Headache, palsy, and an elevated ESR

Not necessarily giant cell arteritis

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Elderly people often have cranial nerve (CN) palsies. Most cases are ischemic and self-limited.[1] Diplopia and an elevated erythrocyte sedimentation rate (ESR) are sometimes observed in giant cell arteritis (GCA).[2] The incidence of diplopia among people with GCA is estimated at 10% to 17%. In some cases, it is the presenting sign.[3-5] On rare ocasions, CN palsies appear as one of the first symptoms of multiple myeloma (MM).[6-8] The symptoms of MM are usually vague, and diagnosis is frequently delayed. Such delays can have a negative effect on patients' prognoses.

Case

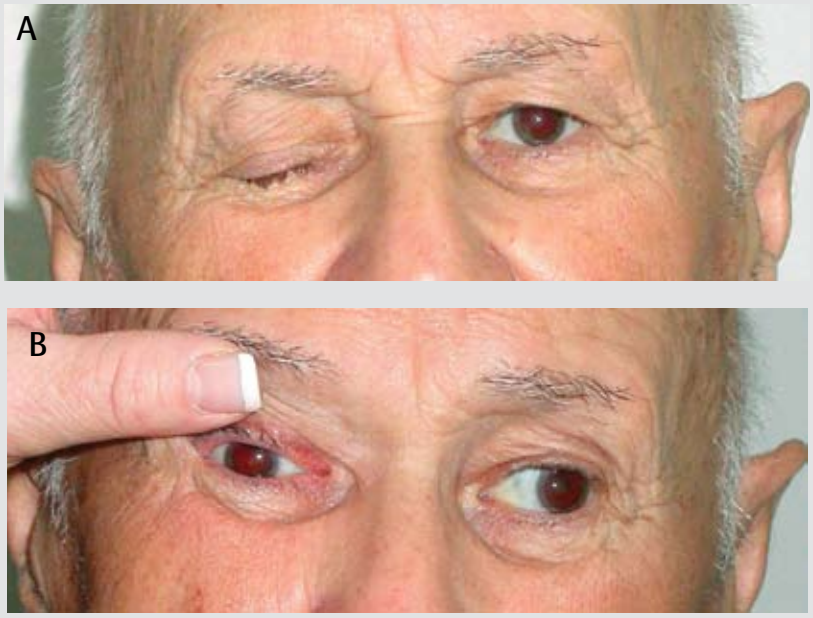
A 78-year-old man presented with a headache in his right temple and double vision that had developed several days before. His medical history was remarkable only for stable mild hypertension. On examination, his visual acuity was 20/30 in both eyes and his colour vision, red sensitivity, and light saturation were normal in both eyes. His visual fields were full, and his pupils were equal, round, and reactive with no notable relative afferent pupillary defect. Ptosis and limitation of elevation, depression, and adduction of the right eye were observed consistent with third CN palsy (**Figures 1A** and **1B**). Results of anterior segment and dilated funduscopy were within normal limits in both eyes.

Physical and neurologic evaluation had normal results, except for tenderness in his right temple. His blood pressure was 135/75 mm Hg, and his pulse rate was 64 beats/min. Initial blood tests showed an accelerated ESR (91 mm/h), a normal level of C-reactive protein (1.04 mg/L), mild anemia (hemoglobin level of 11.8 g/dL), and a normal fasting blood glucose level (87 mg/dL).

He was about to commence steroid treatment for a work-up diagnosis of giant cell arteritis (GCA) and was scheduled for a temporal artery biopsy. When asked about other systemic symptoms of GCA, he mentioned he had had pain in his lower chest during the last 3 weeks. Chest x-ray examination revealed a pathologic fracture of his right eighth rib. Computed tomography scan of his brain and skull revealed osteolytic lesions on the frontal and occipital bones but no other abnormality. Results of magnetic resonance imaging of his brain were normal. On further investigation, elevated blood urea (54 mg/dL) and creatinine (1.18 mg/dL) levels were found, consistent with mild renal failure. Serum levels of total blood protein (9.1 g/dL), immunoglobulin G (4064.8 mg/dL) and β_2-microglobulin (2243.0 ng/mL) were markedly elevated, and Bence Jones proteins (κ type) were found during urine analysis.

Light-chain myeloma was diagnosed, and chemotherapy was given. He responded well. Three months after commencement of treatment, his ophthalmoplegia and ptosis resolved completely (**Figure 2**).

