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Research Article

DIAGNOSIS OF EXTRA MEMBRANOUS GLOMERULONEPHRITIS (EMG) IN AFRICA: REPORT OF A CASE OF LATENT SYPHILIS

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ABSTRACT

Introduction: Syphilis is a disease caused by the spirochete Treponema pallidum. It can be acquired (sexually transmitted via the mucous membranes or, more exceptionally, via blood transfer) or congenital (via maternal-fetal passage). **Observation:** A 47-year-old patient was admitted to the Nephrology department of the Bouaké University Hospital for the exploration of an edematous syndrome Medical history was marked by a syphilitic infection in adolescence treated with antibiotics and undocumented urogenital bilharzia. The clinical examination revealed large edema of the lower limbs and dyspnea at stage 2 of NHYA. Blood pressure was normal. The urine dipstick found albuminuria at 3+, hematuria 2+, without leukocyturia. The biological assessment showed nephrotic syndrome (proteinuria 7.74g/24H and albuminemia 18g/L) and renal failure (creatinine at 33mg/L). Antinuclear antibodies, rheumatoid factors, antineutrophil cytoplasmic antibodies, anti PLA2R and thrombospondin type 1 domain containing 7A (THSD 7A) were negative. C3, C4 and IgA levels were normal. PSA dosage was normal. Serologies for hepatitis B and C, HIV1 and 2, bilharzia and malaria were negative. VDRL and TPHA were positive at 1/160 for each. PBR had found GEM. Evolution was unfavorable under penicillin G benzathine but secondarily associated with cyclosporine and corticosteroid therapy, we had found proteinuria at 0.33g/24H, albuminemia at 33g/L and creatinine at 12.4mg/L in 8 weeks. **Discussion:** renal biopsy found GEM. After penicillin antibiotic therapy, partial remission of her nephrotic syndrome was noted at 4 weeks followed by a relapse after one week. A trial treatment with immunosuppressant and corticosteroid therapy had resulted in complete remission of the nephrotic syndrome. **Conclusion:** Although the incidence of syphilis in Africa is increasing, we should not ignore primitive GEM on a terrain of latent syphilis.

Keywords: Extra membranous glomerulonephritis - Syphilis - nephrotic syndrome.

INTRODUCTION

Syphilis is a sexually transmitted infection caused by the spirochete Treponema pallidum. Since the discovery of penicillin, the incidence of syphilis has declined sharply in developed countries, but this has not been the case in sub-Saharan Africa [1]. Renal manifestations are rare. It can cause glomerulopathies, tubular pathology and renal vascular lesions [2]. Extramembranous glomerulonephritis (EMG) is the most frequently reported glomerular lesion associated with syphilis [2]. With a recent case of primary GEM on a background of latent syphilis, it is appropriate to recall the systematic screening of treponema pallidum in any nephrotic syndrome in adults and to discuss treatment options.

PATIENT AND OBSERVATION

This is Mr. KKT, 47 years old, black, living in a rural area, whose history was marked by a syphilitic infection in adolescence treated with antibiotics, repeated malaria, and undocumented urogenital bilharzia. He was referred to the Nephrology department of the Bouaké University Hospital for generalized edema and decreased diuresis. No rash specific to syphilis was noted. He had no fever, no lymphadenopathy, and no use of nonsteroidal anti-inflammatory drugs. On admission, the examination found a conscious patient. He had dyspnea at stage 2 of the NHYA with abdominal distension, large edema of the lower limbs extending up to the thighs, and signs of malnutrition such as dry and brittle skin. He was hemodynamically stable. The weight was 80 kg and the urine strip had revealed albuminuria at 3+, hematuria at 2+, an absence of leukocyturia, nitrite, the density was 1030 g/l, the pH at 6. We noted an increase in creatinine at 33 mg/l and blood urea at 1.56g/l, protein at 37g/l, albumin at 21g/l and proteinuria at 3.74g/24 h. The chest X-ray had shown a filling of the costo-diaphragmatic cul-de-sac. The renal ultrasound had shown that the kidneys were of normal size. The etiological search had allowed us to carry out the Venereal Disease Research Laboratory (VDRL) tests for agglutination of treponema pallidum particles (TPHA) which were positive (positive titration at 1/160). The laboratory had concluded that there was probable progressive or latent syphilis. The bilharzia and malaria serologies were negative. The infectious assessments, in particular viral hepatitis B, C and retroviral serology (HIV) had come back negative. The antinuclear antibodies, rheumatoid factors, antineutrophil cytoplasmic antibodies, anti PLA2R and thrombospondin type 1 domain containing 7A (THSD 7A) had also come back negative. The C3, C4 and IgA levels were normal. The PSA was normal. The hemoccult had come back negative. Kidney size and echo structure were normal. Renal biopsy revealed stage 2 extramembranous glomerulonephritis secondary to syphilis. The diagnosis of syphilitic GEM was initially made on the basis of the positive serological test and the renal biopsy. The patient therefore received three weekly doses of benzathine penicillin G (2.4 million intramuscular units) and

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a nephroprotector. The evolution was marked by a partial remission of the nephrotic syndrome, then a deterioration of renal function occurs after 4 weeks. Subsequently, we had sought the direct detection of T. pallidum under the microscope which had returned negative. We therefore reconsidered our diagnostic hypothesis by initiating immunosuppressive treatment with steroids and cyclosporine associated with adjuvant measures to corticosteroid therapy.

