Scientific Research Publishing

Open Journal of Internal Medicine, 2025, 15(1), 44-51
https://www.scirp.org/journal/ojim
ISSN Online: 2162-5980
ISSN Print: 2162-5972

Lupus Pleurisy about a Case in the Pneumophthisiology Department of the Ignace Deen National Hospital of the Conakry University Hospital

Mohamed Lamine Conté[1,2*], Aboubacar Camara[1], Mamadou Diakhaby[2], Ousmane Namarie Camara[1], Djibril Sylla[2], Amadou Kaké[2], Mamadou Lamine Yaya Bah[2], Thierno Amadou Wann[2], Ibrahima Moréa Conté[1], Demba Touré[1], Mamadou Hawa Camara[1], Abdoulaye Bangoura[1], Mohamed Lamine Sylla[1], Mohamed Lamine Camara[1], Alpha Oumar Barry[1], Souleymane Camara[1], Fatoumata Barry[1]

[1]Pneumophthisiology Department of the Ignace Deen National Hospital, Conakry, Guinea
[2]Internal Medicine Department of Donka National Hospital, Conakry, Guinea
Email: *docteurconte@yahoo.fr

How to cite this paper: Conté, M.L., Camara, A., Diakhaby, M., Camara, O.N., Sylla, D., Kaké, A., Bah, M.L.Y., Wann, T.A., Conté, I.M., Touré, D., Camara, M.H., Bangoura, A., Sylla, M.L., Camara, M.L., Barry, A.O., Camara, S. and Barry, F. (2025) Lupus Pleurisy about a Case in the Pneumophthisiology Department of the Ignace Deen National Hospital of the Conakry University Hospital. *Open Journal of Internal Medicine*, **15**, 44-51.
https://doi.org/10.4236/ojim.2025.151006

Received: December 27, 2024
Accepted: February 25, 2025
Published: February 28, 2025

Abstract

Introduction: Systemic lupus erythematosus (SLE) is a fairly common autoimmune disease that can affect all organs, including the lungs and pleura, and is the prototype of non-organ-specific autoimmune diseases. Worldwide, the prevalence of lupus is 4 - 178 per 100,000 inhabitants (Hbts), and an incidence of 0.3 - 23.7 per 100,000 Hbts/year. It is a disease of young women (sex ratio 1/9) (onset between 10 and 40 years). The black race is more affected. In Africa, an increase in the incidence of lupus erythematosus has been noted in recent years, a higher severity of the disease has also been postulated in the African population. In Sub-Saharan Africa, very few studies have been conducted on the epidemiological and clinical aspects of this disease. In Cameroon in a study by Yacouba *et al.* (2022), 108 patient files with neuropsychiatric involvement during systemic lupus erythematosus meeting the ACR 1997 criteria were included. In Benin, Zomalheto *et al.* in 2014, in their study carried out over 14 years from 2000 to 2013, had reported 33 cases of systemic lupus erythematosus. In Senegal, Ngaïdé *et al.* in 2016, in their series from February 14, 2011 to July 2, 2012, had found 50 cases of systemic lupus erythematosus. In Guinea, a study carried out by Sylla *et al.* in 2023 had reported 14 cases of SLE out of a total of 397 cases of systemic diseases. The interest of this study is that if before we spoke of pleurisy of tuberculous origin, pleurisy of cancerous origin, and pleurisy of cardiac origin, today, there is also lupus pleurisy due to systemic lupus erythematosus whose diagnosis and treatment is not easy. We report a case of

systemic lupus erythematosus complicated by right pleurisy documented in the Pneumophthisiology Department of the Conakry University Hospital. **Observation:** Our observation represents the first case of lupus complicated by pleurisy, the particularity lies in the patient's course and the persistent nature of the pleurisy despite corticosteroid therapy and a well-conducted pleural evacuation puncture. This was a 43-year-old patient, followed in internal medicine for polyarthralgia, fever, weight loss and in whom the diagnosis of systemic lupus erythematosus was made after the realization of positive antinuclear antibodies and the ACR 2019 criteria and treated with prednisolone (1 mg/kg) and Plaquenil (200 mg). After 4 months of treatment, without any respite, he received a pulmonology consultation for chest pain, dry cough and dyspnea at the slightest effort, where the diagnosis of lupus pleurisy was retained with a right pleurisy of average abundance and lemon yellow appearance associated with parenchymal infiltrates of the bases. The evolution was marked by an improvement in symptoms and a persistence of pleurisy despite medical treatment combined with pleural puncture. **Conclusion:** Systemic lupus erythematosus is often underdiagnosed due to insufficient technical platform in our context. Respiratory involvement is one of the frequent complications whose evolution is variable, hydrochloroquine and corticosteroids are treatments used in the management of systemic lupus in our African context, and in severe forms, it will be necessary to resort to immunopressants, which are not available in our countries.

