



Enfermedades Infecciosas y Microbiología Clínica

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Diagnosis at first sight

Stroke, beyond the cardiovascular risk

Ictus, más allá del riesgo cardiovascular



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Case report

This was a 36-year-old male with no relevant medical history. He was a non-smoker and was not a user of other toxic substances. He had a history of a risky heterosexual relationship over 10 years previously, currently has protected sex with a stable heterosexual partner. He came into Accident and Emergency with clinical symptoms of numbness on the left side of his face, drooping of the corner of the mouth to the right and subjective decrease in strength in the left limbs, predominantly in the brachial region. He also reported having had a headache lasting several weeks, described as a right-sided headache radiating to the occipital region, without sensitivity to light or sound. Suspecting ischaemic involvement of the middle cerebral artery (MCA) territory, endovascular rescue therapy was initially decided on, and cranial angiography was performed. This showed a concentric stenosis in the left carotid artery distal to the middle cerebral artery. With the initial suspicion of moyamoya disease, in view of the patient's age, it was decided to manage him conservatively with admission to the stroke unit, where he remained clinically stable, without fluctuations (Fig. 1).

Clinical course and diagnosis

It was decided to extend the aetiological study of stroke to include studies of thrombophilia, autoimmunity (antinuclear antibodies, anti-DNA, anti-neutrophil cytoplasm, anti-cyclic citrullinated peptide, scleroderma panel) and serology (HIV, syphilis, *Toxoplasma* spp., cytomegalovirus, hepatitis A, B and C viruses, and *Cryptococcus* spp.).

The patient was transferred to the Neurology ward where the aetiological study was completed with magnetic resonance angiography (MRA) (Fig. 2) and transcranial Doppler ultrasound (Fig. 3).

MRA showed severe stenosis of the terminal internal carotid artery and the right M1 segment with possible occlusion of the A1 segment on the same side. The intracranial vessel wall study con-

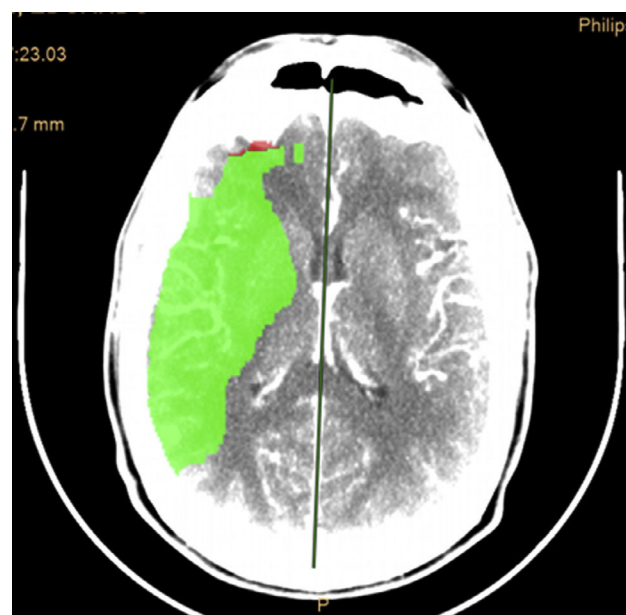


Figure 1. CT angiography of brain. Abnormal perfusion in the territory of the left middle cerebral artery corresponding to penumbra, without infarct zone.

firmed a marked thickening and concentric enhancement of the terminal internal carotid artery which was more irregular in the M1 segment. These findings suggested a diagnosis of angiitis. Transcranial Doppler ultrasound showed diffuse acceleration of the MCA, a finding indicative of vasculitic involvement. A lumbar puncture was performed, obtaining the following results from the cerebrospinal fluid (CSF) analysis: leucocytes 17/mm³ (5% polymorphonuclear), red blood cells 240/mm³, glucose 51 mg/dl, protein 59 mg/dl.

Serology was positive for syphilis and HIV. For the diagnosis of HIV, fourth generation ELISA with antibody and p24 antigen detection was performed, as well as Western-blot technique with detection of antibodies against the envelope glycoproteins gp160, gp 41 and p24. He also had plasma HIV-1 viraemia of 350,000 copies/mL and 212 CD4⁺ lymphocytes/μg. He was therefore started on antiretroviral therapy with bictegravir 50 mg, emtricitabine

