Progressive triple cervical artery dissection in association with upper respiratory tract infection☆

Disección triple y progresiva de las arterias cervicales asociada a infección respiratoria del tracto superior

Dear Editor:

Cervical artery dissection (CAD) results from the subintimal penetration of blood and subsequent longitudinal extension of the intramural haematoma between different layers of the vessel.[1] The pathophysiology of the condition is not known. It has been suggested that, in addition to minor trauma, such environmental factors as acute infection may act as trigger factors in predisposed individuals.[2] Fifteen percent of patients may present multiple CADs simultaneously[3]; however, dissection of more than 2 cervical arteries is extremely rare.[4] We present the case of a patient with simultaneous, progressive dissection of 3 cervical arteries, occurring concurrently with upper respiratory tract infection.

The patient was a 45-year-old woman who consulted due to ptosis and miosis in the left eye associated with severe headache. She reported a 3-day history of sore throat, cough, and fever (up to 39°C). Physical examination detected left-sided Horner syndrome and no other abnormalities. Blood analysis detected elevated levels of inflammatory markers, including mild leukocytosis, fibrinogen level of 410 mg/dL, and ultrasensitive C-reactive protein level of 3.22 mg/dL. An electrocardiography study, chest radiography, and head CT scan all returned normal results. A neurosonology study revealed absence of flow in the terminal segment of the internal carotid artery; slow, dampened flow in the left middle cerebral artery; and reverse flow in the A1 segment of the left anterior cerebral artery, with opening of the ipsilateral posterior communicating artery, feeding the left middle cerebral artery. A brain MRI scan with an angiography sequence confirmed dissection of the left internal carotid artery (Fig. 1a and b); no ischaemic lesions were observed. The absence of clinical events or radiological lesions suggestive of brain ischaemia was related to the compensation of brain haemodynamics through the opening of collateral arteries, as shown in the neurosonology study. We started treatment with analgesics and anticoagulants. The patient was discharged home after headache resolved.

The patient was readmitted 3 weeks later due to recurrence of very severe headache. A second MRI study showed bilateral dissection of the vertebral arteries (Fig. 1c-e). We reviewed the original study (Fig. 1b), and identified slight irregularities in the extracranial vertebral arteries, which had initially gone undetected. Due to progression of the haematoma, anticoagulation was replaced with antiplatelet treatment with acetylsalicylic acid. Further testing was performed. Microbiology testing returned negative results. Antinuclear antibodies were detected at a titre of 1:320, with a homogeneous pattern, although the patient did not present definite signs of rheumatic disease. Chest and abdomen CT angiography findings were not compatible with fibromuscular dysplasia or other vasculopathies. The patient progressed favourably after a prolonged hospital stay to control pain. Six months after onset, a follow-up MRI study (Fig. 1f) showed incomplete resolution of the CAD. From a clinical perspective, headache has not recurred and she has