Keywords

Systemic Lupus Erythematosus, Pleurisy, Pneumophthisiology Department, Ignace Deen University Hospital

1. Introduction

Systemic lupus erythematosus (SLE) is a fairly common autoimmune disease that can affect all organs, including the lungs and pleural, it is the prototype of non-organ-specific autoimmune diseases. Worldwide, the prevalence of lupus is 4 - 178 per 100,000 inhabitants (Hbts), and an incidence of 0.3 - 23.7 per 100,000 Hbts/year [1] [2]. It is a disease of young women (sex ratio 1/9) (onset between 10 and 40 years). The black race is more affected. Some hereditary immunodeficiencies can promote the onset of SLE: deficiency in complement fractions C2 and C4, congenital hypogammaglobulinemia and IgA deficiency. There are also exogenous triggering factors: estrogens, certain medications, UV rays, and the responsibility of certain viruses (notably EBV). During pleuropulmonary involvement, serofibrinous pleurisy is the most common pleural-pulmonary manifestation (30%), often associated with lupus pericarditis and often recurring. Parenchymal involvement is dominated by asymptomatic lupus pneumonia or with cough, dyspnea and diffuse interstitial fibrosis, which are rare. Pulmonary arterial hypertension is exceptional (<1% of cases). On the immunological level, we have ++ autoantibodies: antinuclear antibodies, anti-native DNA antibodies and anti-soluble nuclear

antigen antibodies, lowered complement (fractions C1q, C3, C4 and CHSO), especially during attacks [3].

In Africa, an increase in the incidence of lupus erythematosus has been noted in recent years. A higher severity of the disease has also been postulated in the African population. In Sub-Saharan Africa, very few studies have been conducted on the epidemiological and clinical aspects of this disease [4].

In Cameroon, in a study by Yacouba *et al.* 2022, 108 patient files meeting the ACR 1997 criteria were included with neuropsychiatric involvement during systemic lupus erythematosus [5].

In Benin, Zomalheto *et al.* in 2014, in their study carried out over 14 years from 2000 to 2013, reported 33 cases of systemic lupus erythematosus [6].

In Senegal, Ngaïdé *et al.* in 2016, in their series from February 14, 2011 to July 2, 2012, had found 50 cases of systemic lupus erythematosus [7].

In Guinea, a study carried out by Syll *et al.* in 2023 had reported 14 cases of SLE out of a total of 397 cases of systemic diseases [8]. The interest of this study is that if before we spoke of pleurisy of tuberculous origin, pleurisy of cancerous origin, and pleurisy of cardiac origin, today, there is also lupus pleurisy due to systemic lupus erythematosus whose diagnosis and treatment is not easy. We report a case of systemic lupus erythematosus complicated by right-sided pleurisy meeting at least 5 criteria of the ACR 2019 (fever, polyarthralgia, pleurisy, positivity of anti-DNA and ANA antibodies) documented in the Pneumophthisiology Department of the Conakry University Hospital.

2. Observation

This was a 43-year-old patient, followed in internal medicine for polyarthralgia, fever, weight loss and diagnosed with systemic lupus erythematosus in Dakar with positive AAN, native DNA and treated with prednisolone (1 mg/Kg) and Plaquenil 200 mg. After 4 months of treatment, he was received in pulmonology consultation for chest pain, dry cough and dyspnea at the slightest effort evolving for 1 month non-alcohol-smoking, clinically patient presenting an altered general condition at WHO stage III, no jaundice or edema of the lower limbs with stable parameters namely BP: 118/78 mmHg, HR: 108 beats/min, T: 36.5˚C, FR: 24 cycles/min, SPO_2: 98%, Weight: 65 kg, Height: 172 cm, BMI: 22 Kg/m^2. The pleuropulmonary examination noted poorly transmitted vocal vibrations, submatity and a decrease in bilateral basal vesicular murmurs predominant in the right lung, the examination extended to the other systems was without particularities. The syndrome of liquid pleural effusion was retained as diagnostic hypotheses, we had mentioned lupus pleurisy, tuberculous pleurisy and cardiac pleurisy.

