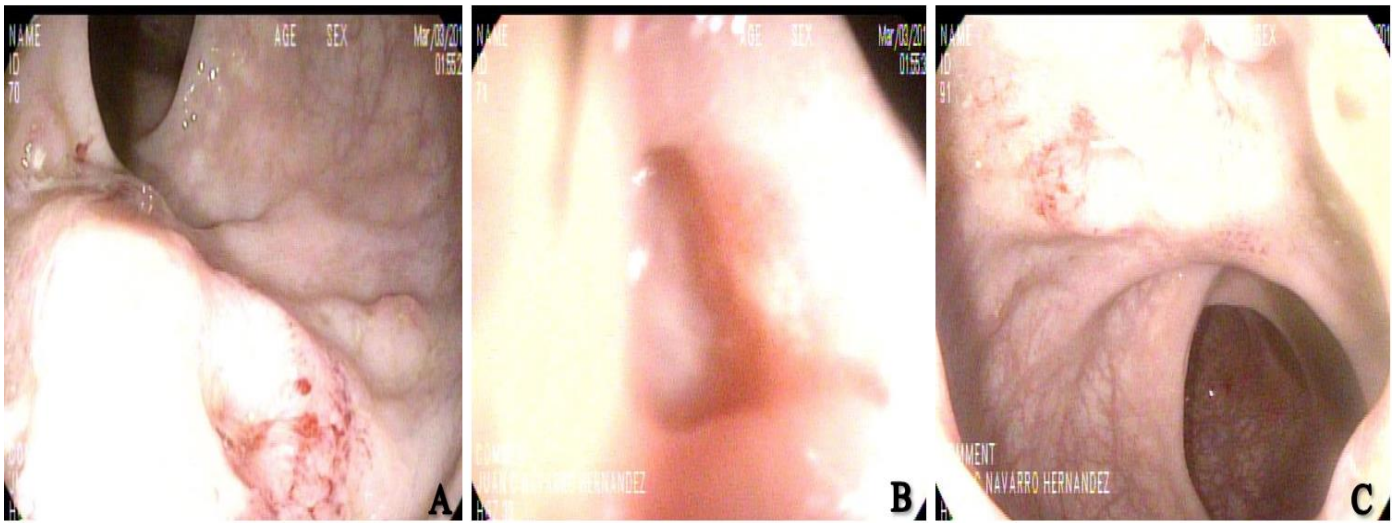

Figure 1. A), B), C). Colonoscopy showing a Rectal ulcer with raised hemorrhagic edge and clean base

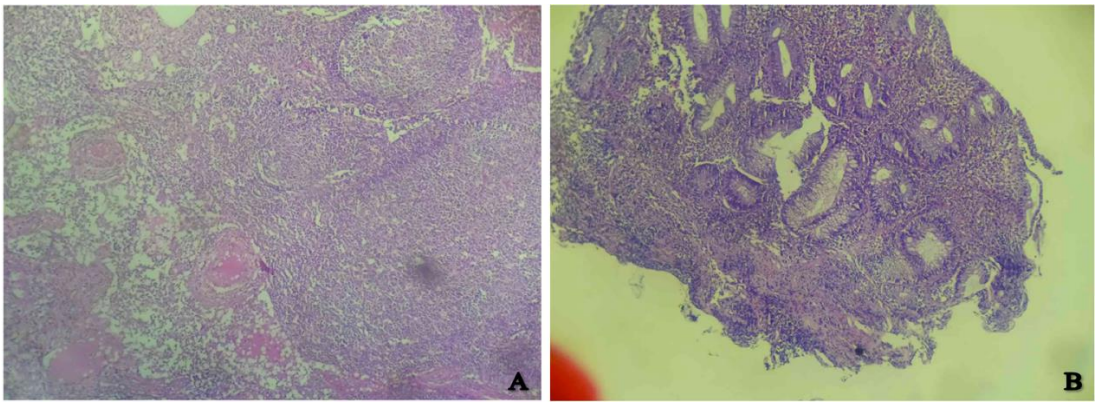

Figure 2. A) Inguinal lymph node biopsy with H&E shows a follicular hyperplasia in cortex and in capsule some areas of lamellar fibrosis with lymphocytes and plasma cells. B) Rectal ulcer biopsy with H&E shows mucosa with preserved architecture, a slight decrease in the mucosal secretory pattern and ulcerated areas with an increase in chronic inflammatory infiltrate.

Given these findings, we conclude a diagnosis of secondary syphilis associated with primary rectal syphilis. Treatment with benzathine Penicillin G 2.4 million IU was initiated in a weekly dose for 3 weeks with an adequate response. After 12 months of follow-up, our patient reported asymptomatic without new episodes of rectal bleeding.

