PARKINSONIAN SYNDROME as a COMPLICATION of SYSTEMIC LUPUS ERYTHEMATOSUS
Report of a Case and Review of the Literature

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ABSTRACT : A 34-year-old woman has had systemic lupus erythematosus since 11 years, with multiple treatments and incomplete result. When examined in our department, she presented with a recent parkinsonian syndrome including bradykinesia, adiadochokinesia, cogwheel rigidity and postural tremor of hands. Deep tendon reflexes were increased. Brain MRI showed abnormal signal intensity in the periventricular white matter, internal capsule, brain stem, middle cerebellar peduncles and cerebellar hemispheres. She was treated with prednisone and mycophenolate for the lupus, and amantadine and benzhexol for the parkinsonian syndrome which resolved within ten months, while the lupus improved. There are 30 cases of Parkinson’s disease as a complication of lupus reported in the literature. The pathogenesis may be cerebral vasculitis with ischemia, and antibodies against neurons, mainly dopaminergic. Twenty cases improved, eight of them with the treatment of the lupus alone.

INTRODUCTION

The systemic lupus erythematous (SLE) has many neurologic complications, but the parkinsonian syndrome is a very rare one. Since 1930, a total of 30 cases are reported in the literature, with a favorable outcome in 20 cases. Even if it is rare, this problem is worth thinking over, due to its favourable outcome in many cases with adequate treatment.

CASE REPORT

A woman, N.Z., born in 1976, has unremarkable familial or personal previous medical history until 1999. One week after giving birth she had severe arthralgias, treated empirically by steroids without precise diagnosis. In 2001, after a cholecystectomy, she was examined in another hospital; the diagnosis of SLE was confirmed, and she was treated by chloroquine. In March 2007, there was persistent ten-
On October 8, 2007: • c-ANCA (+) • p-ANCA (+) • Anti-DNA: 102.4 (N < 49.5) • Ceruloplasmin: normal • Serum copper: 73 mg/dl (80-155).

The brain MRI revealed normal ventricles, without mass effect, and evidence of homogenous, bilateral and symmetrical areas of abnormal (hyperintense T2) signal intensity on T2 and FLAIR, involving the periventricular white matter, the internal capsule, the brain stem, the cerebellar hemispheres, extending along the middle cerebellar peduncles. No abnormal enhancing lesion was seen (Figures 1 & 2).

A treatment was started, with prednisone 25 mg/day, and mycophenolate mofetil with slow titration, up to 2000 mg/day for the lupus, and amantadine titration, up to 500 mg/day, associated to benzhexol, up to 7.5 mg/day for the Parkinson.

Three months later, there was a marked improvement with a better walk, a small tremor of hands and slight cogwheel rigidity. Ten months later, the gait was better with normal swinging of arms. The parkinsonian syndrome was completely resolved, and deep tendon reflexes were normal. The amantadine and benzhexol were progressively stopped (Stage 0 on Hoehn & Yahr staging).

The general condition was better, and weight increased to 54.5 kg in the first trimester of 2010. The treatment included prednisone 7.5 mg/d, mycophenolate 2000 mg/d, aspirine, omeprazole, one-alpha, DHFA.

On November 25, 2010: • alopecia • ESR: 50 mm • creatinine clearance: 115.2 ml/1.73 m² (it was 73 in December 2007) • Anti-DNA: 1187 (N < 50) • C3: 78 (79-152) • C4: 11 (16-38).

The last visit was on May 20, 2011. The patient had a normal neurological and general condition, but the lupus was still active, because of high amount of anti-DNA (1563 units/ml) and leucocyturia. The treatment is prednisone 15 mg/d, mycophenolate 2 g/d, iron, gastric and bone protection.

DISCUSSION AND REVIEW OF THE LITERATURE

Since 1930 [1] and until 2008 [5], a total of 30 cases of parkinsonian syndrome as a complication of SLE were reported.

The diagnosis was done for SLE on clinical and biological signs, and for the Parkinson, on clinical signs: tremor, rigidity, akinesia, and brain imaging. In some cases, pyramidal signs and other complications of SLE were reported.

The EEG was abnormal in 10 of 13 cases, with generalized slowing [1].

The CT-scan was normal in two cases [1-2] and showing increased intensities in basal ganglia in one case [3].

The MRI is more sensitive, and it is abnormal in 80% of the cases of SLE involving the central nervous system with brain atrophy and focal lesions [4].

In case of parkinsonian syndrome, the MRI was abnormal in 7 of 16 cases [1, 5]. The abnormalities were localized in basal ganglia (caudate, putamen, lentiform, thalamus), white matter, corpus callosum, brain stem.

In the unilateral cases: first one revealed hyperintensities in left caudate and putamen [6] with a right hemicorporeal Parkinson; and the second one had a strategic infarction in the compact right substantia nigra and widespread vasculitic injuries in white substance [5], with resting tremor of the left arm and bilateral parkinsonian signs.

The SPECT was done in five cases and noted hypoperfusion in basal ganglia [4, 8-9]. With a different dye [3, 10], an increased blood flow was noted in basal ganglia bilaterally.

The cerebrospinal fluid (CSF) studies revealed usually mild pleiocytosis and elevated proteins [1], and one with increased IgG index at 0.79 (N < 0.60) [7], in favor of intrathecal synthesis.

The pathogenesis includes vascular and immunological mechanisms.

Vascular mechanisms are: multiple micro-infarcts, most common findings in autopsy [4, 11]; inflammatory changes with disruption of blood-barrier, may be reversible [12]; vasculitis [4]; circulating immune-complex on
vessel wall [1]; antiphospholipid antibodies [4]; bleeding [3].

Immunological mechanisms are: immune complexes [1]; cytokines [12]; activated lymphocytes [1]; auto-antibodies [2], mainly antidopaminergic cells [7]. In a case reported by Kunas et al. in 1995 [7], antidopaminergic cells antibodies were detected by an immuno-histo-chemical method and were positive in the serum during three years, while they were negative in SLE patients without Parkinson.

The treatments used for the SLE were one or more of the following: prednisone or prednisolone, hydroxychloroquine, cyclophosphamide, azathioprine, mizoribine, IVIG, plasmapheresis.

The antiparkinsonian drugs used were one or more of the following: L-DOPA-Carbidopa, amantadine, bromo-criptine, selegiline. When details are available, at least four patients stopped these drugs after recovery (like our patient) and four needed long-term treatment of unknown duration.

On 30 cases reported, five died (four before the era of steroids), five had an outcome not precised, and 20 had a favorable outcome: improvement for 13, and recovery for seven. It is remarkable that eight of these patients improved with the treatment of SLE alone, and 12 needed antiparkinsonian drugs [13].

CONCLUSION

The parkinsonian syndrome, a rare complication of SLE, has a favorable outcome in at least 2/3 of cases. About half of favorable cases were improved by the treatment of SLE alone, and the others needed antiparkinsonian drugs, at least for a limited period.

REFERENCES