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Caught by a Medieval Disease: A Monoarthritis Revealing Syphilis

Lakrafi Yassir [a*], Mina Moudatir [b++], Barakat Leila [b++], Benzakour Merieme [b++], Khadija Echchilali [b++] and Hassan El Kabli [b++]

[a] Internal Medicine Department and Geriatrics Unit, Ibn Rochd University Hospital Center, Casablanca, Morocco.
[b] Internal Medicine Department and Geriatrics Unit P38, Ibn Rochd University Hospital Center, Casablanca, Morocco.

Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Case Report

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ABSTRACT

Syphilis is a sexually transmitted bacterial infection that first appeared in Europe in the 15th century, responsible for deadly epidemics before the discovery of penicillin. It typically progresses through three phases: primary syphilis, characterized by a syphilitic chancre that may appear on the genital area, anus, or oral cavity and can go unnoticed; secondary syphilis, which corresponds to the hematogenous dissemination of the treponema, leading to skin eruptions occurring in two waves, also known as "florid" phases, with the second wave being the most characteristic, involving papular lesions on the palms and soles. During this phase, there may also be lymphadenopathy, early neurosyphilis, and osteoarticular manifestations such as periostitis and arthritis [1,2,3].

[++]Professor;
**Corresponding author: E-mail: docteurlakrafiyasser@gmail.com, Docteuryasser273@hotmail.com;*

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Finally, tertiary syphilis, a historical form, is characterized by cardiac, vascular, and/or neuropsychiatric involvement. We report the case of a patient with risky sexual behavior who presented with an oral ulceration possibly corresponding to an oral syphilitic chancre in the primary phase. The patient did not seek medical attention at that time and developed secondary syphilis with joint involvement two months later. This article aims to remind that syphilis should not be excluded when faced with the combination of oral ulceration and arthritis, alongside chronic inflammatory bowel diseases, Behçet's disease, and lupus. The infection has to be confirmed in the joint aspiration either by isolating the treponema or by finding the pathogen's DNA or simply by TPHA and VDRL technique ; as for the syphilitic arthritis should be treated as a secondary siphilis.

Keywords: Arthritis; syphilis; Treponema pallidum.

1. INTRODUCTION

Syphilis is a sexually transmitted bacterial infection caused by a spirochete from the Treponema family, specifically Treponema pallidum, which was identified in 1905 by Schaudinn and Hoffman. However, the first epidemics were reported in Spain in 1494, spreading during the Italian Wars (1494–1559) to Italy, France, Switzerland, and Germany. The name of the disease originates from a poem written in 1530 by Girolamo Fracastoro, "Syphilis sive de morbo gallico," where the shepherd Syphilus is described as suffering from the disease. The incubation period varies from 10 to 90 days, and the infection can be asymptomatic, known as latent syphilis. The most common clinical manifestations include the syphilitic chancre, which can appear in the oral, genital, or perineal regions, with or without associated lymphadenopathy, marking primary syphilis, which corresponds to the locoregional spread of the treponema.

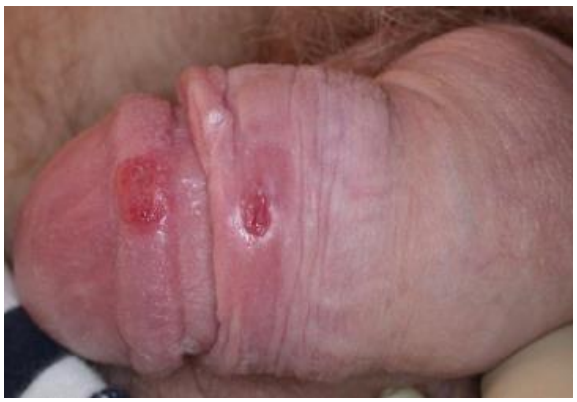

Fig. 1. Syphilitic chancre on a male genital organ [2]

Secondary syphilis is characterized by a generalized papular or psoriasiform rash, arthritis that may affect one, two or multiple articulation that can destroy be destroyed if not treated [4,5], periostitis, and possible involvement of the cranial nerves [2,6].