DISCUSSION

Syphilis is a widely distributed STD around the world, over the time and after the implementation of treatments with high success rates its prevalence decreased considerably, however recently there has been a resurgence of worldwide syphilis with a global increase in incidence of sexually transmitted diseases (STDs) [8].

In 2021 in Mexico, a total of 6,974 cases were reported, while in 2022 a total of 10,927 cases, an increase of 63.8% compared to the previous year, reaching figures never seen in the country [9].

Between 20 and 50% of MSM diagnosed with syphilis are HIV positive [2], their coexistence is very common, with a prevalence ranging from 45% to 79% [10].

Its prompt diagnosis and treatment provide benefits in terms of public health avoiding reinfections because between 40% and 60% of sexual partners may be infected [8].

Syphilis is characterized by 3 stages depending on time of disease evolution, considering primary syphilis as a local condition and secondary and tertiary forms as part of a multisystemic spectrum of the same disease.

Rectal involvement of syphilis is rare and can occur as a result of a primary infection, although it can also occur as part of secondary syphilis [11]. Rectal syphilis varies in clinical presentation, it includes spontaneous healing chancres, mass-like lesions, and ulcers [12].

Figure 3. Simple abdominopelvic tomography that shows bilateral inguinal lymphadenopathies (Arrows).

It's important to keep in mind that the signs and symptoms of secondary syphilis may appear before the chancre of primary syphilis has completely healed, and that both stages frequently coexist [13], a fact that was observed in our case in which despite having presented symptoms of secondary syphilis, the rectal chancre was observed, this is a clear example of the coexistence between these two stages.

The clinical presentation is usually atypical or asymptomatic, so the diagnosis often is missed out [14]. When symptoms are present most of them have mild anal pain, tenesmus, itching, anal discharge, rectal bleeding or urgency to defecate [15].

Other gastrointestinal syphilis manifestations include involvement of the gastric mucosa, terminal ileum, and colon [16]. The most frequently symptoms include abdominal pain, early satiety, vomiting, and weight loss, depending on the affected region [11].

The endoscopic presentation of syphilitic proctitis is broad. Ulcers can be single, multiple, irregular, and with variable distribution [17]. Initially, a papule appears at the site of

T.pallidum inoculation; after an incubation period of about two to three weeks, it ulcerates and evolves into a typical chancre of primary syphilis, characterized by a non-exudative base that its usually associated with regional lymphadenopathy [14]. After three to six weeks, the chancre tends to heal spontaneously and leaves a hardened scar [15].

Although the suspicion of rectal syphilitic ulcer be high, it's important to carry out an adequate diagnostic approach and consider other causes of anorectal ulcers, such as other STDs.

Additional tests are recommended to detect *Chlamydia trachomatis*, herpes simplex virus and *Neisseria gonorrhoeae* since it has been shown that they are pathogens that are frequently associated with rectal disease [18], inflammatory bowel disease (IBD) or even malignancy causes. In order of frequency, the most important are the STDs, so it is imperative ask for a history of receptive anal sex, especially in MSM patients. Extensive screening for coinfections such as hepatitis B virus (HBV), hepatitis C virus (HCV), and human immune-

