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Case Series

Clinical Spectrum and Multisystem Diversities in Systemic Lupus Erythematosus: A Case Series from a Tertiary Care Hospital

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Abstract

Background: Systemic Lupus Erythematosus (SLE) is a chronic autoimmune disorder characterized by multisystem involvement and unpredictable disease flares. The diversity of its clinical manifestations from mild cutaneous lesions to life-threatening organ dysfunction poses significant diagnostic and therapeutic challenges.

Objective: To describe six clinically diverse presentations of SLE highlighting diagnostic variability, management complexity, and the necessity of a multidisciplinary treatment approach.

Case Presentation: This case series includes six patients with atypical SLE manifestations managed at a tertiary-care teaching hospital. Diagnostic evaluation was based on clinical features, immunological markers, and laboratory investigations aligned with the 2019 EULAR/ACR classification criteria. Each patient's management was tailored to disease severity and systemic involvement.

Results: The cases encompassed (1) polyarthritis with acute sensory-motor polyneuropathy, (2) autoimmune anemia of pregnancy with β-thalassemia minor, (3) vasculitis with pulmonary hypertension, (4) antiphospholipid-positive lupus with hepatosplenomegaly, (5) SLE-related thrombotic thrombocytopenic purpura, and (6) hepatic lupus with portal vein thrombosis. Immunosuppressive therapy—principally corticosteroids, hydroxychloroquine, rituximab, and plasmapheresis—was individualized for each patient. All demonstrated clinical improvement during 2–6 months of follow-up.

Conclusion: The heterogeneity of SLE demands high clinical suspicion and an integrated multidisciplinary approach. Early recognition of atypical patterns, prompt immunosuppressive therapy, and long-term monitoring can substantially improve patient outcomes.

Keywords: Autoimmune Disease, Multisystem Involvement, Polyneuropathy, Portal Vein Thrombosis, Pulmonary Hypertension, Systemic Lupus Erythematosus, Thrombotic Thrombocytopenic Purpura.

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Introduction

Systemic Lupus Erythematosus (SLE) is an autoimmune, multisystem, chronic inflammatory disorder characterized by alternating phases of remission and exacerbation. The disease presents with a wide range of manifestations, from minor mucocutaneous lesions to severe, potentially life-threatening organ damage such as lupus nephritis, neuropsychiatric lupus, and hematological or cardiovascular complications [1]. This heterogeneity makes SLE both a diagnostic and therapeutic challenge, often requiring multidisciplinary coordination for successful management [2].

SLE predominantly affects women of reproductive age, with a female-to-male ratio approaching 9:1, suggesting a hormonal and genetic predisposition [3]. Although its exact etiology remains elusive, an interplay between genetic susceptibility, environmental triggers, and immune dysregulation is recognized as central to its pathogenesis (2). Common environmental precipitants include ultraviolet radiation, infections, and certain medications that provoke autoantibody formation and systemic inflammation [4,5].

The disease often begins insidiously with nonspecific symptoms such as fever, fatigue, and weight loss before progressing to organ-specific manifestations involving the kidneys, nervous system, or hematopoietic tissues [6]. Such variability frequently delays diagnosis, allowing preventable complications to develop [7]. To address this complexity, the 2019 EULAR/ACR classification criteria integrated immunological markers, serological parameters, and systemic features to improve diagnostic precision [8].

This case series aims to present six distinct and atypical SLE cases that exemplify its multisystemic nature and underscore the importance of early diagnosis, immunologic profiling, and individualized treatment strategies.

Case Presentation

Case 1: Neuropsychiatric SLE with Acute Polyneuropathy

An 18-year-old female presented with a three-month history of progressive polyarthritis involving small joints, accompanied by low-grade fever, weight loss, recurrent oral ulcers, and a characteristic malar rash. She also experienced intermittent loose stools and gradually developed numbness and paresthesia in both lower limbs, which progressed to flaccid quadriparesis associated with areflexia and sensory loss. The rapid neurological decline raised suspicion for lupus-associated neuropathy. Her initial laboratory workup revealed significant anemia, elevated ESR and CRP, and positive antinuclear (ANA) and anti-dsDNA antibodies. Despite initial treatment with moderate-dose oral corticosteroids, her symptoms worsened, necessitating escalation of therapy.