DOI of original article: <https://doi.org/10.1016/j.eimc.2023.10.007>

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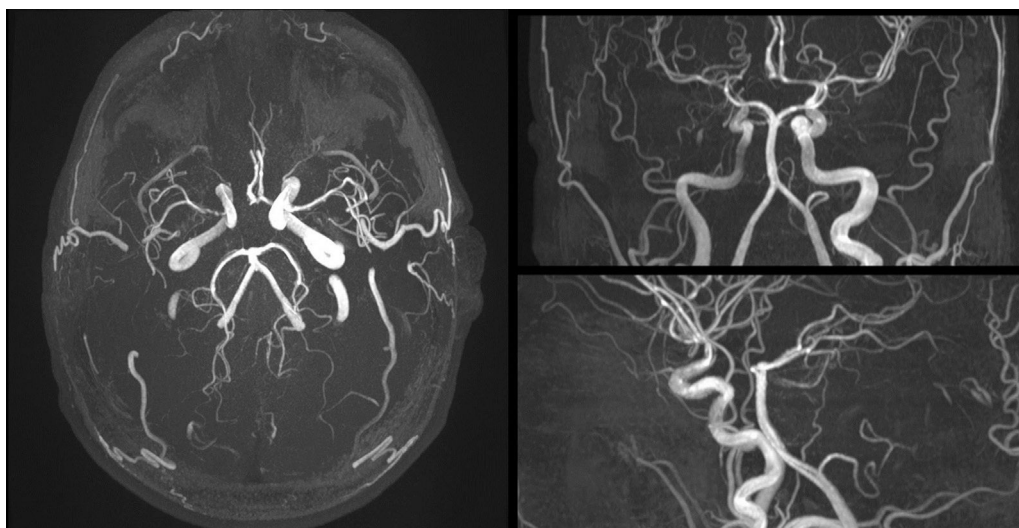


Figure 2. MRI angiogram image. Severe stenosis of the right terminal internal carotid artery and right M1 segment. Possible occlusion of the right A1 segment.

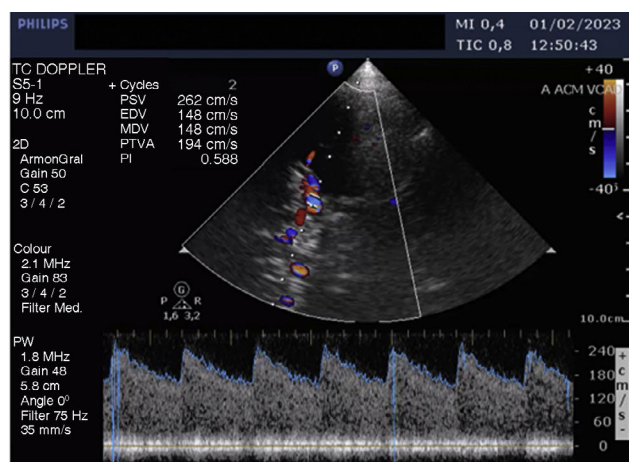


Figure 3. Transcranial Doppler ultrasound image. Diffuse acceleration of the middle cerebral artery.

200 mg and tenofovir alafenamide 25 mg once daily. For the diagnosis of syphilis, total antibodies were detected by chemiluminescence and treponemal antibodies, with an RPR titre of 1/32.

Imaging findings, together with positive serology for syphilis, supported the suspected diagnosis of neurosyphilis, confirmed by positive VDRL test and particle agglutination with a CSF titre of 1/160, for which intravenous penicillin G sodium 4 million units was administered for 14 days under home hospitalisation.

Finally, the patient had early spontaneous resolution of symptoms, without requiring rehabilitation and was asymptomatic on discharge.

Neurosyphilis is an infection of the central nervous system caused by *Treponema pallidum*, and can occur at any stage of the disease. Involvement may be exclusively meningeal or meningo-vascular, where obliterative endoarteritis occurs.¹ It is a vasculitis affecting medium and large vessels, causing inflammation and fibrosis of the adventitial layer,² leading to progressive stenosis, which eventually causes cerebral or spinal cord ischaemic involvement. The MCA is the artery most commonly involved.² The meningovascular form is more common in advanced stages of the disease.¹

According to the Spanish system for mandatory reporting of notifiable diseases, 6613 cases of syphilis were reported in Spain in 2021, with a rate of 13.97 cases per 100,000 population.⁴ Regarding clinical stage, 2.9% were primary syphilis, 2.3% secondary, 1.1% early latent and in 93.7% there was no information.⁴ The percentage of patients with neurosyphilis is not stated in this report.

In Spain in 2021, 3.4% of new syphilis cases were HIV-positive, 8.6% were negative, 25.2% had not been tested and in 62.9%, this information was not available.⁴ Patients with HIV infection may develop more severe or atypical manifestations of syphilis,³ with an incidence of neurosyphilis twice that in the immunocompetent population.⁵

When neurosyphilis is suspected, the CSF should be analysed, both for proteins and cells and for non-treponemal and treponemal antibodies. The technique of choice is the CSF-VDRL test (Venereal Disease Research Laboratory), bearing in mind that a negative result does not exclude the diagnosis. The definitive diagnosis is histological.¹

Treatment consists of intravenous penicillin G sodium for 10–14 days. For follow-up, a lumbar puncture is advised every six months until CSF cells return to normal or the VDRL test is negative.¹

Funding

No funding was received for this study.

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