Letter to Editor

Fighting two fronts: lupus and invasive aspergillosis

Abstract

Systemic lupus erythematosus (SLE) is a chronic autoimmune disease that can affect any organ in body. Kidneys can be involved in 50% of SLE patients. Due to widespread use of steroids and immunosuppressants in SLE, patients are predisposed to infections which is a major cause of morbidity and mortality in SLE.

Keywords: systemic lupus erythematosus, acute kidney injury, lupus nephritis, invasive aspergillosis

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Case report

A 42-year-old female who was a diagnosed case of systemic lupus erythematosus for 3 years and was doing well on low dose steroids (5mg/day) and hydroxychloroquine. She presented to emergency for gradually progressive lower limb swelling for 20 days associated with decreased urine output and grade II MMRC shortness of breath. No h/o chest pain, cough, orthopnoea, fever, burning micturition and haematuria. Vitals of the patient were stable.

Laboratory abnormalities revealed bicytopenia with Haemoglobin of 6.7 g/dl and platelet count of 74 x 10^9/l. Nutritional profile including Vitamin B12 and iron profile was normal. Total leucocyte count was 7000 cells/µL with 60 % neutrophils. Direct coombs test was positive s/o autoimmune haemolytic anaemia. C3 and C4 levels were decreased with positive anti-ds DNA. HIV, hepatitis B and C turned out negative by serologies. SLE disease activity index (SLEDAI) was 19 points at the time of admission. Acute kidney injury was present with urea (201 mg/dl) and creatinine (3.0 mg/dl) along with hypoalbuminemia and urine routine microscopy showed full field RBCs and 2+ albumin. 24-hour urine protein excretion was 670 mg/day.

Renal biopsy was done which was evident for class IV lupus nephritis with crescent formation. Patient was started on intravenous pulse corticosteroids immediately. After 2 days of completion of pulse steroids, patient had a deterioration of shortness of breath associated with fever and cough with yellowish expectoration. Repeat chest radiography showed bilateral infiltrates (Figure 1). Transthoracic echocardiography was done which was normal. Computed tomography scan of chest was suggestive of multifocal patches of consolidation with no zonal or lobar predominance (Figure 1). Patient was started on empiric intravenous broad-spectrum antibiotics. Later, Bronchoalveolar lavage was done urgently which showed growth of septate hyphae with acute branching raising possibility of aspergillosis (Figure 2). B-D Galactomannan levels were raised. Patient was started on liposomal amphotericin B (3mg/kg) immediately. Electrolytes were monitored regularly. Patient got intubated for worsening shortness of breath. Later growth of pseudomonas was present in tracheal culture and blood culture showed Acinetobacter growth for which appropriate broad-spectrum antibiotics was started. Ultimately patient succumbed to illness after 20 days of hospitalization. Later fungal culture confirmed the presence of *Aspergillus fumigatus*.

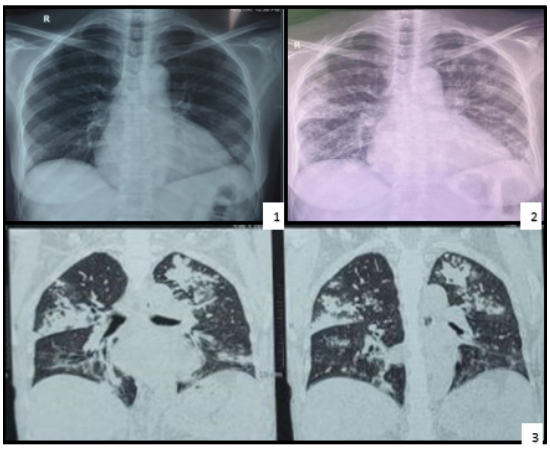

Figure 1 (1) Chest radiography of patient at presentation was normal. (2) Chest radiography of patient after 2 days of receiving steroids shows bilateral infiltrates. (3) Computed tomography chest showing multifocal patches of consolidation with no zonal or lobar predominance.

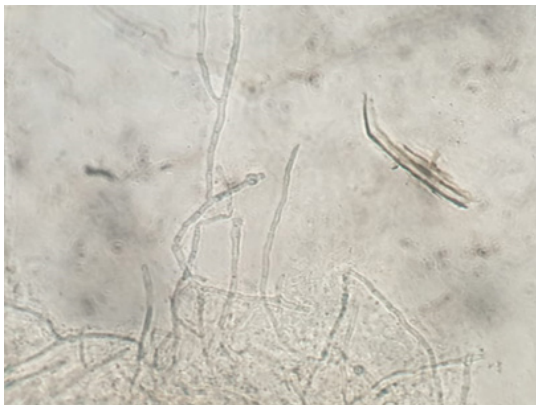

Figure 2 Direct KOH mount showing septate hyphae with acute branching.

Conclusion

SLE is a chronic autoimmune disease that can involve any organ. Kidneys can be involved in around 50% of cases.[1] The treatment of SLE

mainly involves the use of corticosteroids and immunosuppressants that predispose the patient to infection. Infection is one of the major causes of mortality in SLE.[2] They are predisposed to variety of bacterial and opportunistic organisms such as pneumocystis jiroveci, cryptococcus, aspergillosis, and candidiasis.

This predisposition is explained by various mechanisms including, first due to various acquired and intrinsic defects seen in both humoral and cellular immunity in SLE. Secondly, due to extensive use of corticosteroids and immunosuppressants for treatment. Thirdly, lack of antimicrobial stewardship and routine prophylaxis causes drug resistance increasing the risk of infection with unusual pathogens.

Major clinical predictors that predispose to infections in SLE include- active lupus, lupus nephritis, renal insufficiency and use of corticosteroids greater than 60 mg.[3] Opportunistic infections such as tuberculosis, fungal and viral infections should always be thought about in immunocompromised patients and should be diagnosed early so that timely treatment can be initiated. Fungal infections carry a high risk of mortality and morbidity.[4] The management of fungal infections include the use of local and systemic antifungals and sometimes surgical resection. Thus, it is important to diagnose and treat fungal infections urgently as it can rapidly progress and lead to death.

Thus, it is crucial to diagnose the causative pathogen early for effective management of patients, as infections can rapidly progress and can lead to death.

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Author contributions statement

Case presentation, data collection, investigations and writing of original draft.

Literature review, writing of original draft including conclusion, references

Intellectual content, literature search, manuscript final editing and review.

Consent to participate

A written informed consent was duly signed by the patient. The consent was obtained after explaining to the patient that no identity will be revealed and the case information, including pictures will be used for education purpose only. The patient gave positive consent for publication and authors certify that written patient consent is present, procured for publication.

Ethical approval

A proper written consent is present, which was obtained from the patient for the use of the data related to this case.

Acknowledgements

None.

Conflicts of interest

The authors declare that there are no conflicts of interest.

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