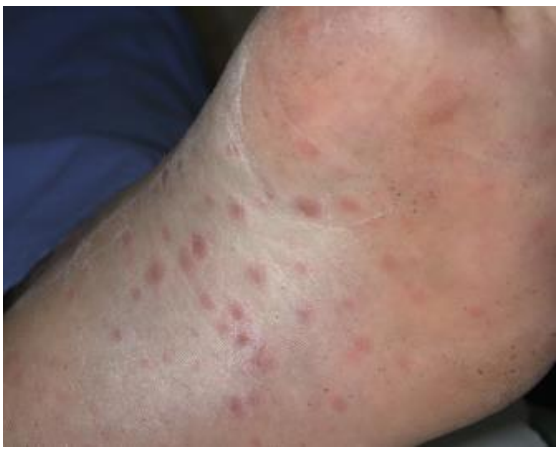

Fig. 2. COPPER-colored and papular syphilides on the palms and soles [2]

Tertiary syphilis involves vascular, ocular, or neuropsychiatric manifestations. Confirmation is bacteriological through the identification of the treponema via swab or histological sampling, or through immunological tests, typically using three main techniques: TPHA (Treponema pallidum Hemmagglutination Assay), VDRL (Venereal Disease Research Laboratory), and FTA (Fluorescent Treponemal Antibody), with more recent genetic confirmation via PCR (Polymerase Chain Reaction) [1,7]. Syphilis can also present with atypical manifestations, such as monoarthritis, as observed in our patient.

2. CASE REPORT

The patient was a 38-year-old man with no personal medical or surgical history, with a

history of active smoking for 12 years (12 pack-years), occasional alcohol consumption, and daily cannabis use. He reported having unprotected heterosexual intercourse with multiple partners, including sex workers, with no significant family history. The onset of his illness dated back two months before his admission, marked by the appearance of an oral ulceration that persisted for two weeks. The disease progressed with the gradual onset of fleeting and migratory inflammatory arthralgias without general symptoms, which responded to analgesics and nonsteroidal anti-inflammatory drugs (NSAIDs). This condition later complicated into a frank arthritis of the left knee, occurring in the context of a low-grade fever at 38°C, a 2 kg weight loss over one month, and asthenia, which led to the patient's hospitalization in the Internal Medicine Department at Ibn Rochd University Hospital in Casablanca.

On admission, the examination revealed a conscious patient with a Glasgow Coma Scale score of 15/15, well-oriented in time and space, normotensive, slightly tachycardic at 92 bpm, eupneic with good arterial oxygen saturation in ambient air at 98%. The conjunctivae were normocolored. The osteoarticular examination revealed a clear monoarthritis of the left knee with the four cardinal signs present and a pronounced patellar tap. The examination of the spine was normal, with normal occiput-to-wall, chin-to-sternum, and chin-to-acromion distances, as well as a normal Schober index. The rest of the clinical examination was unremarkable, with no aphthous ulcers or scars, no erythema nodosum, no pseudo-folliculitis, and no signs of thrombosis in the four limbs. The proctological examination was normal, and the ophthalmologic examination only revealed astigmatism, with no signs of uveitis. Initial biological workup showed a hypochromic microcytic anemia at 11.7 g/dL, moderate leukocytosis at 10,800/mm³ with 7,200 neutrophils/mm³, a normal lymphocyte count, slight thrombocytosis at 480,000/mm³, and a CRP of 88 mg/L.

Given the patient's young age, male gender, and the reported oral ulceration not objectified on clinical examination, Behçet's disease was ruled out due to insufficient criteria, particularly the normal ophthalmologic examination, the non-repetitive nature of the oral ulceration, the absence of genital aphthae and scars, the absence of pseudo-folliculitis, erythema nodosum, and vascular or digestive manifestations, and the absence of uveitis on ophthalmologic examination. However, HLA-B51 (more implicated in Caucasians) and HLA-B15 (more implicated in Mediterranean populations) were tested, both of which were negative. In the absence of digestive symptoms, family history of chronic inflammatory bowel disease (CIBD), and with normal spine and skin examinations, spondyloarthropathies and CIBD were not considered.

