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An Unusual case of SLE with Transverse Myelitis

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Abstract

Transverse myelitis is one of the dreaded neurological complications of SLE. Till now very few cases have been reported with transverse myelitis as initial presentation in SLE. Early diagnosis with immediate intervention leads to reduction in morbidity and mortality. Presented here is a case of 22year old female who had been previously diagnosed as Polymyositis, Rheumatoid arthritis, Hypothyroidism and Viral myelitis. The patient was treated with intrathecal Methotrexate with Dexamethasone and pulse Cyclophosphamide, Methylprednisolone and daily Hydroxychloroquine, which have been reported previously. Patient improved in her renal pathology and knee effusion with no change in her neurological status. However, patient significantly improved in her functional status with active rehabilitation care.

Key Words: **Systemic lupus erythematosus; Transverse myelitis; Cyclophosphamide; Methotrexate; Hydroxychloroquine; Rehabilitation.**

Introduction

Transverse myelitis (TM) in SLE is a well known but rare clinical condition. Because of its unusual presentation patient may be treated as a different clinical condition initially.[1-3] This causes increase in morbidity and mortality.[2] In the recent past ineffectiveness of steroids led to the use of other drugs such as Cyclophosphamide, Azathioprine and Hydroxychloroqine.[4,5]

Reported here is a case of SLE with TM, which had been treated as Hypothyroidism, Rheumatoid arthritis, Polymyositis and Viral myelitis. As described in the previous reports this case was also positive for Antiphospholipid syndrome.[4,6] The patient was treated with intrathecal Methotrexate with Dexamethasone, pulse therapy of Cyclophosphamide with Methylprednisolone and daily hydroxychloroquine. Along with the report, diagnostic difficulties, clinical presentation, therapy, pathology and prognosis are also discussed.

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Case Report

22 years old girl reported to casualty with history of urinary retention for one day. She was catheterized and sent back home, next day she landed up with history of sudden onset of flaccid paralysis of both lower limbs. She was admitted in neurology where magnetic resonance imaging (MRI) of spine was done. MRI showed cord expansion from D5 to conus with skip lesions at D4 suggestive of myelitis. She was diagnosed as Viral myelitis and treated with IV Methylprednisolone 1G for 3 days, Inj. Troparin 0.3ml daily with maintenance dose of oral prednisolone 40mg daily. There was no clinical response after 14 days. MRI brain was done, which was normal. After 22 days there was no change in the neurological status. At this stage, the patient was transferred to rehabilitation ward.

In the department of PM&R history was taken again. Past history revealed history of joint pains, low backache, with on and off fever. The history also revealed that she was previously diagnosed as Polymyositis, Rheumatoid arthritis and Hypothyroidism by other specialists and was treated accordingly for these ailments. She was on Eltroxin for 4 months and taken steroids on and off and also on oral methotrexate for nearly 4 months. Examination findings revealed right knee effusion, reduced tone and absent jerks, with motor and sensory level of D8. Functional Independence Measure (FIM) score was 64.

Initial investigations as follows: ESR 55mm 1st hr, ANA was positive, proteinuria was present. CSF analysis showed 10 WBC/cmm mainly polymorphs, globulin was present with glucose 60mg/100ml and proteins 75mg/100ml.

Provisional diagnosis of SLE was made and treatment was started with IV Cyclophosphamide 600mg and Methylprednisolone 1g pulse therapy with maintenance dose of Prednisolone 40mg daily. Patient had hematuria for 2 days after giving cyclophosphamide, Troparin was stopped and following this hematuria stopped. There was no response to first pulse until the sixth day, so Intrathecal Methotrexate 10mg with Dexamethasone 20mg was started. After 2 days there was sensory improvement by 2 segments below the level of lesion. Further investigation reports came after 15 days of therapy. There was reduced complement component C3- 48mg% (Normal 70-120mg%), Positive Anti-DS DNA 249 IU (Normal 0-60), anti cardiolipin antibody 30GPL Units (Normal.0-10, Lupus anti coagulant was negative with normal clotting factors. CMG showed acontractile hypotonic bladder. After one month oral Hydroxychloroquine 400mg with tablet aspirin daily was added.

Final diagnosis of SLE Transverse myelitis with Antiphospholipid syndrome was made. Pulse therapy was continued every month for another 4 months. Her right knee effusion resolved after 8 weeks and proteinuria stopped after 3 months. Again T3, T4 and TSH were repeated they were within normal limits.

After 3 months the patient developed different episodes of infection in the form of acute suppurative otitis media once, Ingrowing toenail and Klebsiella chest infection, and these responded to antibiotics. In the 5th month she developed splinter hemorrhages around toe nail and web spaces. On investigation prothrombin time was prolonged, aspirin was stopped, vitamin K was started to which it responded.

