

Case report

Lupus activity in a patient with end-stage renal disease: A case report[☆]



Natalia Gómez Gómez^a, Carlos Jaime Velásquez Franco^b, Felipe Lozano Pineda^{c,*},
Juliana Caro Palacio^c

^a Servicio de Medicina Interna, Clínica Universitaria Bolivariana, Medellín, Colombia

^b Servicio de Reumatología, Clínica Universitaria Bolivariana, Medellín, Colombia

^c Facultad de Medicina, Escuela de Ciencias de la Salud, Universidad Pontificia Bolivariana, Medellín, Colombia

ARTICLE INFO

Article history:

Received 20 June 2019

Accepted 14 January 2020

Available online 29 January 2021

Keywords:

Systemic lupus erythematosus

Lupus nephritis

Dialysis

End-stage renal disease

Index of activity of the disease

Symptom flare up

Perniosis

ABSTRACT

Systemic lupus erythematosus (SLE) is an autoimmune disease that affects multiple organs, and renal involvement is found in 50% of patients and is variable according to racial and ethnic group. It is estimated that 10% of patients with lupus nephritis (NL) develop end-stage renal disease (ERT), and once progression occurs, 80% of patients are negative for activity markers.

However, although it is rare, the reactivation of the disease can occur in advanced renal involvement, and it is important to diagnose it in a timely manner to define the cause and treat it, avoiding complications.

The clinical case is presented of a 45-year-old patient, with ERT on peritoneal dialysis, who was in remission of the disease and subsequently developed lupus activity.

Crown Copyright © 2020 Published by Elsevier España, S.L.U. on behalf of Asociación Colombiana de Reumatología. All rights reserved.

Actividad lúpica en paciente con enfermedad renal terminal: reporte de caso

RESUMEN

El lupus eritematoso sistémico (LES) es una enfermedad autoinmune que afecta múltiples órganos; el compromiso renal se encuentra en el 50% de los pacientes y es variable de acuerdo con el grupo racial y étnico. Se estima que el 10% de los pacientes con nefritis lúpica (NL) desarrollan enfermedad renal terminal (ERT) y, una vez que se da la progresión, el 80% de los pacientes negativizan los marcadores de actividad.

Palabras clave:

Lupus eritematoso sistémico

Nefritis lúpica

Diálisis

Enfermedad renal terminal

[☆] Please cite this article as: Gómez Gómez N, Velásquez Franco CJ, Lozano Pineda F, Caro Palacio J. Actividad lúpica en paciente con enfermedad renal terminal: reporte de caso. Rev Colomb Reumatol. 2021;28:64–68.

* Corresponding author.

E-mail address: felipeloz92@gmail.com (F. Lozano Pineda).

2444-4405/Crown Copyright © 2020 Published by Elsevier España, S.L.U. on behalf of Asociación Colombiana de Reumatología. All rights reserved.

Índice de actividad de la enfermedad
Brote de los síntomas
Perniosis

Sin embargo, aunque es inusual, la reactivación de la enfermedad puede presentarse en compromiso renal avanzado y es importante diagnosticarla oportunamente para definir la causa, tratarla y evitar complicaciones.

Presentamos el caso clínico de una paciente de 45 años, con ERT en diálisis peritoneal, que se encontraba en remisión de la enfermedad y posteriormente desarrolló actividad lúpica.

Crown Copyright © 2020 Publicado por Elsevier España, S.L.U. en nombre de Asociación Colombiana de Reumatología. Todos los derechos reservados.

Case presentation

This article discussed a case of a female, 45-year old patient, housewife, with a history of systemic lupus erythematosus (SLE) for over 20 years, with no previous immunosuppressive therapy, with lupus nephritis (LN) class IV, which progressed to end-stage renal disease (ESRD); the patient had been on peritoneal dialysis for the last 8 years. Additionally, the patient presents hypertension, secondary hypothyroidism, and nonrevascularizable coronary artery disease, with moderate mitral regurgitation from ischemia. The patient came to the institution because of 2 days of overt rectal bleeding, desquamative plaques on her body (Fig. 1), dizziness and dyspnea.

