

Case report

Granulomatosis with polyangiitis: recurrence presenting as ependimoplexitis

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ABSTRACT

A 55-year-old man with granulomatosis with polyangiitis (GPA) developed continuous parietal headache, malaise, nasal crusting and dry cough. Neurological exam revealed only left hand hypoesthesia in 4th and 5th finger. Brain MRI showed enlarged right choroid plexus, hyperintense periventricular white matter, thalami and right side of corpus callosum. The suspected diagnosis was ependimoplexitis due to GPA, the patient received three 500 mg methylprednisolone pulses followed by 1 mg/kg of meprednisone with gradual tapering and was switched to oral cyclophosphamide. He had complete resolution of headache. An MRI following this treatment for relapse revealed only minimal ependimal changes.

Introduction

Granulomatosis with polyangiitis (GPA, formerly Wegener's) (1) is a systemic necrotising vasculitis that predominantly affects upper and lower respiratory tracts and, in most cases, the kidneys (2, 3).

Characteristic histopathologic findings are necrotising vasculitis that affects small- and medium-size vessels and extravascular granulomas.

Neurologic involvement is rarely a presenting feature of GPA, but it may develop during the course of disease in 22% to 54% of cases, mainly in the form of mononeuritis multiplex (4). Central nervous system (CNS) involvement is reported in only 2% to 8% of cases (5). Drachman *et al.* had already recognised the following three different pathophysiological processes of CNS involvement:

1. Contiguous spread of granulomatous disease from the ear, nose and throat tract into the brain and cranial nerves;
2. Formation of granuloma primarily in the nervous system;

3. Vasculitis affecting small- to medium-size vessels of the brain or spinal cord (6).

We present a patient with GPA in which MRI imaging revealed ependimoplexitis. To our knowledge, this is the first report of choroid plexus involvement in a patient with GPA

Case report

A 55-year-old man presented in May 2011 with fever, 20 kg weight loss, malaise, nasal crusting, bleeding and paresthesiae in right hand 4th and 5th fingers. He was admitted to hospital, chest CT scan showed multiple lung nodules, cranio-facial CT scan showed sinusitis and an electromyogram demonstrated multiplex mononeuritis. C-ANCA was positive and PR3-ANCA was 31 UI/ml. A nerve biopsy confirmed vasa nervorum vasculitis.

A diagnosis of granulomatosis with polyangiitis (GPA) was performed and he was started on treatment with daily oral meprednisone 60 mg and monthly 1 g intravenous cyclophosphamide (CFM) pulses. Trimethoprim-sulfamethoxazole 160/800 mg three times per week was also started.

Five months later he developed continuous parietal headache, malaise, nasal crusting and dry cough. Neurological exam revealed only left hand hypoesthesia in 4th and 5th finger. Brain MRI (Fig. 1) showed enlarged right choroid plexus, hyperintense periventricular white matter, thalami and right side of corpus callosum. MRI spectroscopy showed a decreased in choline peak, N-acetyl aspartate, and increased lipids and lactic acid, suggesting an inflammatory process.

A lumbar puncture was performed; CSF had normal cellular counts, protein 0.6 g/l normal glucose and chloride. CSF cultures were negative; adenosine deaminase, polymerase chain reaction

Competing interests: none declared.