The chest X-ray revealed pleural opacity in the right lung and parenchymal opacity in the left lung (**Figure A1** in **Appendix**). The macroscopic appearance of the fluid was lemon yellow, the biochemistry of the pleural fluid showed a Protein: 46 Gr/L, Rivalta (+) and the pleural fluid cytology reported lymphocytosis++ not suspicious of malignancy, Leukocytes 500/mm^3 (45% Lymphocytes, 55% PNN),

at the Bacteriology the Xpert/MTB/Rif was negative. Protein electrophoresis noted polyclonal hypergammaglobunemia. Biology showed Hemoglobin at 12.4 g/dl, leukocytes at 5.69 G/l, Lymphocytes at 1.7 G/l, PNN at 4.9 G/l, Platelets at 590 thousand/mm^3, Blood sugar at 0.87 g/l, Urea at 25.36 mg/dl, Creatinemia at 0.75 mg/dl, GOT at 30.2 IU, GPT at 35.25 IU, SRV negative, Calcemia at 9.14 mg/dl, Magnesium at 1.55 mg/dl, Uric acid at 8.29 mg/dl, Triglycerides at 133.6 mg/dl, Total cholesterol at 199.28 mg/dl, LDL at 53.26 mg/dl. Electrocardiogram, echotranstho-racic were within normal limits.

The patient received corticosteroid therapy at a rate of1mg/Kg/day at a regressive dose, Hydroxychloroquine at a rate of 400 mg/day. As well as the evacuation puncture of the pleural fluid was performed with 300 cc of the lemon yellow liquid. On the 14th day of treatment, the evolution was favorable with an improvement in respiratory symptoms, on the radiology, there was a regression of the right pleural opacity and an appearance of left pleurisy (**Figure A2** in **Appendix**). At 1 month of treatment, an intensification of dyspnea was noted, on the radiology there was the persistence of left pleurisy and a recurrence on the right (**Figure A3** in **Appendix**). Currently, a slight improvement in dyspnea is clinically noted and on the radiology a recurrence on the right (**Figure A4** in **Appendix**).

The evolution was marked by an improvement in symptoms, and a persistence of pleurisy despite medical treatment combined with pleural puncture.

3. Discussion

Lupus pleurisy is the most frequent pleuropulmonary manifestation in 30% of cases, it is recurrent [3]. The signs mentioned do not have proof.

Tuberculous pleurisy (absence of signs of tuberculous impregnation, negativity of IDR to tuberculin and Xpert of pleural fluid) and cardiac pleurisy (absence of signs of heart failure, normal ECG and cardiac Doppler ultrasound), due to lack of sufficient arguments we eliminated them.

We retained lupus pleurisy in view of the field with the ACR 2019 criteria and after having made the differential diagnosis with the 2 frequent causes of pleurisy in our context.

There is no cure for Systemic Lupus Erythematosus. The only available treatments aim to reduce inflammation and associated pain in order to treat the main symptoms of the disease and prevent complications. Currently, the basic treatment is based on the use of a synthetic antimalarial, hydroxychloroquine (Plaquenil®), whose anti-inflammatory properties exert a therapeutic and preventive effect on relapses and allow long-term control of the disease. The treatment of flare-ups must then be adapted to their severity and the organs affected and is generally based on the use, alone or in combination, of nonsteroidal anti-inflammatory drugs (NSAIDs), corticosteroids, and immunosuppressants. In cases refractory to immunosuppressants, the National Diagnostic and Care Protocol developed by the High Authority of Health (HAS) indicates that it is possible to resort to the use of rituximab [9].

During unilateral or bilateral lupus pleurisy, exudative and lymphocytic, sometimes

latent, it is very corticosteroid-sensitive [10]. Corticosteroid therapy will be associated with pleural fluid evacuation puncture; treatment of flare-ups must be adapted to their severity.

The establishment of appropriate treatment in less than 48 hours improves the prognosis. There are no controlled studies. Treatment is primarily based on high-dose corticosteroid therapy, initially with a bolus of methylprednisolone after formally eliminating an infectious cause. Immunosuppressive treatment is sometimes necessary [11], which was not administered to the patient due to the absence of immunosuppressant such as methotrexate in our context.

4. Conclusion

Systemic lupus erythematosus is often underdiagnosed due to insufficient technical platform in our context. Respiratory involvement is one of the frequent complications whose evolution is variable, hydrochloroquine and corticosteroids are treatments used in the management of systemic lupus in our African context, and in severe forms, it will be necessary to resort to immunopressants, which are not available in our countries.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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Appendix

Clinical signs found in the patient

ACR EULAR 2019 criteria		
Clinical manifestations		Notes
Fever		2
Polyarthralgia		6
Pleurisy		5/6
Immunology		
AAN	Positive	6
Ac AntiDNA	Positive	6