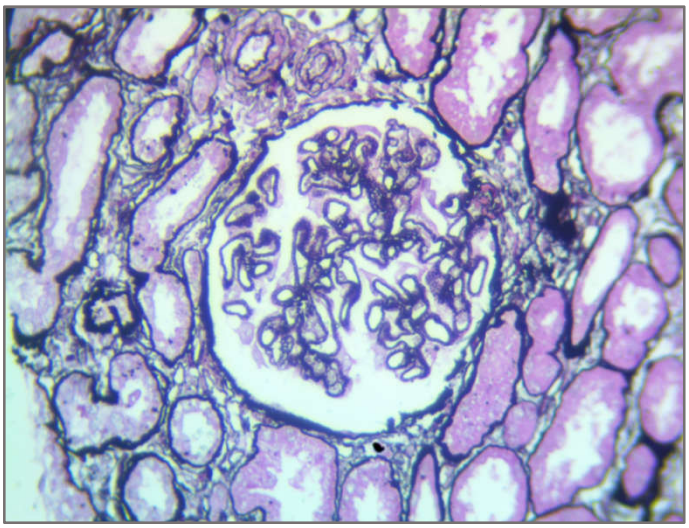

Figure 1 (Jones x 25): glomerular basement membrane with the presence of spicules and clubs

Following this trial treatment, the evolution was marked by an increase in serum albumin to 25 g/l and a decrease in proteinuria to 2 g/day after 2 weeks. We noted a clinical improvement, a resumption of diuresis, a decrease in signs of peripheral overload. He was reassessed every week after his discharge from hospital and 8 weeks later we noted a normal creatinine level of 12.4 mg/l, an albumin level of 33.4 g/l, proteinuria at 0.33 g/24 h for a diuresis of 2500 liters.

Table 1: Evolution of biological anomalies according to treatment

Biologicalabnormalities	Assessments upon admission	4-week post-therapeutic check-up	8-week post-treatment check-up
Proteinuria (g/24H)	3.74	2	0.33
Albuminuria (mg/l) g/L	21	25	33
Creatinemia (mg/l)	33		12.4

DISCUSSION

There has been a resurgence of syphilis in European countries and this can be explained by the development of new risky behaviours such as sexual intercourse under the influence of psychoactive substances ("Chemsex"), as well as by the proliferation of dating sites promoting multiple partnerships.[3] On the contrary, on a global scale, the latest report from the "World Health Organisation" indicates a decrease in the incidence of syphilis cases thanks to the development of prevention strategies in disadvantaged countries. [4] Syphilis is endemic in tropical countries, such as Ivory Coast. According to the latest WHO data published in 2020, Syphilis deaths in Ivory Coast reached 984 or 0.57% of total deaths. [5] This infection can affect several organs including the kidney. GEM is the most common renal involvement of syphilis. It is the consequence of deposits of immune complexes composed of treponemal antigens and their antibodies [6]. Due to his history of syphilis and the positivity of VDRL and TPHA, the diagnosis of syphilis had appeared highly probable at first glance. This was all the more so since the renal biopsy found GEM secondary to syphilis. The partial remission of the nephrotic syndrome after treatment of syphilis only did not justify the syphilitic origin of the nephrotic syndrome. Thus, the treatment secondarily associated with an immunosuppressant had reinforced us more in a primary GEM in the absence of anti PLA2R and thrombospondin type 1 domain containing 7A (THSD 7A). According to literature data, 10 to 20% of patients with primary GEM do not have anti PLA2R and thrombospondin type 1 domain containing 7A (THSD 7A) [7].

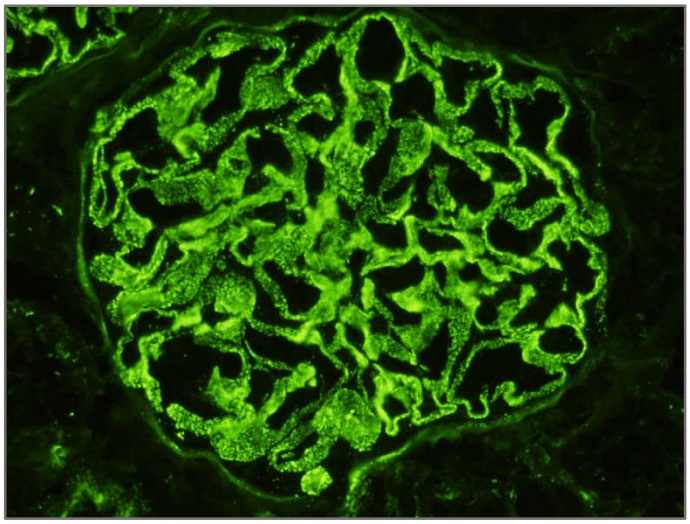

Figure 2 (IgG x 25): diffuse homogeneous granular or pseudolinear extramembranous deposits of IgG

