SUSPECTED NEUROLYMPHOMATOSIS IN THE CONTEXT OF A DISSEMINATED IMMUNOBLASTIC NON-HODGKIN LYMPHOMA AND BORRELIOSIS

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ABSTRACT

We report the case of a female patient aged 43 years with known immunoblastic gastric lymphoma admitted for progressive motor and sensory deficit with sudden onset and relatively rapid ascending up to chest level and pain in lower limbs. Lumbar puncture revealed high proteins, low CSF glucose, and pleiocytosis with atypical lymphocytes. Considering the symptoms antiborrelia antibodies were tested finding the results extensively positive, advocating for a borreliosis. MRI revealed no significant changes. The case is a feature of the associating pathologies, finding in the literature few reports alike.

Key words: neurolymphomatosis, borreliosis

INTRODUCTION

Neurolymphomatosis is defined as the as a secondary infiltration of the nervous system due to a malignant lymphoma (1). We present the case of a female patient known for a immunoblastic gastric malignant lymphoma with systemic metastasis which was referred to a neurological consult for sudden and progressive motor and sensory deficit. The patient was under treatment with chemotherapy with cyclophosphamide, doxorubicin, vincristine, prednisone and rituximab.

CASE REPORT

The patient was known for a gastric non-Hodgkin malignant lymphoma, large cell immunoblastic type with partial gastrectomy and subsequent chemotherapy for about one year. She had a good follow-up until a moderate motor and sensory problems were noticed at home. After several days, a sudden paresis and partial loss of sensations of the lower limbs were the motives of emergency medical examination. She was admitted to the ward as paraparesis due to a metastasis of the spinal cord.

Neurological and neurosurgical consults in the emergency ward found flaccid paraparesis with no reflexes, absent plantar response, hypoesthesia with T8 level. The second neurological and neurosurgical consult found a flaccid paraplegia and a T4-T5 level of sensibility. Also constipation and bladder retention were observed. The state of consciousness was not altered, but the general state was severely influenced and the systemic spread of the hematological condition was taken into account.

Some biology data we considered important are listed below: WBC = 6300/mmc, RBC = 3.30*10^6/mmc, HGB = 8 g/dL, PLT – 41 000 -> 10 000/mmc, PT = 16.5 sec, Protrombinic activity = 49%, INR = 1.5, low serum cholinesterase = 2805 U/L low potassium (2,7 mEq/L) and low sodium (125 mEq/L). Spinal tap with proteins = 3.76 g/L, Pandy reaction +++, CSF glucose = 16 mg/dL, CSF elements = 250/mmc with: neutrophils (25%), small lymphocytes (40%) and monocytes (9%), pathologists' descriptions raised the suspicion of lymphomatous cells for 26%. Also, the serum IgM for Borrelia Burgdorferi was intensely positive (24 g/L – refeence: 0.4-2.3 g/L). Ovarian antigen CA125 = 188.7

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u/ml (ref. <35 u/ml); No CSF immunhystochemistry or Western Blot for Borrelia were made. Spinal MRI showed no abnormalities as compression or inflamed spinal roots (fig. 1, 2, 3). Whole body CT with contrast showed: hyperdense ovarian image, multiple hyperdensities in the abdomen, probably recidivate gastric lymphoma, ascites, bilateral pleurisy. Nerve conduction studies were made to complete the evaluation and showed a sensory-motor polyneuropathy of predominant axonal type. Diagnosis: gastric immunoblastic lymphoma with large B cells with metastasis, neurolymphomatosis as a secondary process due to lymphoma, flaccid paraplegia, borreliosis, hepatic failure, anemic syndrome and thrombocytopenia due to chemotherapy.

The patient continued the hematologic treatment with CHOP scheme (cyclophosphamide, doxorubicin, vincristine, prednisone), but after the worsening of the symptoms the treatment was aggressively upgraded to R-DHAP scheme (dexamethasone, cytarabine, cisplatinum and rituximab). Under this, the general state improved. The suspicion of neurolymphomatosis lead to intrathecal medication with methotrexate (15 mg diluted) dexamethasone (4 mg), cytarabine (1, 25 mg diluted), a total of 6 ml of fluid injected after lumbar tap and CSF withdrawal. The suspicion of Borreliosis was treated with 2 times 2 g of ceftriaxonum per day. Prophylactic antimycotic (voriconazol) was given. After the intrathecal chemotherapy the neurologic status got better with disappearance of the level of sensibility, improvement of muscle strength in the lower limbs, but with no ability to ambulate. The follow-up was not possible because of a sepsis with resistant nosocomial germs which led unfortunately to exitus several days later.

