

# Hemichorea in a Patient with Systemic Lupus Erythematosus: Association with Antiphospholipid Antibodies: Case Report

## Sistemik Lupus Eritematozuslu Bir Hastada Hemikore: Antifosfolipid Antikorları ile İlişki

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**ABSTRACT** Involvement of central nervous system is relatively common in systemic lupus erythematosus (SLE), but chorea as the initial manifestation of SLE is very rare. Herein, we report a 20-year-old woman presenting with acute onset hemichorea, with no history of an autoimmune disease. Laboratory investigations revealed the presence of elevated antinuclear antibody titer and antiphospholipid antibodies. Corticosteroid treatment with haloperidol led to complete remission of patient's symptoms. Antiphospholipid antibody-associated chorea is an important and treatable complication of SLE, occurring most often in young women. In conclusion, investigating the existence of SLE and antiphospholipid antibodies in the diagnostic work-up of all unexplained cases with chorea is vital.

**Key Words:** Chorea; lupus erythematosus, systemic; antibodies, antiphospholipid

**ÖZET** Sistemik lupus eritematozusta (SLE) santral sinir sistemi tutulumu nispeten sık görülmekle beraber kore ile prezente olan SLE olgusu oldukça nadirdir. Bu olgu sunumunda, akut başlangıçlı hemikore ile başvuran, özgeçmişinde otoimmün hastalık öyküsü olmayan 20 yaşında kadın hasta bildirilmektedir. Laboratuvar tetkiklerinde yüksek titrede antinükleer antikor ve antifosfolipid antikor varlığı saptanmıştır. Kortikosteroid ve haloperidol tedavisi ile hastanın semptomlarında tam düzelme gözlenmiştir. Antifosfolipid- antikor ilişkili kore, SLE'nin önemli, tedavi edilebilir bir komplikasyonu olup genellikle genç kadın hastalarda rastlanmaktadır. Sonuç olarak, açıklanamayan kore olgularının SLE ve antifosfolipid antikorları varlığı açısından değerlendirilmesi önemlidir.

**Anahtar Kelimeler:** Kore; lupus eritematozus, sistemik; antikorlar, antifosfolipid

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Systemic lupus erythematosus (SLE) is a multisystemic, inflammatory and autoimmune disease that is most frequently seen in female patients between the ages of 15 to 25 years.<sup>1</sup> It may present with non-specific symptoms and also may cause severe systemic organ involvement. The diverse clinical manifestations of SLE present a challenge to the clinician. The involvement of the central nervous system (CNS) in SLE is often intractable, complicating the course of the disease in about 12-75% of patients with SLE.<sup>2</sup> On the other hand, patients presenting with neuropsychiatric findings at the onset of the disease are rare and occur only in 3% of the patients.<sup>3</sup> The disease has no specific marker; instead, it is identified through a combination of clinical and laboratory criteria.<sup>4,5</sup> Immunologic

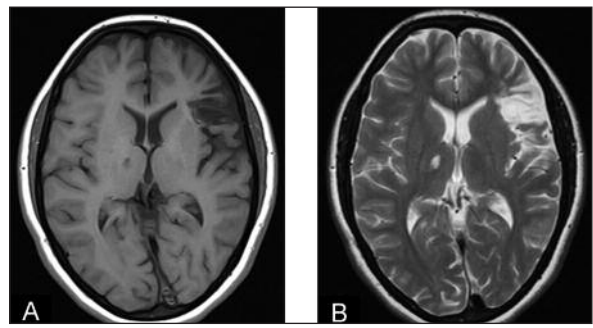
abnormalities, particularly the production of a number of antibodies, are well-known features of the disease. The antinuclear antibody (ANA) titer is positive in almost all patients with this disorder. However, the presence of ANA is not a very specific finding. In a patient with neuropsychiatric SLE, an association between neuropsychiatric symptoms and specific antibodies has been demonstrated in a few circumstances. Antiphospholipid antibodies have been associated with stroke, vascular dementia, seizures, thromboses, chorea, headache, and transverse myelitis.<sup>6</sup> Chorea has been regarded as a “hallmark feature” of SLE, but it is uncommon.<sup>3</sup> Herein, we report a SLE patient presenting with hemichorea with high titers of antiphospholipid antibodies.

## CASE REPORT

A 20-year-old right-handed non-pregnant female patient presented with acute onset involuntary movements affecting the right side of her body. Her complaints started one month ago. She had not noticed any skin lesions, but on specific questioning reported photosensitivity. She had no history of fever, prodromal flu-like symptoms, and drug or toxin exposure. She had no history of stroke, movement disorder, psychiatric illness, cognitive abnormality or rheumatic fever. Her family history was unremarkable.