Repeat MRI after 4 months showed atrophy of cord with arrest from D5 to conus. There was mild progression of disease from D2 to D4. During hospital stay patient learned clean self intermittent catheterization (CSIC), transfer activities, able to stand with hip knee ankle foot orthosis (HKAFO) with assistance. At the time of discharge her sensory and motor level was D9 and FIM score of 106.

Discussion

Spinal cord involvement in SLE is reported as early as 1939 itself.[1] After the major work done by Penn et al[8] in 1968, transverse myelitis in SLE has become a clinically known entity. However, in developing countries where special clinics like those in developed countries are not there, connective tissue disorders and diagnosis of SLE with Transverse myelitis is a more difficult task. The diagnostic dilemma anywhere in the world is because of its different presentations. The usual presentations here are fever, vomiting, sore throat, stabbing low backache with or without urinary retention and progressive flaccid paraparesis or quadriparesis within 24-48 hours.[1,9] Common site of involvement is usually mid thoracic region, including our case.[10] In a majority of patients initial laboratory and clinical findings do not fulfill the American Rheumatology Association criteria for SLE.[11]

Because of its antedated manifestations patient may be labeled as one or more of the Multiple Sclerosis, Tuberculosis, Pyrexia of Unknown Origin, Vitamin B_{12} deficiency and Rheumatoid Arthritis.[1-3] Sometimes the auto-immune mechanism in SLE causes thyroiditis and thrombocytopenia. It might cause proximal muscle weakness with bleeding episodes. So there are more chances of treating patient as Hypothyroidism, Polymyositis like our patient and Idiopathic Thrombocytopenic Purpura.[2]

If any patient comes with spastic paraparesis or flaccid paraparesis with urinary retention, it is a must to establish a link between SLE either clinically or with laboratory findings. In our patient initial serological findings for SLE were negative before the onset of flaccid paraparesis. The only supportive evidence initially were the past history and routine investigations with high ESR and proteinuria. The other immunological reports came only after the first pulse therapy and intrathecal methotrexate and they confirmed our provisional diagnosis. There are reports with abnormal detection of ANA in patients with multiple sclerosis without any other features of SLE.[12] Sometimes MRI findings were also normal in patients of SLE with paraparesis.[4]

There is a great emphasis in the past that early aggressive treatment with steroids and immunosuppressive drugs will make a difference in patients functional out come.[13-15] Many modalities have been tried including immunoadsorption and radiotherapy.[16,17] But still significant disability and death occurred in early treated patients also.[18]

Klaiman et al reported significant improvement in neurological status after treating with cyclophosphamide, methyl prednisolone and hydroxy chloroquine.[5] Valesini R et al has tried intrathecal methotrexate and dexamethasone and reported a good response even after relapse of the disease.[19] Correlating these trials with our patient, our patient's neurological status did not improve much. However proteinuria was stopped, and knee effusion resolved. There are reports showing best outcome with cyclophosphamide for nephritis in patients with SLE.

After giving five pulses once in every month, MRI was done which showed there was cord atrophy with myelomalacia changes. Schantz et al and James et al reported atrophy of cord with clinical improvement in neurological status after the therapy.[18,20] But our patient showed myelomalacia changes with progression of disease from D2-D4 in-spite of therapy, but she did not show any neurological or clinical manifestations of this.

Not only due to its rarity and decreased awareness, the high mortality and morbidity is due to its unknown pathology. Till now 3 pathogeneses have been explained. Provenzal et al reported vacuolar degeneration of the peripheral spinal cord white matter with sparing of grey matter.[10] These findings also can be seen in patients with AIDS myelopathy.[21] The other possibilities are infarction of cord or compressive myelopathy with hemorrhage and necrosis caused by subdural hematoma.[22] There is clear cut mention about absence of vasculitis in these patients.[10] Our patient had hemorrhage around toe nail and web spaces in the 4th month with prolonged prothrombin time. Possibility of SLE associated coagulopathy has to be kept in mind. According to Carols et al there is a strong association between transverse myelitis in SLE and antiphospholipid syndrome.[6] There are reports with mention about demyelination or antibodies against CNS antigens in SLE.[23] Lupoid sclerosis is a term used for SLE with involvement of CNS resembling clinical features of multiple sclerosis.

Conclusion

SLE with Transverse myelitis is the least understood clinical entity. From this case's clinical

experience we would like to emphasize that if any patient, specifically female, comes with spinal cord involvement or any myelitis without any other explanation, SLE should be kept as one of the differential diagnoses. And the patient should be assessed thoroughly with history and repeated laboratory investigations, not just one time investigation.

Inspite of high mortality and morbidity rate, early rehabilitation intervention can definitely make a difference in patient's functional outcome, as did in our patient where FIM score improved from 64 to 106.[24]

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