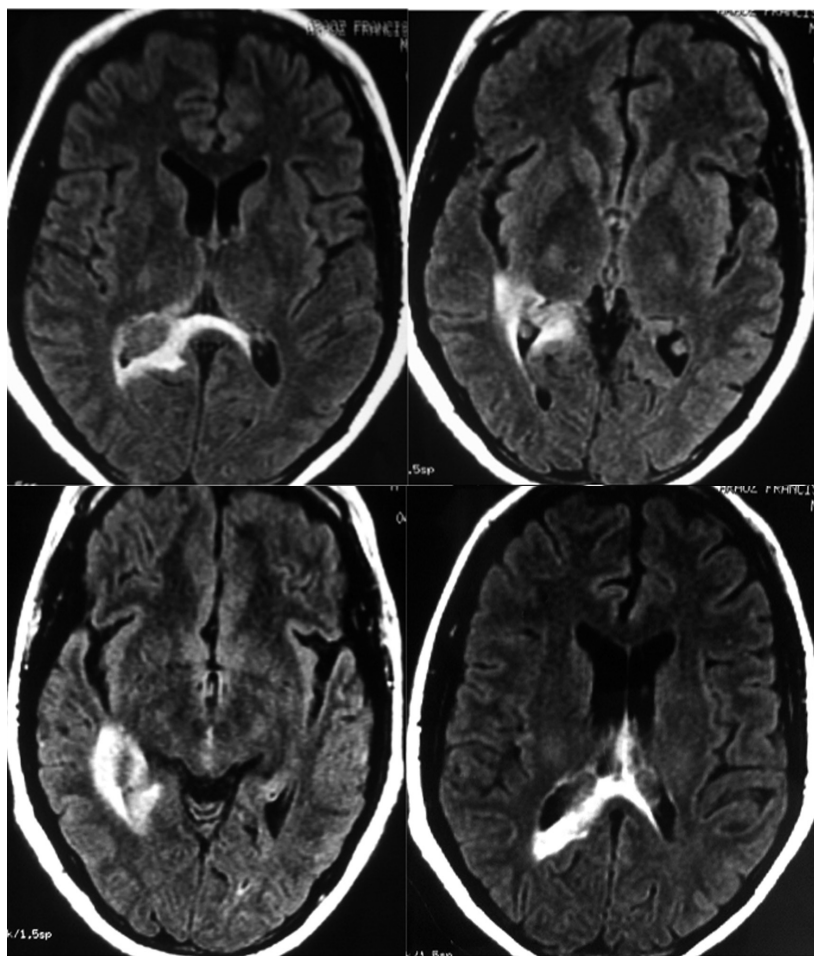


Fig. 1. Axial FLAIR MR. Enlarged right choroid plexus, hyperintense periventricular white matter, thalami and corpus callosum.

for cytomegalovirus, herpes virus and VDRL were negative. Flow cytometry was normal.

The suspected diagnosis was ependimoplexitis due to GPA, the patient received three 500 mg methylprednisolone pulses followed by 1 mg/kg of meprednisone with gradual tapering and was switched to oral cyclophosphamide. He had complete resolution of headache. An MRI following this treatment for relapse revealed only minimal ependymal changes (Fig. 2).

Discussion

The patient was a 55-year-old male with confirmed diagnosis of GPA who presented with headache and MRI images depicted enlarged right choroid plexus, hyperintense periventricular white matter, thalami and right side of corpus callosum during maintenance treatment with CFM.

Owing to the clinical history of the pa-

tient, the MRI images and the continuing clinical remission with steroids and immunosuppressant treatment, choroid plexus involvement in GPA was the most likely diagnosis. Selective involvement of the choroid plexus has not been described before in the spectrum of the radiological signs for neurological GPA.

Opportunistic infections and primary CNS lymphoma were ruled out with CSF cultures and flow cytometry.

CNS involvement in GPA is infrequent, previous studies reported a prevalence of 2 to 8% (5). Drachman *et al.* described three different forms of CNS involvement in GPA: 1- direct invasion from sinus involvement 2- generalised vasculitis and 3- CNS *in situ* granuloma formation (6).

Vasculitis has been reported in approximately up to 6% of GPA cases with CNS involvement (3, 5). Cerebral vasculitis can present as haemorrhage, cerebral

infarction, venous or arterial thrombosis. Clinical manifestations include seizures, cognitive dysfunction, altered consciousness, paresias or paresthesias. MRI images usually show white matter hyperintense lesions (5). Vasculitis diagnosis is a challenge due to the lack of an accurate diagnostic test, and tissue biopsy is often not possible.

Meningeal involvement in GPA has rarely been described, in a systematic literature review published in 2006; forty six single cases of chronic meningitis in GPA were identified (7).

Chronic hypertrophic pachymeningitis is by far more frequent than leptomeningitis (81 vs. 27%) and rather occurs in the brain than in the spinal cord (87.5 vs. 14.6%) (7).

Headache is the most common clinical manifestation but most patients develop additional neurological signs and symptoms (7). MRI typically shows: diffuse and focal dural thickening and enhancing (5).

A good response to immunosuppressive therapy with resolution of headache and other neurological symptoms, and sometimes reversal of MRI abnormalities was observed in the majority of those with GPA-related pachymeningitis. However, repeat brain MRI may show no or minimal radiological improvement despite clinical recovery. This finding could represent residual post-inflammatory fibrosis of meninges (8). In our patient an MRI performed following treatment for relapse while the patient was asymptomatic revealed slightly enlarged and hyperintense right choroid plexus and slight perilesional hyperintensity probably also representing a residual lesion.

Our literature review of cases of intracranial involvement in GPA yielded no reports of patients who had choroid plexus involvement; to our knowledge, this is the first report.

Two similar cases of plexitis in patients with systemic lupus erythematosus were reported by Duprez *et al.* Both cases presented with headache and meningeal symptoms, MRI confirmed enlarged choroid plexus and excellent response to methylprednisolone and iv cyclophosphamide treatment (9).