On physical examination, she had splenomegaly. Systemic examination was normal otherwise. She had no skin abnormality. Neurologic examination revealed choreoathetotic movements predominantly at the distal parts of her right extremities. Mental status examination, evaluation of the cranial nerves and brainstem reflexes were normal. She had no muscle weakness. Touch and deep sensation, deep tendon reflexes, and cerebellar functions were normal. She had no pathological reflexes.

Laboratory investigations revealed anemia (hemoglobin level was 6.6 g/dL; normal range: 12-17), decreased levels of leukocyte ( $3.5 \times 10^3/\mu\text{L}$ ; normal range: 4-10) and lymphocyte counts ( $1.1 \times 10^3/\mu\text{L}$ ; normal range: 1.2-3.1) and elevated erythrocyte sedimentation rate (36 mm/hr). No atyp-



**FIGURE 1:** Cranial magnetic resonance imaging shows (A) hypointense (in T1-weighted axial image) and (B) hyperintense (in T2-weighted axial image) lesions in the left inferior frontal gyrus and right thalamic region.

ical cells were noticed in the peripheral blood smear. Her activated partial thromboplastin time was slightly prolonged (40.6 sec; normal range: 28-36). Serum biochemistry including liver and kidney function tests, thyroid function tests, ceruloplasmin level, electrocardiography and chest X-ray revealed no abnormalities. Brain magnetic resonance imaging (MRI) examination revealed hypointense lesions in T1-weighted and hyperintense lesions in T2-weighted images in the left inferior frontal gyrus and right thalamic region. The lesions showed no contrast enhancement (Figure 1). Rheumatic valvular heart disease with mild mitral regurgitation, tricuspid regurgitation and left atrial dilatation were detected by transthoracic echocardiography study.

The ANA was positive in significant titer (1:160). Additionally, anticardiolipin IgG and antiphospholipid IgG titers were raised to 65.78 GPL-U/ml and 52.41 GPL-U/ml, respectively (upper limit of normal for both of the anticardiolipin and antiphospholipid IgG titers is <20 GPL-U/ml). Clinical and laboratory findings led us to consider diagnosis of neurolupus associated with antiphospholipid antibodies. She was started on high-dose methylprednisolone treatment (intravenous 1 g/day/5 days) followed by oral prednisone. Additionally, oral haloperidol treatment was initiated. One month after treatment, she had nearly complete remission of choreiform movements.

## DISCUSSION

SLE is a chronic and recurrent multisystemic inflammatory disorder. According to the American

College of Rheumatology (ACR) classification criteria the diagnosis of SLE requires the presence of 4 or more of the 11 criteria. One of those 11 criteria is neuropsychiatric involvement. About 50% of SLE patients have neuropsychiatric phenomena at some time during their illness.<sup>6-9</sup> Compared to the other neuropsychiatric manifestations, movement disorders are rarely seen in SLE and they were not included in the ACR criteria. Although, chorea has been regarded as a “hallmark feature” of SLE, it is uncommon in SLE and is seen in less than 4% of the patients.<sup>3,6,10</sup> There are only few cases of chorea in SLE, as the presenting feature of the disease.<sup>3,11,12</sup> In this report, we presented a patient with SLE whose first clinical manifestation was acute onset chorea.

Chorea is a hyperkinetic movement disorder that consists of irregular, unpredictable, brief, jerky and continuous movements. Any body part can be affected. The causes of chorea can be broadly divided into hereditary or acquired groups. Predominantly, acquired causes starts with acute onset chorea. Our patient’s family history for any type of movement disorder was negative, and she had acute onset hemichorea. In patients with acute onset chorea acquired causes such as autoimmune disorders (SLE, antiphospholipid antibody syndrome, Sydenham’s chorea, etc.), vascular and metabolic causes (hyperthyroidism, non-ketotic hyperglycemia, etc.), drugs (levodopa, phenytoin, etc.) and systemic infections should be investigated in the differential diagnosis.<sup>13</sup> Our patient had denied any history of fever, systemic infection or stroke. She was not on any medication. Routine blood tests excluded pathology of thyroid gland or diabetes mellitus. She had a unilateral distribution of choreic movements. This finding raised the suspicion of structural pathology and we focused our

diagnostic work-up for focal pathology. Cranial MRI revealed subcortical lesions that could be related to her symptoms.

Serologic tests are typically used to establish the diagnosis of SLE. The ANA test is the best diagnostic test for SLE and should be performed whenever it is suspected.<sup>14</sup> Some autoantibodies produced in patients with SLE tend to be associated with certain clinical settings. Antiphospholipid antibodies have been associated with cerebrovascular accidents, vascular dementia, seizures, thromboses, chorea, headache, and transverse myelitis.<sup>6,15</sup> Several reports in the literature pointed out a possible relationship of SLE-related chorea with the presence of antiphospholipid antibodies.<sup>16</sup> Our patient had elevated ANA titer with positive antiphospholipid antibody. She did not have any of the complications related to antiphospholipid syndrome, such as thrombosis and thrombocytopenia or recurrent spontaneous abortion. As antiphospholipid antibodies are produced by immune mediated mechanisms, immunosuppressive therapies such as corticosteroids, cyclophosphamide or methotrexate are usually performed in patients with antiphospholipid associated chorea.<sup>17,18</sup> Treatment with intravenous methylprednisolone has been effective in our patient.

