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Case Report

Paraparesis Secondary to Microscopic Polyangiitis Resistant to Corticosteroids. Report of a Case

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Abstract

Microscopic polyangiitis (MPA) is an ANCA-associated vasculitis. Almost half of the patients may present with involvement of the peripheral nervous system such as mononeuropathy or polyneuropathy. The initial treatment is with corticosteroids, and up to 30% are non-responders, where other treatments should be used. Rapidly progressive renal failure and intestinal ischemia are usually high-mortality complications.

***Keywords:** Microscopic polyangiitis, Mononeuritis multiplex, Resistance, Rapidly progressive renal failure.*

Abrevations: ANCA (antineutrophil cytoplasmic antibodies), PAM (microscopic polyangiitis)

Introduction

PAM is an ANCA-associated systemic vasculitis, characterized by necrotizing inflammation of medium to small-sized vessels with little or no immune deposits. It predominantly affects the respiratory and/or renal system; in up to 50% there may be peripheral neurological involvement. Treatment must be instituted quickly because they can have an acute and torpid evolution, especially those resistant to corticosteroid therapy. We present the clinical case of a patient who presents with severe acute paraparesis as the first manifestation of PAM, resistant to corticosteroids, and evolves with rapidly progressive acute renal failure and shock.

Case Presentation

73-year-old patient with a history of severe smoking that began 2 months prior to the consultation with progressive weakness of the lower limbs and falls from height, evolving to bed prostration, also adding weakness of the upper limbs. Add disorientation 72 hours prior for which you consult. The physical examination revealed that the patient was alert, oriented in person, and disoriented in time and space. Right peripheral facial palsy with Bell's sign. Generalized muscle atrophy with hypotonia, predominantly in the lower limbs. Hyporeflexia in the upper limbs with areflexia in the lower limbs without other added pathological reflexes. Strength in upper limbs ⅘ proximal and ⅖ distal and in lower limbs ⅖ proximal and 1/5 distal bilateral. Anesthesia of the right lower limb, hypoesthesia in the left and dysesthesias of the right upper limb.

Laboratory tests revealed mild renal failure (U 99, cr 1.25), elevated ERS 101, and inflammatory urinary sediment as pathological findings. A CT scan of the brain and entire spine was performed without contrast, without pathological findings, and a CT scan of the chest with infiltration in the right base. Lumbar puncture was performed with opening pressure of 24 cm h20, colorless liquid, glucose 66, proteins 41 and 1 cell, cultures and herpes PCR negative. Confusional syndrome secondary to urinary infection and pneumonia associated with prerenal renal failure and polyneuropathy of unknown etiology is interpreted. Treatment was started with intravenous hydration and ceftriaxone with improvement in laboratory values and sensorium, and he was lucid 48 hours after the start of antibiotic treatment. An EMG was requested, which reported acute/subacute sensory-motor axonal polyneuropathy with signs of current denervation, although it could not be ruled out that it began as a multiple mononeuropathy. (Fig 1)

To study polyneuropathy, HIV serology, Hepatitis B and C and negative VDRL, urinary sediment by nephrology +++ proteins, leukocytes are requested; albuminuria mg/l: 134.57, proteinuria (spontaneous urine): 0.98 g/l, with daily proteinuria calculated at approximately 2 g. A dosage of vitamin B12 and folic acid is requested, peripheral blood smears are performed by the hematology service without alterations, and replacement with vitamin B12 is started empirically. Rheumatological profile with cryoglobulin results, antinucleocytoplasmic Ab (ANA), anti DNA Ab, SS-A/Ro, SS-B/La, anti Sm: negative, remainder pending, carcinoembryonic antigen, prostate-specific antigen, B2 microglobulin within normal parameters ; Anti-ganglioside antibodies (GM1 - GM2 - GM3 - GM4 - GD1b - GD2 - GD3 - GT1a - GT1b - GQ1b-Sulfatides) were negative and samples were sent for onconeuronal antibodies. Due to a diagnosis of probable mononeuritis multiplex, pulses of intravenous methylprednisolone were started, with a plan to receive cyclophosphamide. On the fifth day after starting pulses, the patient progresses with acute respiratory failure, respiratory and metabolic acidosis, and hyperlactacidemia; myocardial injury plus acute renal failure, associated with hemodynamic instability, so it was decided to transfer to a closed unit with requirements for orotracheal intubation and mechanical ventilatory assistance. During his stay in the intensive care unit, a chest tomography with angiotomography was performed, ruling out new pulmonary infiltrates and pulmonary thromboembolism. It evolves with a drop in hematocrit and hemoglobin requiring multiple transfusions, without findings of obvious bleeding. He died on the 5th day of admission to the ICU. Post mortem, the rest of the rheumatological profile was received, with negative anti RNP AC, C3 and C4 with values of 88 and 27 mg/dl, respectively, rheumatoid factor 100 IU/ml and positive ANCA P 1/40. The condition is interpreted as ANCA-mediated vasculitis that begins with mononeuritis multiplex and evolves into a probable systemic disease.