DISCUSSIONS

Several entities were analyzed for differential diagnosis. Compression of the spinal cord and transverse myelitis were ruled out by the MRI. Meningoradiculoneuritis of infectious ethyology (in this case borrelia was the susceptible germ), could not be ruled if we consider the biochemical criteria (antiBorrelia antibodies in CSF and specific antigen index not worked) and antibiotic response superposed over the chemotherapy couldn't be quantified. There is no recollection of the patient of having had a specific Lyme rash. However, the rapid clinical and CSF analyze improvement after the intrathecal chemotherapy suggests more probably a lymphomatous cause which is completed by the electrophysiological examination.

Lymphomatous involvement of the central and peripheral nervous system should be suspected in any malignant lymphoma patient who experiences back pain, sensory or motor deficits, or altered mental status, but it is more consistent with non-Hodgkin's lymphoma diagnosis. The recognition of neoplastic cells in the cerebrospinal fluid is classically considered the most important diagnostic criterion. Nevertheless, neuro-imaging studies are an important diagnostic adjunct if there are leptomeningeal metastases (2).

In this case, the positive serum antibodies for Borrelia complicated the diagnoses knowing that the clinical presentation for neuroborreliosis is very diverse (3) as in Garin-Boujadoux and Bannwarth syndromes, the lack of neurologic follow up and the principal morbidities' complications made the differential diagnosis a challenge. We found no dates in literature if the intrathecal medication prolongs the life expectancy versus improving the neurologic manifestation in cases with disseminated malignant lymphoma (4). There are no additional data regarding IgM Anti-Borrelia sensibility and specificity in systemic chemotherapy. We consider this case presentation helpful because it is known that neurolymphomatosis is not quite rare (5) but under-diagnosed and the association with Borreliosis is not yet described in literature.