In conclusion, acute onset chorea may be the presenting feature of SLE, commonly affecting young women, and often related to the presence of antiphospholipid antibodies. We suggest that antiphospholipid antibodies should be investigated in all unexplained cases of chorea, even in the absence of associated clinical signs of antiphospholipid syndrome. Because the central nervous system involvement can be lead to significant morbidity, early recognition of neuropsychiatric symptoms of SLE is important.

## REFERENCES

- Gill JM, Quisel AM, Rocca PV, Walters DT. Diagnosis of systemic lupus erythematosus. *Am Fam Physician* 2003;68(11):2179-86.
- Tokunaga M, Saito K, Kawabata D, Imura Y, Fujii T, Nakayamada S, et al. Efficacy of rituximab (anti-CD20) for refractory systemic lupus erythematosus involving the central nervous system. *Ann Rheum Dis* 2007;66(4): 470-5.
- Joseph FG, Lammie GA, Scolding NJ. CNS lupus: a study of 41 patients. *Neurology* 2007;69(7):644-54.
- Tan EM, Cohen AS, Fries JF, Masi AT, McShane DJ, Rothfield NF, et al. The 1982 revised criteria for the classification of systemic lupus erythematosus. *Arthritis Rheum* 1982; 25(11):1271-7.

5. Hochberg MC. Updating the American College of Rheumatology revised criteria for the classification of systemic lupus erythematosus. *Arthritis Rheum* 1997;40(9):1725.
6. Sanna G, Bertolaccini ML, Cuadrado MJ, Laing H, Khamashta MA, Mathieu A, et al. Neuropsychiatric manifestations in systemic lupus erythematosus: prevalence and association with antiphospholipid antibodies. *J Rheumatol* 2003;30(5):985-92.
7. McCune WJ, Golbus J. Neuropsychiatric lupus. *Rheum Dis Clin North Am* 1988;14(1):149-67.
8. van Dam AP. Diagnosis and pathogenesis of CNS lupus. *Rheumatol Int* 1991;11(1):1-11.
9. Feinglass EJ, Arnett FC, Dorsch CA, Zizic TM, Stevens MB. Neuropsychiatric manifestations of systemic lupus erythematosus: diagnosis, clinical spectrum, and relationship to other features of the disease. *Medicine (Baltimore)* 1976;55(4):323-39.
10. Brey RL, Holliday SL, Saklad AR, Navarrete MG, Hermosillo-Romo D, Stallworth CL, et al. Neuropsychiatric syndromes in lupus: prevalence using standardized definitions. *Neurology* 2002;58(8):1214-20.
11. Caramelli P, Toledo SM, Marchiori PE, Barbosa ER, Scaff M. Chorea as a sign of systemic lupus erythematosus activity. Case report. *Arq Neuropsiquiatr* 1993;51(2):267-9.
12. Albishri JA. Chorea as a first manifestation in young patients with systemic lupus erythematosus who was initially diagnosed with rheumatic fever. *Clin Med Insights Case Rep* 2012;5:19-21.
13. Karadağ Öncel E, Özsurekçi Y, Konaşkan B, Haliloğlu G, Ertuğrul İ, Alehan D, et al. [Sydenham's chorea: a case report and review of the literature]. *J Pediatr Inf* 2012;6(2):54-8.
14. von Mühlen CA, Tan EM. Autoantibodies in the diagnosis of systemic rheumatic diseases. *Semin Arthritis Rheum* 1995;24(5):323-58.
15. Terzi M, Demir O, Onar M. [Pure motor aphasia developed after cerebral vasculitis due to systemic lupus erythematosus]. *J Clin Anal Med* 2011;2(3):116-8.
16. Cervera R, Asherson RA, Font J, Tikhly M, Pallarés L, Chamorro A, et al. Chorea in the antiphospholipid syndrome. Clinical, radiologic, and immunologic characteristics of 50 patients from our clinics and the recent literature. *Medicine (Baltimore)* 1997;76(3):203-12.
17. Sanna G, Bertolaccini ML, Khamashta MA. Neuropsychiatric involvement in systemic lupus erythematosus: current therapeutic approach. *Curr Pharm Des* 2008;14(13):1261-9.
18. Paus S, Pöttsch B, Risse JH, Klockgether T, Wüllner U. Chorea and antiphospholipid antibodies: treatment with methotrexate. *Neurology* 2001;56(1):137-8.