Case 2: SLE in Pregnancy with β-Thalassemia Minor

A 23-year-old primigravida at 28 weeks of gestation presented with diffuse hair loss, recurrent photosensitive malar rash, painful oral ulcers, and multiple joint pains. She reported progressive fatigue and pallor. Laboratory testing confirmed β-thalassemia minor; however, she experienced an acute drop in hemoglobin levels without evidence of hemolysis. Immunological evaluation demonstrated high anti-dsDNA titers (1:1500) and positive anti-Sm and anti-RNP antibodies, consistent with active SLE. Given her pregnancy and the absence of hemolytic markers, a conservative treatment approach was adopted, emphasizing maternal-fetal safety.

Case 3: SLE with Vasculitis and Pulmonary Hypertension

A 43-year-old woman presented with a one-week history of painful discoloration of her digits, vasculitic purpura, and arthralgia. Physical examination revealed bilateral basal chest crepitations, suggestive of pulmonary involvement. She reported no Raynaud's phenomenon or prior connective tissue disease. Laboratory findings demonstrated anemia, markedly elevated ESR, renal dysfunction, and high ANA (1:1280) and anti-dsDNA levels. Echocardiography confirmed severe tricuspid regurgitation and pulmonary arterial hypertension (PAH), consistent with SLE-associated vasculitis and secondary PAH. The constellation of findings pointed toward an aggressive inflammatory process requiring prompt immunosuppressive therapy.

Case 4: Antiphospholipid-Positive SLE with Hepatosplenomegaly

A 22-year-old woman, married for three years, presented with shortness of breath on minimal exertion, fever, and epigastric discomfort lasting several days. Her medical history was notable for deep vein thrombosis and a second-trimester miscarriage one year prior. On examination, she appeared pale and icteric with hepatosplenomegaly and a systolic murmur over the mitral area. Laboratory investigations revealed pancytopenia, raised LDH, and positive ANA titers with weakly positive antiphospholipid antibodies. Imaging confirmed hepatomegaly, splenomegaly, and valvular regurgitation, indicative of lupus-related hematologic and hepatic involvement in the setting of antiphospholipid positivity.

Case 5: SLE-Related Thrombotic Thrombocytopenic Purpura

A 62-year-old male presented with recurrent fever, generalized weakness, and progressive confusion for 10 days. Physical examination showed pallor, diffuse purpura, and ecchymotic patches over the trunk and limbs.

He was hemodynamically stable but exhibited mild tachycardia. Laboratory analysis revealed microangiopathic hemolytic anemia (MAHA), severe thrombocytopenia, and renal impairment. ANA and anti-dsDNA were strongly positive with low complement levels.

Although ADAMTS13 testing was unavailable, the classic triad of hemolytic anemia, thrombocytopenia, and neurological changes in the context of SLE supported a diagnosis of lupus-associated thrombotic thrombocytopenic purpura (TTP).

Case 6: Hepatic SLE with Portal Vein Thrombosis

A 42-year-old woman with a history of three early miscarriages and long-standing arthralgia presented with fever, generalized fatigue, jaundice, and episodes of hematemesis. Physical examination showed hepatosplenomegaly and a faint malar rash.

Endoscopy demonstrated Grade I esophageal varices, while Doppler ultrasound and CT imaging confirmed portal vein thrombosis and cirrhotic changes. Immunologic testing revealed high ANA and anti-dsDNA titers but negative antiphospholipid antibodies. These findings established the diagnosis of SLE with hepatic involvement and secondary portal hypertension.

Diagnostic Assessment

All six patients met the 2019 EULAR/ACR classification criteria for SLE, confirmed through serological and immunological evaluation.

Case 1: EMG and nerve conduction studies revealed acute sensory-motor polyneuropathy. Urinalysis showed hematuria and proteinuria, suggesting renal involvement.

Case 2: Autoantibody profiling showed high-titer anti-dsDNA and anti-Sm positivity with normal hemolysis parameters, consistent with non-hemolytic anemia of chronic disease.