Figure 1. Symptoms consistent with palsy of third cranial nerve: *A) Complete right upper lid ptosis in primary position and B) complete limitation of adduction of the right eye on left gaze.*



This case emphasizes that, although CN palsy in the elderly is usually due to ischemia, the association of headache and an elevated ESR should raise suspicion of

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Figure 2. On follow-up examination 3 months after beginning treatment, ophthalmoplegia and ptosis had completely resolved

other causes. Some of these causes are life-threatening, so it is important for family physicians to be alert to any unusual presentations of CN palsy. They should remember that, although MM in patients with CN palsy is relatively unlikely, it should be considered.

Diagnosis

Incomplete oculomotor palsy associated with an elevated ESR was the presenting sign of MM in this case. The initial diagnosis was GCA, which is the most common systemic vasculitis in elderly people.[9] Symptoms such as new-onset headache, jaw claudication, proximal myalgia, loss of appetite, fever, and fatigue suggest the diagnosis. An elevated ESR and C-reactive protein level might indicate GCA, but temporal artery biopsy is the criterion standard test for diagnosis. Negative results of biopsy, however, do not exclude the diagnosis.[9] Typical complications of untreated GCA include blindness, stroke, and death. Therefore, prompt and correct diagnosis and treatment are important.

A PubMed search from 1966 to 2006 for GCA and its ocular manifestations using the key words *cranial nerve palsy, oculomotor palsy, ophthalmoplegia*, and *diplopia* found mainly case reports and revealed that the major ocular manifestation of GCA was anterior ischemic optic neuropathy. Cranial nerve palsies and central retinal artery occlusion, however, were common. Dimant et al[2] found ophthalmoplegia in 7 of 14 patients with biopsy-proved temporal arteritis.

The patient in our case had oculomotor palsy and headache in his right temple associated with an elevated ESR. The pain in the right side of his chest could not be attributed to GCA. The finding of pathologic fracture of a rib triggered further investigations that led to a diagnosis of MM.

Discussion

The typical presenting symptom of MM is bone pain, usually involving the spine or chest. Other possible presenting symptoms are pathologic fractures, weakness, anemia, infections, neurologic symptoms, hypercalcemia, spinal cord compression, and renal failure. Peripheral neuropathies are uncommon. Only a few cases of patients with MM and CN involvement (3rd, 6th, 12th nerves) have been described in the literature. In most of them, MM developed due to lesions on the base of the skull.[6-8,10-12] In others, compression, meningeal metastases, and hematologic effects of the myeloma or direct infiltration of the nerve itself were described.[13] Ophthalmic manifestations of MM are rare and variable. Neuroophthalmic symptoms (CN palsies or visual disturbances), orbital involvement, or hyperviscosity retinopathy have been reported. Fung et al reported 8 cases of MM with ophthalmic manifestation; 3 of the patients had CN palsies (6th and 3rd nerves).[13]

Feletti et al described 2 cases of MM diagnosed because of an isolated oculomotor palsy caused by an intracranial plasmacytoma.[7] In our case, neither intracranial plasmacytoma nor other intracranial lesions had been detected. We assume the paresis was probably caused by a hyperviscous or microvascular effect of myeloma. An increased level of circulating blood proteins increases blood viscosity and can impair blood flow in the small arteries of the brain. This causes abnormal microcirculation in brain structures, including cranial nerves. Restoration of function to the damaged oculomotor nerve, which was observed following treatment in our patient, probably increases the likelihood of microvascular pathogenesis.

Conclusion

A combination of headache, CN palsy, and an elevated ESR in elderly people could suggest GCA. Although the likelihood of diagnosing MM in such patients is relatively low, it should not be overlooked. A high level of suspicion, especially among family physicians, might lead to early diagnosis and treatment that could substantially improve these patients' prognoses.

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EDITOR'S KEY POINTS

- Cranial nerve palsies in the elderly are usually due to ischemia, but when they occur in conjunction with an elevated erythrocyte sedimentation rate (ESR) and headache, they could be associated with giant cell arteritis.
- In this case, complaints of bone pain triggered further investigations that led to a diagnosis of multiple myeloma.
- While multiple myeloma is a less common cause of this triad of symptoms (nerve palsy, elevated ESR, and headache) in the elderly, it should be considered in the differential diagnosis.

POINTS DE REPÈRE DU RÉDACTEUR

- Chez le vieillard, la paralysie d'un nerf crânien est habituellement d'origine ischémique, mais quand elle s'accompagne d'une vitesse de sédimentation accélérée et de céphalée, il se pourrait qu'elle soit causée par une artérite temporale.
- Chez ce patient, la présence de douleurs osseuses a entraîné une investigation plus poussée qui a conduit au diagnostic de myélome multiple.
- Chez le vieillard, le myélome multiple est rarement responsable de cette triade de symptômes (paralysie d'un nerf, sédimentation accélérée et céphalée) mais on devrait envisager cette possibilité dans le diagnostic différentiel.