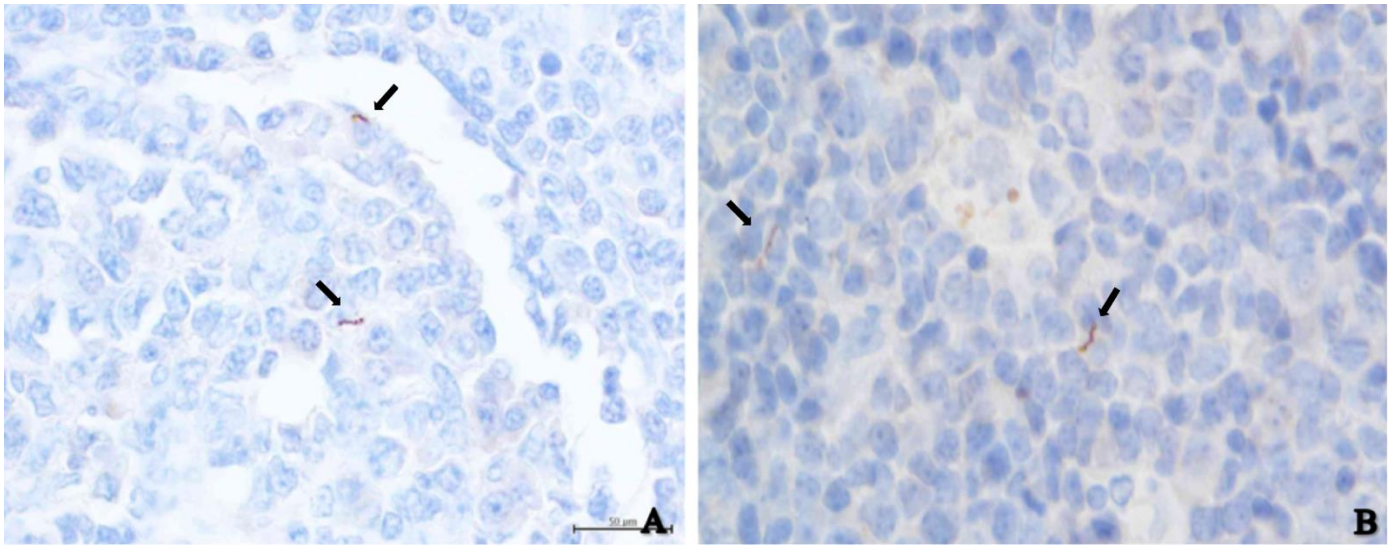

Figure 4. A) Inguinal lymph node biopsy with immunostaining demonstrating *T.pallidum* by the presence of spirochetes (Arrows).
B) Rectal ulcer biopsy with immunostaining some spirochetes of *T.pallidum are observed (Arrows)*.

deficiency virus (HIV) is strictly recommended [14].The diagnosis of anorectal syphilis is based on a combination of clinical presentation, serological tests, endoscopic findings and histopathology.

To this day, *T.pallidum* cannot be cultured, so the diagnosis requires medical expertise and suspicion as well as the use of conventional serology. The key point to initiate suspicion is the physical examination.

Diagnostic tests for syphilis infection consist in dark-field microscopy for treponemes or nucleic acid amplification test for *T.pallidum* DNA from an ulcerated lesion exudate [19]. Direct detection provides the definitive diagnosis of syphilis and is especially useful in suspicious lesions in nonreactive serology individuals. However, due to contamination by commensal spirochetes that founds in the normal rectal flora, dark field microscopy tests may be inaccurate, so treponemal serological tests such as treponemal such TPHA and non-treponemal such as VDRL support the diagnosis of syphilitic proctitis in the presence of symptoms or endoscopic signs of proctitis [19].

Histopathological syphilis diagnosis and its confirmation by special staining's are equally important [20]. Histopathological interpretation can be challenging, mainly depending on recognizing inflammatory patterns and inflammatory cell distribution. Lymphocytes can be found near of the ubiquitous lesion and will be useful for diagnosis only when they are accompanied by numerous plasma cells [20].

Special specific stains for syphilis can identify spirochetes like Warthin-Starry staining and immunostaining so they should be performed [19], however immunostaining has been superior to Warthin-Starry staining in terms of sensitivity in previous studies [21,22]. Although both have good sensitivity and specificity, in cases of diagnostic doubt, the PCR test on rectal biopsies is suggested since its sensitivity is 70 to 95% and the specificity is 92 to 98% [23].

It's important understand and be aware that are cases in which *T.pallidum* immunostaining is not 100% sensitive and that lesions are specially likely to give negative results for syphilis due the paucity of organisms found in these growths in a syphilis late stage. Hence the importance of use multiple diagnosis modalities of biochemical and histological tests to maintain an adequate correlation with the clinical picture [21].

The treatment consists in single penicillin G benzathine injection of 2.4 million units in primary syphilis. In patients with long-term disease it may require a weekly dose for

three weeks due to the possibility of late latent syphilis infection as was administered in our patient [14]. Alternative forms of treatment in patients with penicillin allergy are doxycycline 100 mg twice daily for 14 days or tetracycline 500 mg four times daily for 14 days [14].

Expected local complications of timely treatment is not received may include stenosis, obstruction, and rectal perforation [15].

Follow-up should be carried out like any other syphilis type with treponemal serological tests at regular intervals six and twelve months after completing treatment [24].

CONCLUSION

At today due to a high prevalence of risky sexual behaviors, there has been an increase in cases of STD such as syphilis. However, rectal syphilis is considered to be an unusual manifestation and can present in its primary form as ulcers or secondary as proctitis, especially in those patients with have receptive anal sex. Is important consider it within the differential diagnosis of proctitis and try to differentiate it from other STDs and even IBD since the management is completely different and with high success rates if the diagnosis is prompt and the treatment is administered in an early disease phase, which could prevent the development of future acute complications such as profuse bleeding capable of culminating in a hypovolemic shock just as we observed in our patient or even chronic complications, both local (stenosis or rectal obstruction) and systemic (neurosyphilis, cardiac syphilis, among others).

CONFLICT OF INTERESTS

The authors have declared no conflicts of interest.

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