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## Pulmonary mucosa-associated lymphoid tissue lymphoma and myasthenia gravis. A case report

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**We describe a low-grade, MALT-lymphoma with multiple, unusually large opacities involving both the lungs in a woman suffering from myasthenia gravis. Unlike other autoimmune diseases, myasthenia gravis has never been associated with MALT-lymphoma thus far. After cyclophosphamide treatment, a complete detersion of the pulmonary opacities was obtained.**

Although not frequent, pulmonary mucosa-associated lymphoid tissue (MALT) lymphomas are well-recognized.[1,2] However, the case we describe here presents some aspects that render it noteworthy.

In June 1995, a 55-year-old woman began complaining of great-joint arthritis and erythema nodosum. Her chest radiography showed multiple, large opacities involving both the lungs (Figure 1). Myasthenia gravis had been diagnosed 20 years before and pyridostigmine was continuously taken thereafter, with good control of the neuromuscular symptoms. Laboratory analyses included elevated ESR; monoclonal M-γ-globulin; antiacetylcholine receptor antibodies; absence of serum markers of cancer; normal values for hemochrome and other routine tests. Total CT-scan showed multiple, solid opacities with diameter up to 8 cm within both the lungs; liver, spleen and lymph nodes were normal. Fiberoptic bronchoscopy showed a pervious bronchial tree. Transbronchial biopsy was not diagnostic, whereas a surgical biopsy of the large, apical, right-sided lesion led to the diagnosis of *low-grade pulmonary MALT-lymphoma* according to well-recognized

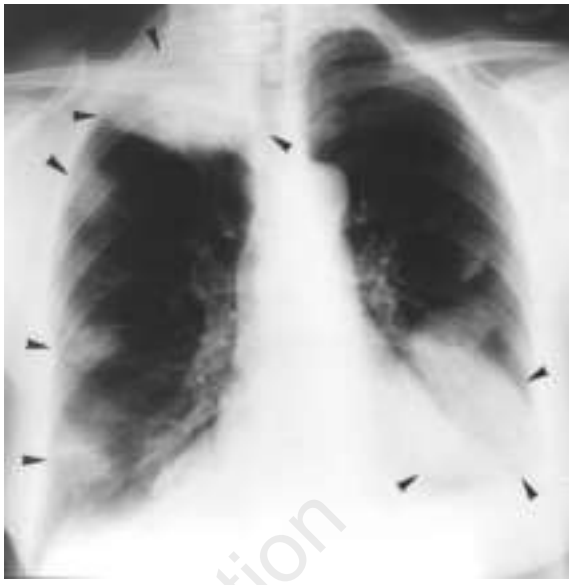

**Figure 1. Chest radiography before the treatment. Multiple pulmonary opacities (arrows) are evident in both pulmonary fields. Very large lesions, 8 cm in diameter, are localized in the upper right lobe and in the lower left one.**

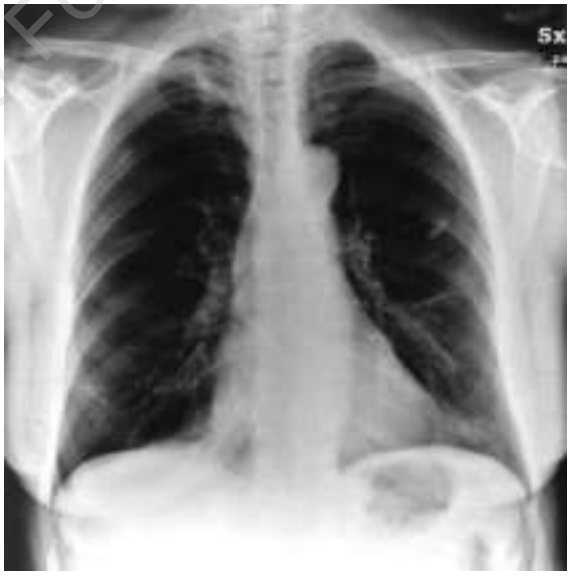

**Figure 2. Chest radiography after cyclophosphamide treatment. Complete detersion of the pulmonary opacities.**

histological, immunohistochemical and genetic findings.[3,4] Finally, a bone marrow biopsy showed normal hematopoiesis, without lymphoma localization.