We then considered an infectious origin despite the absence of an obvious entry point, suggesting a possible secondary localization. Procalcitonin was tested and returned negative at 0.2 ng/mL, directing us towards intracellular and/or atypical bacteria, viral infections, and possibly fungal infections. Given the tuberculosis endemic context, a QuantiFERON test was performed, which was negative. Given the history of unpasteurized milk consumption, brucellosis was also considered, but the absence of hyperhidrosis, diffuse pain syndrome, and lymphadenopathy was not in favor. A brucellosis serology was nevertheless performed and returned negative. Whipple's disease was also considered despite the young age, the absence of digestive and mucocutaneous signs; PCR testing for Tropheryma whipplei in blood, stool, and sweat found no supporting genome. Viral infection by Parvovirus B19 was considered, but the serology suggested a past infection (negative IgM and slightly positive IgG). HIV infection was screened by serology due to the history of unprotected sexual intercourse but was negative, as were the hepatitis B and C serologies, both of which were negative. Testing for other viral infections that could present a similar picture (e.g., HTLV1 infection) was not possible due to lack of resources. An echocardiogram was performed, revealing no vegetations or valvular abnormalities, with a good ejection fraction of 65%. A thoraco-abdominal-pelvic CT scan was performed to search for a deep infectious focus, deep lymphadenopathy, digestive thickening, or any mass suggestive of an atypical infection or possible neoplasm, in which case the arthritis would be a paraneoplastic manifestation, but the scan was completely normal.

A second consideration was microcrystalline arthritis; uric acid levels were normal, and an ultrasound revealed moderate synovitis with synovial thickening without bulging beyond the articular surfaces, with moderate joint effusion (grade II synovitis on gray scale) and Doppler

showing multiple confluent hyper-signals covering more than 50% of the articular surface (grade III synovitis on Doppler). Joint aspiration yielded a slightly cloudy yellowish fluid, with cytology showing 60,000 white blood cells predominantly lymphoplasmacytic (80% lymphocytes), with sterile culture results.

An autoimmune origin was then considered despite the absence of other supporting signs. The patient underwent an immunological workup, which included antinuclear antibodies by immunofluorescence, anti-CCP antibodies, and rheumatoid factor, all of which were negative. Adult-onset Still's disease was considered due to the negative immunological workup and neutrophilia on blood count; however, the glycosylated ferritin level was not decreased.

It was only later that syphilitic arthritis was considered due to the history of unprotected sexual intercourse and the oral ulceration that could correspond to an oral syphilitic chancre (the patient reported orogenital practices). A syphilis serology was performed (TPHA and VDRL, both positive), but to link the arthritis to syphilis, confirmation in the joint effusion fluid was necessary. A second sampling was performed, and confirmation was sought using three techniques: TPHA+VDRL, dark field microscopy to visualize treponemes, and PCR for Treponema pallidum DNA. TPHA was positive, but VDRL was inconclusive; dark field microscopy visualized the treponema, and PCR returned positive. Syphilis was thus diagnosed, and a lumbar puncture was performed to search for latent neurosyphilis, with normal chemistry and cell count, and negative syphilis serology (TPHA+VDRL) in the cerebrospinal fluid.

The patient was treated according to the secondary syphilis treatment protocol, which includes an intramuscular injection of 2.4 million units of penicillin G weekly for three weeks. A low-dose oral corticosteroid (0.1 mg/kg/day) was administered for 15 days, followed by motor rehabilitation provided by the Physical Medicine Department at Ibn Rochd University Hospital in Casablanca. Clinical improvement was noted with the resolution of arthritis and fever, normalization of the complete blood count, and CRP negativation.

3. DISCUSSION

Our case illustrates syphilis revealed by monoarthritis, which is very unusual and posed a real diagnostic challenge. Given the inflammatory arthralgia and the male sex, we initially considered inflammatory causes such as Behçet's disease, spondyloarthritis, or arthritis in the context of a chronic inflammatory bowel disease. However, the patient did not report any family history of these conditions, any cutaneous manifestations that could be related, or any ocular, spinal, or digestive symptoms. Due to the absence of digestive symptoms, we did not consider it necessary to perform fecal calprotectin testing or endoscopic examination of the digestive tract. Given the absence of spinal stiffness, gluteal pain, heel pain, or any enthesitis, we did not consider it necessary to conduct an MRI of the sacroiliac joints. The search for HLA-B27 would have no significance if found, especially given the absence of clinical signs suggestive of spondyloarthritis, and its absence does not exclude the diagnosis. We then explored classical infectious causes without significant results. We considered autoimmune diseases such as systemic lupus erythematosus, Sjögren's syndrome, or rheumatoid arthritis despite the lack of cutaneous, mucous, neurological, respiratory, or exocrine signs, and the immunological workup returned negative. Adult-onset Still's disease was also considered with a paraneoplastic origin but was ruled out after a negative glycosylated ferritin test and a thoraco-abdomino-pelvic scan showing no anomalies. We also ruled out microcrystalline arthritis before finally considering syphilis due to the risk behavior, the notion of a spontaneously resolving oral ulcer without scarring or recurrence which could correspond to a syphilitic oral chancre. The interval between the joint flare and the oral ulceration corresponds to the time needed for the hematogenous spread of Treponema, resulting in secondary syphilis in its articular form. However, this remained a presumptive argument, and only after serological confirmation could the diagnosis of syphilis be retained. It was only through the detection of bacterial genomic material in the joint aspiration fluid that the arthritis could be attributed to syphilis.