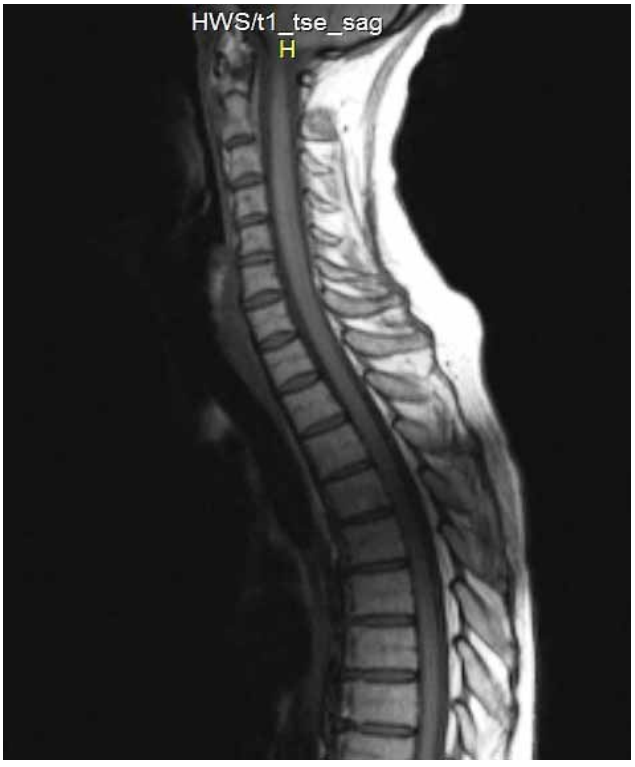

Figure 1. *T1 showing no compression of the spinal cord*

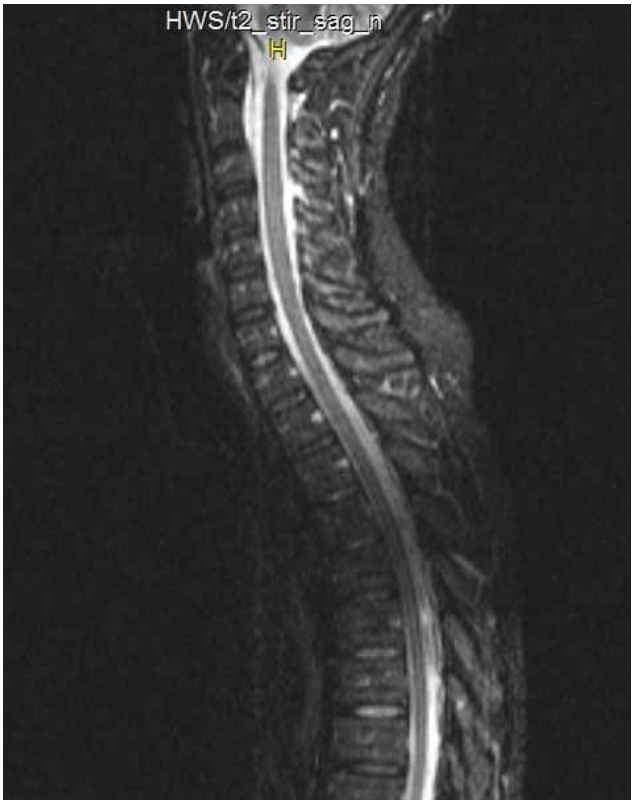

Figure 2. *T2 MRI showing no compression of the spinal cord*

REFERENCES

1. **Baehring et al.** Neurolymphomatosis, *Neuro Oncol.* April 2003; 5(2):104-115; doi:10.1093/neuonc/5.2.104
2. **Carey M.J., Smith A.G., Townsend J.J.** – Pathologic quiz case: Progressive diffuse weakness after chemotherapy for large cell lymphoma in a middle-aged woman. Lymphomatous meningitis with neurolymphomatosis. *Arch. Pathol. Lab. Med.* 2000; 124:645-646
3. **Cheung W., Maksymiuk A.** – A Diagnosis Dilemma of Back Pain in Non-Hodgkin's Lymphoma. *The Internet Journal of Hematology.* 2005; Vol. 2, No. 1
4. **Uldry P.A., Regli F., Ferrazzini M.** – Primary lymphoma of the nervous system following radiculoneuritis caused by Borrelia burgdorferi: study of a case. *Schweiz. Arch. Neurol. Psychiatr.* 1988; 139(1):31-38
5. **Aminoff M.J.** – Neurologic manifestations of general diseases, 4th ed., 2008

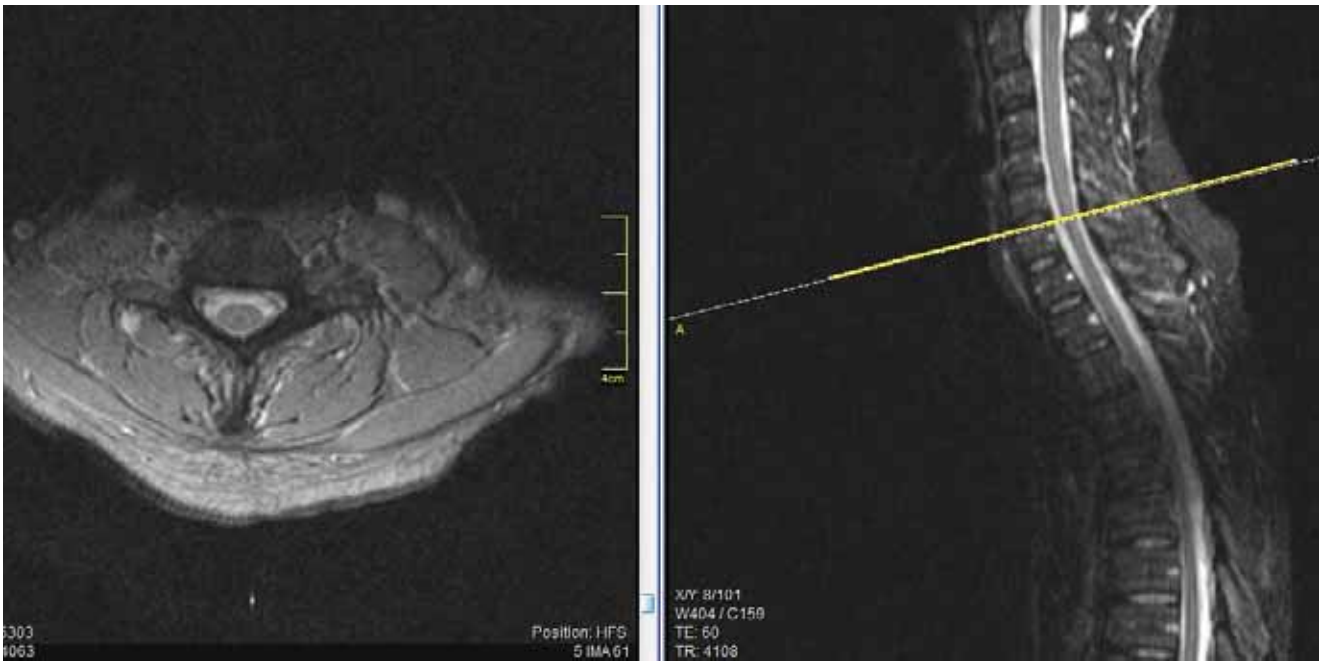

Figure 3. *No abnormal signals on the MRI made after the admission*