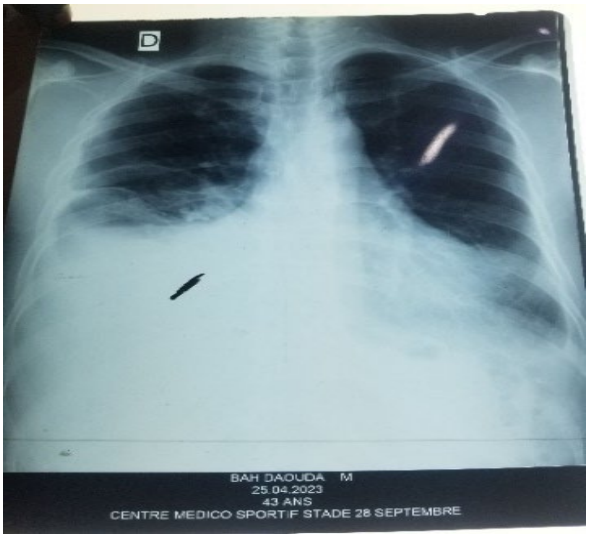

Figure A1. Right pleural opacity and left parenchymal opacity.

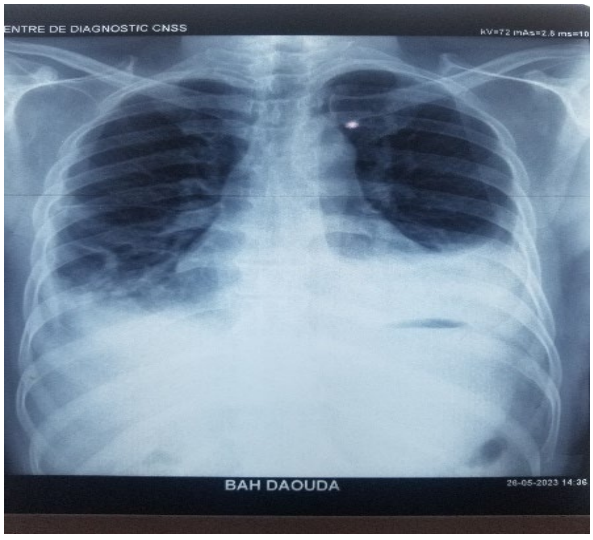

Figure A2. Regression of right pleural opacity and appearance of left pleurisy.

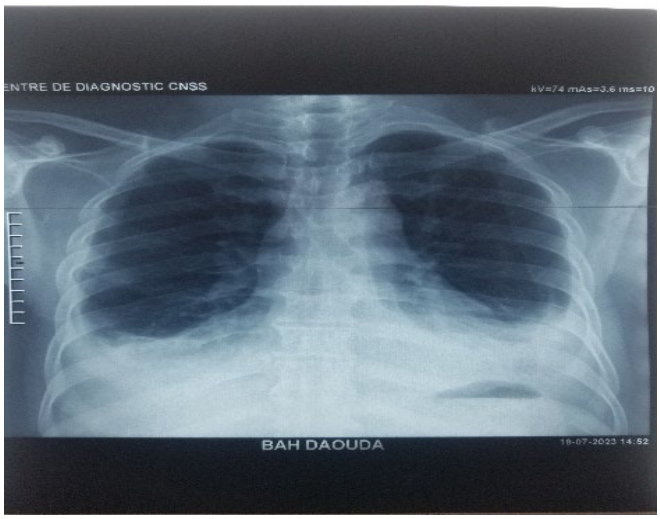

Figure A3. Persistence of left pleurisy and recurrence on the right.

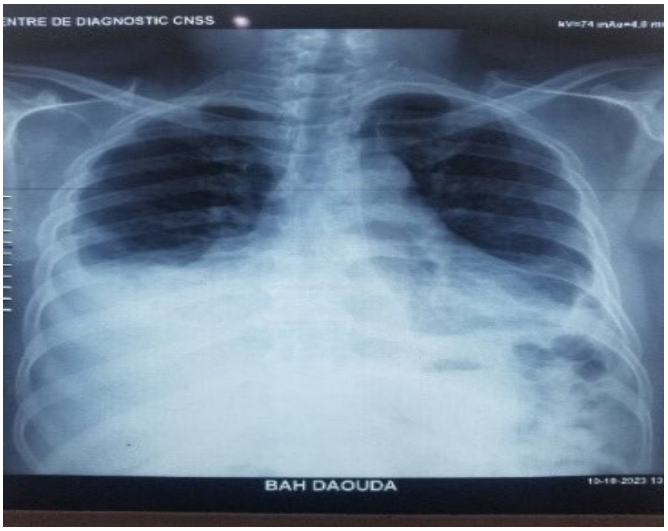

Figure A4. Recurrence on the right.