Case 3: ANA (1:1280) and anti-dsDNA (53 IU/mL) were positive, and echocardiography demonstrated pulmonary hypertension with tricuspid regurgitation.

Case 4: ANA (1:640) and weak antiphospholipid positivity (anticardiolipin IgG and lupus anticoagulant) supported the diagnosis of lupus with secondary hepatic involvement.

Case 5: Peripheral smear showed schistocytes; laboratory evaluation confirmed MAHA, thrombocytopenia, and acute kidney injury, consistent with SLE-associated TTP.

Case 6: ANA (1:1280) and anti-dsDNA (122 IU/mL) positivity, with CT and Doppler confirming cirrhosis and portal vein thrombosis.

Differential diagnoses, including viral hepatitis, drug-induced lupus, ANCA-associated vasculitis, and primary antiphospholipid syndrome, were systematically excluded through relevant investigations.



Figure 1: Facial features of a patient with systemic lupus erythematosus (SLE). (*Picture reproduced with the permission of the patient)*



Figure 2: Photosensitive malar rash. *(Picture reproduced with the permission of the patient)*



Figure 3: Reversal of Peripheral Ischemia: Pre- and Post-Therapy Outcomes *(Pictures reproduced with the permission of the patients)*

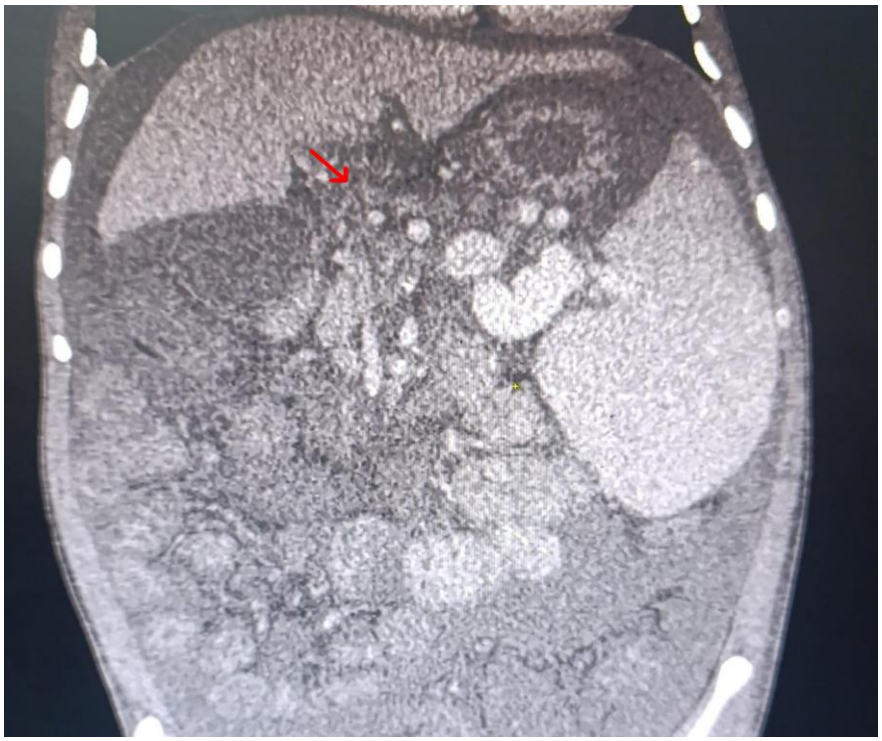


Figure 4: CT abdomen arrowhead showing Portal vein thrombosis *(Image reproduced with the permission of the patient)*

Discussion

Systemic Lupus Erythematosus is a multisystem autoimmune condition with diverse clinical phenotypes, ranging from benign cutaneous manifestations to severe neuropsychiatric, renal, or hematologic involvement. The heterogeneity observed in this series highlights the unpredictable course of SLE and the necessity for timely recognition of atypical presentations.

Neurological manifestations occur in approximately 20–40% of patients and may include mood disorders, seizures, cerebrovascular events, or peripheral neuropathy [9]. Case 1 exemplified acute sensory-motor polyneuropathy due to autoimmune vasculitis of the vasa nervorum, successfully managed with high-dose corticosteroids and rituximab [10,11].