In September 1995, the patient started oral cyclophosphamide treatment (100 mg/die), initially associated with oral prednisone. Both great-joint arthritis and erythema nodosum resolved within a few days; ESR normalized after a few weeks; and monthly monitoring by chest X-ray showed a progressive

shrinking of the pulmonary opacities, a complete radiological detersion having been achieved in September 1996 (Figure 2). At this time, just one year after starting it, cyclophosphamide was stopped. At the last control, in April 1997, the patient continued to be well, having normal routine laboratory analyses and negative chest radiography.

In the present case, both the lungs were affected by multiple neoformations, two of which were about 8 cm in diameter; to our knowledge, pulmonary masses of similar size have never been reported so far in a case of low-grade MALT-lymphoma, which is most often restricted to only one lung.[5,6]

It has been suggested that autoimmune diseases may play a pathogenetic role in the development of MALT-lymphoma.[2,7] Myasthenia gravis is also an autoimmune disease, characterized by an autoaggressive process directed against the acetylcholine receptors; however, an association between MALT-lymphomas and myasthenia gravis has never been reported so far. Whether a long-lasting myasthenia gravis may be considered an autoimmune disorder predisposing *per se* to the development of MALT-lymphoma remains an open question. However, a merely casual occurrence of two independent diseases cannot be excluded at present.

Optimal management of MALT-lymphoma is not well standardized yet. In spite of the extent of lung involvement, cyclophosphamide induced, in our patient, a progressive decrease of the pulmonary opacities, up to a complete radiological detersion one year thereafter. Clinical and radiological remission have now lasted for about seven months since the cessation of treatment.

***Key words***

*MALT-lymphoma, myasthenia gravis, autoimmune disorders*

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## Mantle cell lymphoma with amyotrophic lateral sclerosis (motor neuron disease)

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**We describe a previously unreported case of mantle cell lymphoma (MCL) associated to amyotrophic lateral sclerosis (ALS) in a 63-year-old woman with a 1-year history of weakness of arm and leg muscles. The both molecular-genetic and flow cytometry analysis of lymphocytes of peripheral blood (PB) demonstrated leukemic phase of MCL.**

A 63-year-old woman was admitted to our hospital for one-year progressive weakness in her extremities. Tendon reflexes were overactive in the legs with widespread reflexing area, bilateral Babinski and both ankle and patellar clonus. There was no sensory defect. Brain magnetic resonance imaging showed cortico-subcortical atrophy and multiple small lesions of white matter. Electromyographic studies revealed severe multisegmentary denervation with preserved peripheral nerve conduction. A lumbar puncture showed cerebrospinal fluid protein content and biochemical profile were normal, Gram's stain and cultures were negatives. PB examination showed a white cell count of $19.5\times10^9$/L with an absolute lymphocyte count of $11\times10^9$/L. Hemoglobin level and platelet count were normal. The lymphocytes were medium to large in size, with scanty to moderate cytoplasm, and indented nuclei. The chromatin was moderately coarse with nucleoli in some cells. Serum immunoglobulin (IG) were normal, without monoclonal component. The immunophenotypic features of lymphoid cells were: $CD19^+$, $CD5^+$, $CD20^+$, kappa $(\kappa)^+$, lambda $(\lambda)^-$ , $CD23^-$, $CD10^-$ and $FMC7^-$, with clonal expression of κ light chain on 64% of mononuclear cells. The bone marrow (BM) aspirate showed 37% mature-appearing lymphocytes. BM biopsy revealed reactive changes. Immunohistochemical study of BM specimen showed expression of both κ and λ chains of immunoglobulins. Cytogenetic analysis of BM showed no chromosomal abnormalities.

The body CT did not show hepatosplenomegaly, adenopathies or extranodal involvement. The endo-