The tests conducted confirmed severe heterogeneous microcytic anemia, thrombocytopenia and iron deficiency, so a red blood cells transfusion was required (Table 1). A colonoscopy reported colitis with round button-shape ulcers suggestive of amebiasis; however, due to the skin lesions described, cytomegalovirus (CMV) or other opportunistic infection was suspected, so the patient was prescribed metronidazole for 7 days and ganciclovir; the latter was discontinued after four days because the special colon biopsy stains and the serum viral load were negative for CMV. Other opportunistic infections such as histoplasma were ruled out with antigen detection and colon biopsy. Furthermore, no hemolysis and vitamin deficit were documented to account for the hematological alterations.

The clinical condition continued to progress over the days following the treatment of the infection, with arthralgias, myalgias, non-painful mouth ulcers, pleural serositis, pernio-



Fig. 1 – Discoid lupus in the back. Plaque-like scaly lesions over the body, remnants of blisters, compatible with chronic cutaneous lupus.

Table 1 – Most relevant tests.

Laboratory test results at admission	Reference values
Hemoglobin: 5.5 g/dL	12.1–15 g/dL
MCV: 79 fl	80–100 fl
RDW: 20	10–15
Platelets: 132.000	150,000–450,000
Leukocytes: 7.600	3,500–10,000
Lymphocytes: 660	1,200–3,200
Ferritin: 50 ng/mL	12–150 ng/mL
PCR: 9 mg/dL and ESR: 22 mm/h	PCR: <5 mg/dL ESR: <20 mm/h
C4: 2 mg/dL C3: 21 mg/dL	C3: 88–201 mg/dL and C4: 15–45 mg/dL
Anti-DNA 1: 640	<1:40
Aldolase: 8.55 U/L; CPK: 495 U/L	Aldolase: 1–7.05 U/L; CPK: 33–211 U/L
IgG anticardiolipins: 51.80 U/mL	0–40 U/mL
IgG anti-β 2 glycoprotein: 51.6 U/mL	

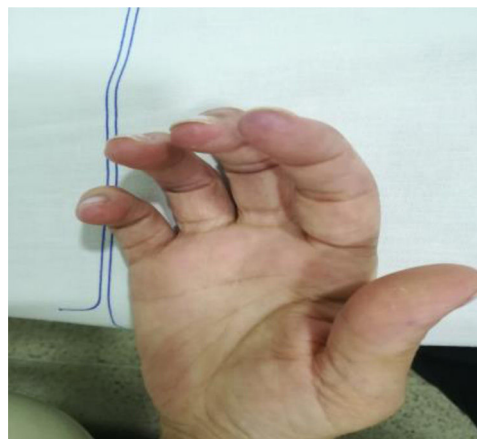


Fig. 2 – Lupus perniosis. Plaque-like, purplish lesions in the pulps of the fingers of the right hand.

like lupus lesions (Fig. 2), discoid lupus in the pinna (Fig. 3), ulcers in the lower extremities, and Raynaud's phenomenon.

A biopsy of the left ankle was performed which reported thrombotic vasculopathy (Figs. 4 and 5).

Based on this clinical and paraclinical scenario, lupus reactivation was considered and the appropriate tests were ordered (Table 1), which revealed hypocomplementemia, posi-



Fig. 3 – Vasculitic lesions in the left ankle. Hematic scab where previously there was an ulcer. The biopsy confirmed thrombotic vasculitis.

tive anti-DNA, aldolase-associated myositis and elevated CPK, in addition to positive antiphospholipid syndrome markers (positive lupus anticoagulant, IgG anticardiolipin and IgG anti-B2 glycoprotein).



Fig. 4 – Discoid lupus in the pinna. Erythematous plaque lesions, with scarring and perilesional pigment changes.