EMG Findings Summary

Muscle	Side	Ins. Act.	Fibs.	Pos. Wave	Fasc.	MYO. Disch.	Normal MUP	Poly	Low Amp.	High Amp.	Dur.	Recruit	Int. Patt.
Deltoid	Right	Normal	0	0	0	0	0	N	0	0	Normal	Reduce	Reduce
Extn.Digitorum Com	Right	Normal	0	0	0	0	0	N	0	0	Normal	Reduce	Reduce
Abduc.Pol.Brevis	Right	Normal	0	0	0	0	0	N	0	0	Normal	No Act.	No Act.
1st Dorsal Inter.	Right	Normal	0	0	0	0	0	N	0	0	Normal	No Act.	No Act.
Quadriceps	Left	Normal	0	0	0	0	0	N	0	0	Normal	No Act.	No Act.
Quadriceps	Right	Normal	0	0	0	0	0	N	0	0	Normal	Reduce	Reduce
Tibialis Anterior	Left	Normal	+2	+2	0	0	0	N	0	0	Normal	No Act.	No Act.
Tibialis Anterior	Right	Normal	+1	+2	0	0	0	N	0	0	Normal	No Act.	Descret
Gastroc. Lateral H	Right	Normal	+1	+2	0	0	0	N	0	0	Normal	No Act.	No Act.
Gastroc. Lateral H	Left	Normal	+2	+2	0	0	0	N	0	0	Normal	Reduce	Reduce

Figure 1: *EMG Finding Summary.*

Discussion

ANCA-associated vasculitis is an entity that encompasses three systemic autoimmune diseases: granulomatosis with polyangiitis (GPA), microscopic polyangiitis (PAM) and eosinophilic granulomatosis with polyangiitis (EGPA). Its main common features are necrotizing inflammation of medium to small sized vessels with little or no immune deposits. PAM is associated with ANCA directed against myeloperoxidase (MPO-ANCA) in 30% of cases. The incidence varies from 15 to 25/1 million in the general population. PAM occurs at an average age of 50 years. Regarding sex, men are affected more than women in a ratio of 1.8: 1. [3,8,9].

It is a systemic disease, with main involvement of the respiratory and renal tracts. Neurological manifestations (central or peripheral) play an important role in PAM and can be used to determine disease activity. The gastrointestinal tract may also be involved (30%-50%), and has been identified as an independent factor associated with poor prognosis. Involvement of the peripheral nervous system occurs in approximately half of patients with PAM, being the first sign of the disease in less than 20% [1,2].

Pathophysiologically, it generates a necrotizing inflammation of the vasa nervorum, and ischemia with axonal degeneration. It can present as mononeuritis multiplex, with progression towards a symmetrical polyneuropathy, or start as symmetrical polyneuropathy, with a progressive course when untreated. The peroneal, tibial, ulnar and median nerves are frequently involved. Clinical manifestations are usually tingling, pain or weakness with atrophy in the distal portions of the extremity, particularly the lower ones. According to studies focused on the neuropathic characteristics of ANCA vasculitis, the mononeuritis multiplex pattern occurs in approximately 70-90% of patients, while a minority presents as polyneuropathy. Patients experience both sensory and motor symptoms, so pure motor neuropathy is an exclusion criterion for vasculitic neuropathy [2,4, 13, 14].

The diagnosis of neurological compromise is based on clinical manifestations, determination of ANCA in the laboratory by immunofluorescence technique and electromyogram as a complementary method.

It is known that neuropathy due to vasculitis can occur in the context of systemic or non-systemic disease, the former being the most frequent and with the worst prognosis, as well as the most studied. In a study of 700 sural nerve biopsies in patients diagnosed with vasculitis published in 2004 by Kararizou, et al (Greece), 22 patients (12 men and 10 women) between 23 and 77 years of age were diagnosed with neuropathy due to vasculitis. non-systemic, that is, without clinical or laboratory involvement. The findings were vasculitis at the level of epineural vessels with axonal degeneration of the nerves, and the clinical manifestations were mononeuritis multiplex and distal symmetrical neuropathy at the same frequency. The duration of the disease prior to the biopsy varied between 18 to 144 months, with duration of symptoms greater than 60 months in 12 patients.

Most patients usually respond to immunosuppressive treatment; for example, in PAM and PGE, survival is approximately 75%. However, some patients develop fulminant disease despite treatment. In the case of our patient, he had a rapidly progressive and torpid evolution despite the treatment instituted. In a retrospective study of a German cohort published in 2015 by Schirmer et al, 144 patients with microscopic polyangiitis were evaluated, of which 3 presented rapidly progressive mononeuritis multiplex with positive ANCA P. Of this cohort, there was a prevalence in women, the most common form of presentation was systemic with main involvement of the kidneys, lungs and peripheral nervous system. They received corticosteroid therapy and cyclophosphamide as treatment, and of them, 13% were refractory to the initial treatment, and 17% died during follow-up. In another retrospective study published by Bourgarit et al (Paris, 2005), they compared 595 patients with a diagnosis of polyarteritis nodosa, PM and PGE who died versus those who survived during the first year after the start of treatment, in order to identify predictive factors of early death. They used the FFV (five factor score) and Birmingham vasculitis activity (BVAS) scores to compare them. The main prognostic factors were the presence of renal and cardiovascular involvement. The main cause of death was uncontrolled vasculitis in 58% and infection in 26%. [16,17,18,19,20]

The 5-year survival is 74%, and death occurs due to alveolar hemorrhage or digestive, renal or cardiac disorders. In patients who present or develop acute pulmonary involvement (acute alveolar hemorrhage), renal involvement (rapidly progressive acute renal failure), or digestive involvement (intestinal ischemia, perforation or bleeding), mortality rises up to 50%, with a reserved prognosis. as occurred in our patient. [13,15]

Conclusion

Early identification and appropriate treatment of mononeuritis multiplex due to ANCA-P vasculitis are essential to prevent permanent damage, improve clinical outcomes. Therefore, it is important to conduct comprehensive case reviews to better understand the clinical aspects, underlying mechanisms, and the most effective treatment options for this disease.

Conflicts of Interest

The authors certify that there is no conflict of interest.

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