One additional case of plexitis in rheu-

matic diseases was described in the literature, a female patient with eosinophilic GPA who developed headache, fever and ophthalmoplegia. MRI findings suggested granulomatous involvement in the meninges and choroid plexus associated to vasculitis.

Although, this finding needs confirmation in larger series, it opens up a window on the possibility that choroid plexus abnormalities may indicate CNS involvement in GPA.

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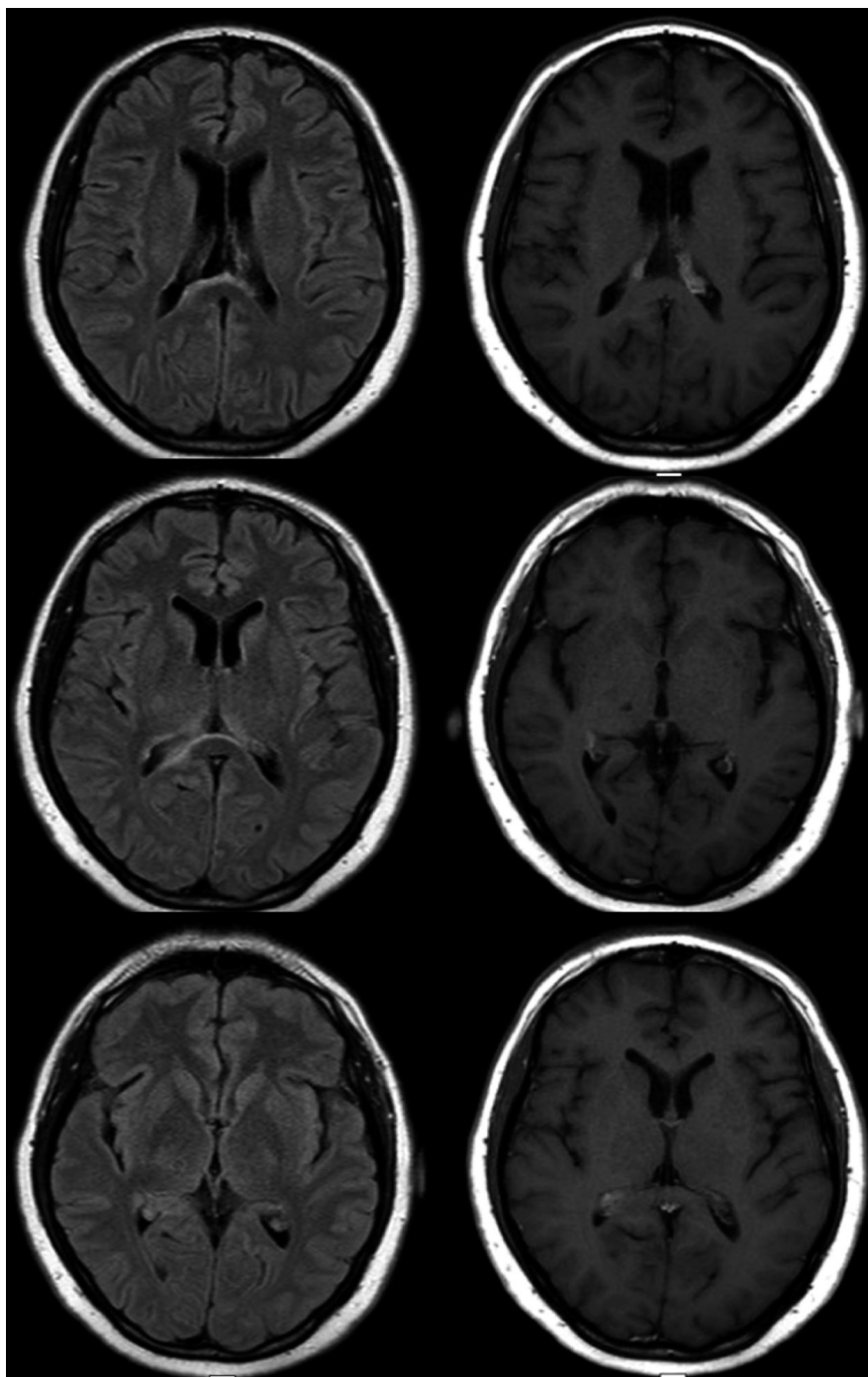


Fig. 2. Axial FLAIR MR. (Right): slightly enlarged and hyperintense right choroid plexus and slight perilesional hyperintensity. Axial T1 C+ MR (Left): normal and symmetrical lateral ventricles choroid plexus.