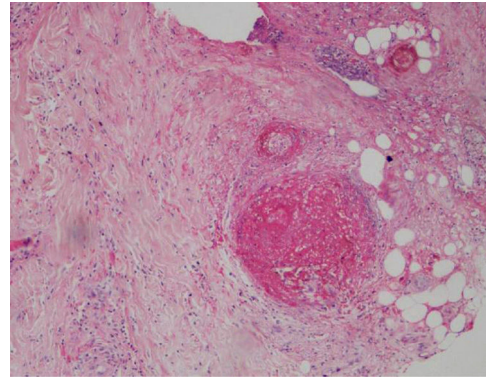


Fig. 5 – Thrombotic vasculopathy in skin biopsy. Papillary dermis with hemorrhagic foci and abundant extravasated erythrocytes. Arteriole with thrombus completely occluding the vessel lumen.

The conclusion was that the patient experienced a severe reactivation based on a *Systemic Lupus Erythematosus Disease Activity Index* (SLEDAI) of 24, and probable secondary antiphospholipid syndrome (based on the presence of positive antiphospholipid antibodies and manifestations consistent with thrombotic vasculopathy). Prednisolone treatment was initiated at a dose of 10 mg, which was then escalated up to 30 mg per day, associated with azathioprine 100 mg/day, nifedipine for Raynaud's management and ASA 100 mg for managing the APS; the patient experienced clinical and symptom improvement, once the therapeutic management was initiated.

Discussion

SLE is an autoimmune, chronic inflammatory disease, affecting primarily females, and has a variable course with multiple clinical and serological manifestations.¹

Renal involvement is clinically evident in 60% to 80% of the patients with SLE and is a significant cause of morbidity and mortality. Up to 10% of the patients with LN develop ESRD, leading to higher mortality, as compared to patients without ESRD.²⁻¹⁴

Fries et al. were the first to describe the «burn-out» phenomenon of the SLE activity in end-stage LN.⁵ These authors compared the data from 13 patients, before and after the start of dialysis; initially, 92% had positive anti-DNA and 100% developed hypocomplementemia. After initiating dialysis, 85% had negative anti-DNA and that population required a lower dose of steroids. In this cohort, only one patient (8%) continued to present symptoms of activity.^{2,5} Further studies reported that the clinical and serological lupus activity becomes negative in up to 80% of the patients, following progression to ESRD.² However, there is contradictory information in the literature, since there were a number of patients with ESRD who continued with some lupus activity.

Franccine et al. in a Brazilian cohort found that up to 39% of the patients with ESRD continued with activity and the characteristics most strongly associated with this outcome

were: young age at the time of diagnosis, being a female, and having more than five years undergoing renal replacement therapy.¹⁵ Other authors such as Krane et al. found that being a young black woman, from a low socioeconomic level, was associated with persistent lupus activity in the population with ESRD.¹⁴ González et al. evidenced that having a lower C3 and being younger was associated with this process of reactivation during renal replacement therapy.⁴ Moreover, Young et al. reported 45 patients with SLE and renal disease, in whom the SLEDAI score increased over the 59-month follow-up, after the initiation of peritoneal dialysis.^{2,8} Barrera et al., in a retrospective case control study identified independent factors associated with lupus activity, including age of introduction of the renal replacement therapy, IgM-type anticardiolipin titers, and the C4 levels, which were correlated with the level of activity in this group of patients.³

This article discusses the case of a patient with lupus reactivation after 8 years of renal replacement therapy; she presented with serositis, hematological involvement, myositis, thrombotic vasculopathy, skin and oral involvement, in the presence of GI infection.

According to the literature, many of the characteristics present in this patient were associated with this condition: she had more than 5 years undergoing dialysis, was a female, and was diagnosed with SLE at a young age. The age of initiation of the renal replacement therapy was around 38 years old (a bit higher than the mean age reported in other trials such as González et al. which was 22.4)⁷ and she was an active smoker, which is a well-studied risk factor associated not just with accelerated atherosclerosis, but also with a severe disease activity as reflected in this patient's SLEDAI scores.¹⁶

Conclusions

Notwithstanding the trend to a declining SLE activity in chronic kidney disease undergoing dialysis, as the years go by, the risk of reactivation does not go away; therefore, it is important to be aware of the variables predisposing to disease reactivation, such as gender, age of presentation, infections based on the associated immunodeficiency status, serum markers, and patient-specific risk factors (smoking, atherosclerotic disease, etc.).