Pregnancy in SLE represents a high-risk state associated with disease flare, anemia, miscarriage, and pre-eclampsia. Case 2 illustrated the challenge of managing autoimmune anemia during pregnancy complicated by β-thalassemia minor. Conservative management with hydroxychloroquine and low-dose corticosteroids led to favorable maternal and fetal outcomes, emphasizing the need for multidisciplinary coordination between rheumatology, obstetrics, and hematology teams [12].

Vasculitic and cardiopulmonary involvement, as seen in Case 3, reflects small-vessel inflammation and immune-mediated endothelial dysfunction culminating in pulmonary arterial hypertension (PAH). Prompt initiation of corticosteroid therapy can prevent irreversible vascular remodeling and right heart failure [13].

Case 4 underscored the importance of identifying antiphospholipid antibody positivity in lupus patients presenting with hematologic abnormalities, hepatosplenomegaly, and valvular lesions. Despite mild antibody titers, corticosteroid therapy resulted in substantial hematologic and hepatic improvement, consistent with reports of variable serologic activity in lupus-related antiphospholipid syndrome [14].

Case 5 demonstrated lupus-associated thrombotic thrombocytopenic purpura (TTP), a rare but life-threatening microangiopathy driven by ADAMTS13 deficiency and platelet aggregation [15]. The patient responded dramatically to plasmapheresis, corticosteroids, and Mycophenolate Mofetil, consistent with recommended therapeutic protocols [16].

Finally, Case 6 presented with hepatic lupus and portal vein thrombosis an infrequent but increasingly recognized manifestation of lupus-associated vasculopathy and hypercoagulability [17,18]. Management required a delicate balance between immunosuppression and hepatoprotective therapy to prevent complications from steroid-induced hepatic stress.

Taken together, these cases emphasize that SLE cannot be approached as a uniform disease entity. Rather, its protean nature requires individualized assessment of organ involvement, serological profile, and comorbid conditions. Early diagnosis, aggressive immunosuppression where indicated, and long-term surveillance are key determinants of improved outcomes and reduced mortality.

Conclusion

This case series highlights the remarkable clinical variability of Systemic Lupus Erythematosus, encompassing neurological, hematological, cardiovascular, pulmonary, and hepatic manifestations. Recognizing such atypical presentations is critical to avoid diagnostic delays and prevent irreversible organ damage. Effective management depends on early diagnosis, precise immunological evaluation, and a coordinated multidisciplinary approach integrating rheumatology, neurology, hematology, cardiology, and hepatology expertise. Early intervention with tailored immunosuppressive therapy remains pivotal in optimizing survival and quality of life for patients living with lupus.

Learning Points

1. SLE can present with rare, organ-specific complications such as TTP, PAH, and portal vein thrombosis.
2. Early use of classification criteria and immunologic testing improves diagnostic accuracy.
3. Pregnancy in SLE requires close coordination between rheumatology and obstetrics teams.
4. Plasmapheresis and biologic agents like rituximab can be lifesaving in severe or refractory cases.
5. Long-term follow-up is crucial for detecting evolving autoantibody patterns and systemic relapses.
6. Multidisciplinary management is key to addressing the diverse clinical spectrum of SLE.

Authors' Contributions

All authors meet the ICMJE criteria for authorship.

Author 1: Substantial contribution to conception and design, drafting the manuscript, final approval, agreed to be accountable for all the work.
Author 2: Substantial contribution to conception and design, data acquisition, drafting the manuscript, final approval, agreed to be accountable for all the work.

Author 3: Analysis and interpretation of data, drafting the manuscript, final approval, agreed to be accountable for all the work.

Author 4: Analysis and interpretation of data, critical revision, final approval, agreed to be accountable for all the work.

Author 5: Substantial contribution to conception and design, drafting the manuscript, final approval, agreed to be accountable for all the work.

Author 6: Substantial contribution to conception and design, data acquisition, drafting the manuscript, final approval, agreed to be accountable for all the work

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