4. CONCLUSION

Syphilis is a venereal disease caused by *Treponema pallidum*. It ravaged Europe during the Middle Ages, leading to an epidemic that lasted 65 years, affecting Spain, France, Italy, Switzerland, and Germany. The disease, poorly understood at the time, was treated haphazardly

with bloodletting, purges, mercury, and guaiac. It wasn't until the discovery of penicillin G by Alexander Fleming that effective and standardized treatment became possible [8,9]. Although syphilis is often associated with the Middle Ages, there has been a resurgence of the disease in Europe and America. In fact, the WHO estimated in 2022 that 8 million adults aged 15 to 49 had contracted syphilis [10]. Syphilis typically presents with skin symptoms, but more rarely can cause ocular and neurological manifestations, and exclusively vascular and articular symptoms have been reported in recent literature, posing a diagnostic challenge since many illnesses may be responsible of the same symptoms such as the Behçet desease, Systemic Lupus Erythematosus or spondyloarthropathies and chronic inflammatory bowel diseases. Fortunately, the treatment remains unchanged, primarily involving penicillin G, with doxycycline as an alternative in cases of allergy.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of manuscripts.

ETHICAL APPROVAL

As per international standards or university standards written ethical approval has been collected and preserved by the author(s).

CONSENT

As per international standards or university standards, patient(s) written consent has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Nicolas Dupin, David Farhi. Update syphilis syphilis. La Presse Médicale. April 2013;42(4,Part 1):446-453.
Available:https://doi.org/10.1016/j.lpm.2012.09.024
2. Pierre Gazeau, Dewi Guellec. Venereal arthritis and tenosynovitis. Revue du Rhumatisme Monographies. February 2022;89(1):57-64.
Available:https://doi.org/10.1016/j.monrhu.2021.10.006
3. Bodier T, Fougerousse AC, Bousquet A, Labarbe L, Andriamanantena D, Schmitt M, et al. Early syphilis: An exceptional cause of acute polyarthritis. La Revue de Médecine Interne. December 2021; 42(Supplement 2):A441-A442, CA171.
Available:https://doi.org/10.1016/j.revmed.2021.10.180
4. Sabrine Rabba, Kenza Baline, Hayat Dahbi Skali, Fouzia Hali, Soumiya Chiheb. Tabetic arthropathy: 12 cases. Annales de Dermatologie et de Vénéréologie – FMC. December 2021;1(8, Supplement 1):A253-P214.
Available:https://doi.org/10.1016/j.fander.2021.09.234
5. Azmani N, Nassar K, Janani S. Tabetic arthropathy: About 5 cases. Revue du Rhumatisme. December 2020; 87(Supplement 1):A222-A223 PE.211.
Available:https://doi.org/10.1016/j.rhum.2020.10.393
6. Imane Jamai Amir, et al. Tabetic arthropathy: Unknown pathology (about a case). PAMJ Clinical Medicine. 2020;3: 154.
[DOI: 10.11604/pamj-cm.2020.3.154.24910]
7. Nadjet Benhaddou-Mihoubi, Philippe Grange, Nicolas Dupin. Syphilis: An ongoing infection. Revue Francophone des Laboratoires. March 2021;2021(530):38-47.
Available:https://doi.org/10.1016/S1773-035X(21)00068-X
8. Freney J, Hansen W. History of the treatment of syphilis before penicillin - 02/16/08. Antibiotics. November 2001;3(4): 233-240.
DOI: ANTIBIO-11-2001-3-4-1294-5501-101019-ART12
9. Cavallo JD, Fabre R, Jehl F, Rapp C, Garrabé E. Beta-lactam antibiotics. EMC - Infectious Diseases. August 2004;1(3): 129-202.
Available:https://doi.org/10.1016/j.emcmi.2004.03.003
10. World Health Organization: Sexually Transmitted Infections (STIs); July 10, 2023

Available:https://www.who.int/fr/news-room/fact-sheets/detail/sexually-transmitted-infections-(stis)#:~:text=In%202020%2C%20WHO%20estimated,and%20trichomoniasis%20(156%20million)

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