Funding

There was no special financing for the development of this case report.

Conflict of interests

The authors have no conflict of interests to disclose.

Ethical responsibilities

Right to privacy and informed consent. The authors declare that this article does not reveal any patient information and was approved by signing the informed consent.

REFERENCES

1. van Vollenhoven RF, Mosca M, Bertsias G, Isenberg D, Kuhn A, Lerstrøm K, et al. Treat-to-target in systemic lupus erythematosus: recommendations from an international task force. *Ann Rheum Dis.* 2014;73:958–67.
2. Mattos P, Santiago MB. Disease activity in systemic lupus erythematosus patients with end-stage renal disease: systematic review of the literature. *Clin Rheumatol.* 2012;31:897–905.
3. Barrera-Vargas A, Quintanar-Martínez M, Merayo-Chalico J, Alcocer-Varela J, Gómez-Martín D. Risk factors for systemic lupus erythematosus flares in patients with end-stage renal disease: a case-control study. *Rheumatology (Oxford).* 2016;55:429–35.
4. González Naranjo LA, Vásquez GM, Ramírez Gómez LA. Enfermedad renal terminal en lupus eritematoso sistémico. *Rev Colomb Reumatol.* 2009;16:167–82.
5. Fries JF, Powers R, Kempson RL. Late-stage lupus nephropathy. *J Rheumatol.* 1974;1:166–75.
6. Mojcik CF, Klippel JH. End-stage renal disease and systemic lupus erythematosus. *Am J Med.* 1996;101:100–7.
7. González Naranjo LA, Rodríguez Padilla LM, Ramírez Gómez LA. Factores asociados con actividad del lupus eritematoso sistémico en insuficiencia renal crónica terminal. *Rev Colomb Reumatol.* 2009;16:265–75, [http://dx.doi.org/10.1016/S0121-8123\(09\)70104-5](http://dx.doi.org/10.1016/S0121-8123(09)70104-5). Available in: <http://www.scielo.org.co/pdf/rcr/v16n3/v16n3a03.pdf>. [Cited 1 September 2018].
8. Goo YS, Park HC, Choi HY, Kim BS, Park YB, Lee SK, et al. The evolution of lupus activity among patients with end-stage renal disease secondary to lupus nephritis. *Yonsei Med J.* 2004;45:199–206.
9. Isenberg DA, Manson JJ, Ehrenstein MR, Rahman A. Fifty years of anti-ds DNA antibodies: are we approaching journey's end? *Rheumatology (Oxford).* 2007;46:1052–6.
10. Miniño M. Índice de actividad lúpica y tratamiento del lupus eritematoso en dermatología. *Dermatología Rev Mex.* 2008;52:20–8. Available in: <https://www.medigraphic.com/pdfs/derrevmex/rmd-2008/rmd081d.pdf>. [Cited 15 August 2018].
11. Holers VM. Complement and its receptors: new insights into human disease. *Annu Rev Immunol.* 2014;32:433–59.
12. Bielsa Marsol I. Perniosis. *Semin Fund Esp Reumatol.* 2012;13:55–61. Available in: <https://www.elsevier.es/es-revista-seminarios-fundacion-espanola-reumatologia-274-articulo-perniosis-S1577356611001187>
13. Ghaussy NO, Sibbitt W Jr, Bankhurst AD, Qualls CR. Cigarette smoking and disease activity in systemic lupus erythematosus. *J Rheumatol.* 2003;30:1215–21.
14. Krane NK, Burjak K, Archie M, O'donovan R. Persistent lupus activity in end-stage renal disease. *Am J Kidney Dis.* 1999;33:872–9.

15. Ribeiro FM, Leite MA, Velarde GC, Fabris CL, Santos RC, Lugon JR. Activity of systemic lupus erythematosus in end-stage renal disease patients: study in a Brazilian cohort. *Am J Nephrol.* 2005;25:596-603.
16. Gladman DD, Ibañez D, Urowitz MB. Systemic lupus erythematosus disease activity index 2000. *J Rheumatol.* 2002;29:288-91.