Renal involvement in syphilis occurs in the so-called secondary stage of the disease, characterized by systemic involvement via hematogenous dissemination. It can also manifest as a typical nephrotic syndrome that can lead to a clinical picture of anasarca. At the time of diagnosis, the dosage of proteinuria is variable, but usually of a nephrotic character. From a histological point of view, renal involvement is most frequently expressed in the form of extra-membranous glomerulonephritis (EMG). The latter may be associated with thickening and mesangial proliferation. In immunofluorescence, we typically found extra-membranous granular deposits of IgG, C3 or sometimes a "full house" appearance (positivity of all immunoreagents (IgG, IGM, IGA, C1q and C3d)) [8]. In our clinical case, the patient was asymptomatic, with positivity of serological tests. Renal biopsy revealed GEM secondary to active or latent syphilis. According to the literature, the gold standard for the treatment of primary, secondary or early latent syphilis is the single administration of penicillin 2.4 X 10^6 U intramuscularly exposing the treponema to a concentration of bactericidal antibiotic for a period of 21 to 28 days [9]. This therapy allows the resolution of renal damage without immunosuppressive treatment. The tertiary syphilis stage and the late latent stage should be treated by the administration of 3 weekly injections of 2.4 X 10^6 U intramuscularly. In case of contraindication to penicillins, treatment with tetracycline's or third-generation cephalosporins can be proposed and desensitization to penicillin can also be discussed. The response to treatment is assessed by the evolution of the non-treponemal test titer. Given the unfavorable evolution of antibiotic therapy, in our clinical case we introduced an immunosuppressant which had improved our symptoms. We therefore mentioned latent or asymptomatic syphilis in a patient presenting with GEM which was revealed by nephrotic syndrome.

CONCLUSION

Syphilis is currently on the rise in our population following the development of new sexual behaviors. The clinical manifestations of this pathology are often not very specific and vary over time, the diagnosis must therefore be considered in populations at risk in the event of a suspicious manifestation. Renal involvement is expressed in the so-called secondary stage of the disease. Our clinical case illustrates latent syphilis in an asymptomatic patient whose evolution was favorable under immunosuppressant's.

Conflicts of interest

The authors declare no conflict of interest.

Authors' contributions

Manzan Edwige Anastasie Wognin, Christ Ziahy Reine Marie Koffi, Monlet Cyr Guei, Delphine Amélie Lagou wrote the body of the article.

Yannick Abdoul Gonan, Jonathan Kehi Kpan, Justin N'Dah Kouamé, Weu Mélanie Tia, Ouattara Bourhaima participated in the correction of the article. The authors declare having read and approved the final version of the manuscript

REFERENCES

1. Kaiga A, Sato Y, Arakawa H, Rai T, Tojo A. Syphilis-associated ascending glomerulonephritis: case report and literature review. J Med Case Rep. 2023;17(1):549.
2. Shettigar R, Schollum J, Putt T. Renal manifestations of syphilis. Intern Med J 2021;51:1160-7.
3. Salmon A, GroSch S, Worm S, Meex C, Jouret F, Paquot F. Renal manifestations of syphilis. Rev Med Liège 2023; 78 (12):710-714.
4. Tsuboi M, Evans J, Davies EP, Rowley J, Korenromp EL, Clayton T, et al. Prevalence of syphilis among men who have sex with men: a global systematic review and meta-analysis from 2000-20. Lancet Global Health. Aug 2021;9(8):e1110-e1118.
5. https://www.worldlifeexpectancy.com/fr/cote-d-ivoire-syphilis.World Health Organization 2020.
6. Vicky Jespers, Sabine Stordeur, Serena Carville, Tania Crucitti, Els Dufraimont, Chris Kenyon et al. Diagnosis and treatment of syphilis: 2019 Belgian National guideline for primary care. Acta Clin Belg. Feb 2022; 77(1):195-203.
7. Song R, Changwei W, Yuan Z, Amanda Y, Wang Guisen L, Wang L et al. An update on clinical significance of use of THSD7A in diagnosing idiopathic membranous nephropathy: a systematic review and meta-analysis of THSD7A in IMN, Renal Failure.2018;40(1): 306-313.
8. Aal Hamad A, Al Hadhrami Z, Al Lawati A, Al Busaidi I, Mahmood S. Syphilis-related nephropathy: a rare manifestation of a re-emerging disease. Cureus. 2023;5(12):E50105.
9. Taniguchi M, Endo T, Asou M, Tsukamoto T. “Complete” nephrotic glomerulonephritis successfully treated with antibiotics alone in secondary syphilis: a case report. CEN:2024;13(2):86-92.

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