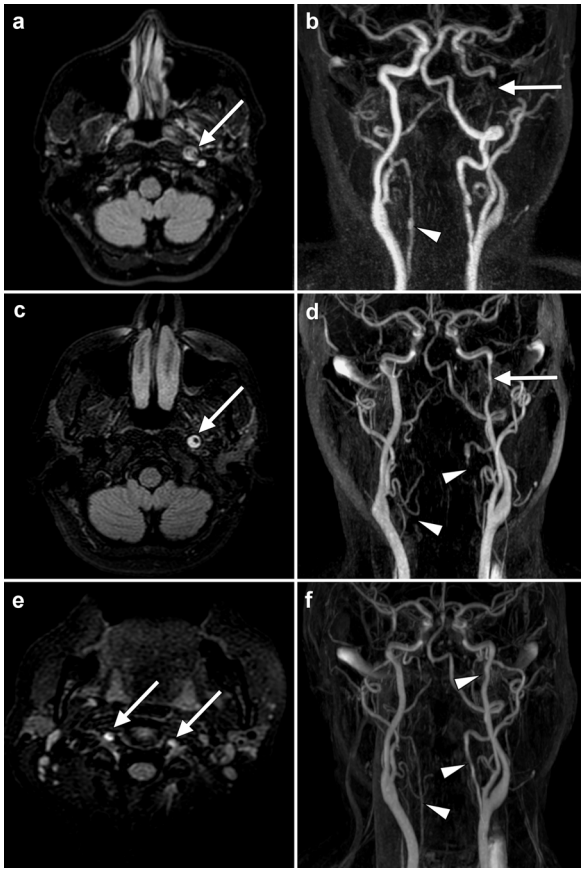

Fig. 1 MRI sequences showing the progression of cervical artery dissection in our patient. The initial study (a and b) showed hyperintensity of the intramural thrombus (arrow) in the distal cervical segment of the left internal carotid artery (a: FLAIR sequence) and a filling defect (arrow) compatible with dissection (b: angiography sequence). An irregularity in the right vertebral artery (arrowhead) initially went undetected in this study. One month later (c, d, e) the crescent sign (arrow) persisted in the left internal carotid artery (c: FLAIR sequence), although blood flow had improved (d: angiography sequence). The extracranial segment of both vertebral arteries (e: FLAIR sequence) also showed increased signal intensity (arrows), which was correlated with lack of flow (d: angiography sequence; arrowheads), suggesting bilateral vertebral artery dissection. Angiography sequences obtained 6 months after onset (f) show restoration of blood flow in the left internal carotid artery and both vertebral arteries (arrowheads).

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presented no ischaemic events; the only persisting symptom is left-sided Horner syndrome.

The interest of this case lies in the simultaneous involvement of 3 of the 4 cervical arteries responsible for supplying the brain, the recent history of infection, and the progressive course. Triple and even quadruple CADs are extremely rare, affecting 1.5% and 0.1% of patients with spontaneous CAD, respectively.[4] Recent history of infection (typically respiratory infection)[5,6] is reported in up to 32% of patients with spontaneous CAD,[7] and is 3 times as common in those with brain ischaemia of other causes and 6 times more frequent in patients with multiple dissections than in those with single dissections.[5] The mechanism underlying this association is unclear. Mechanical mechanisms such as coughing, sneezing, or vomiting are insufficient.[6] As with our case, these patients present high levels of inflammatory markers,[7,8] which suggests inflammation may play a role in pathogenesis. It has been suggested that infection may trigger an inflammatory response that, through the release of cytokines and proteases, damages the extracellular matrix and weakens vessel walls.[5,9] This may be especially relevant in susceptible patients with underlying arteriopathies or connective tissue diseases, who are at greater risk of multiple dissection.[3,10] Overall, in the absence of other alterations, the literature suggests that the underlying disorder in these patients may be a transient vasculopathy.[4]

Another interesting aspect of this case was the recurrence of headache after the initial hospitalisation. While the patient initially consulted due to Horner syndrome, her intense headache was the most disabling symptom, and led to readmission. This enabled us to detect the progression of arterial dissection, which probably explained the worsening of headache. This is a fundamental finding that should alert us to the possibility of disease progression.

Finally, we should note a series of considerations regarding treatment. Firstly, recent studies indicate that patients with involvement of multiple arteries are 3 times more likely to present brain ischaemia or subarachnoid haemorrhage than patients with only one dissected artery.[9] Secondly, while the CADISS (Antiplatelet Treatment Compared with Anticoagulation Treatment for Cervical Artery Dissection) trial found no significant differences in efficacy between anticoagulation and antiplatelet treatment in patients with CAD,[11] no study to date has compared both treatments in patients with multiple CADs. While we initially opted to administer anticoagulation treatment, we decided to switch to antiplatelets, which we considered to be a safer option, in view of the progression of the haematoma, the detection of vertebral artery involvement (which is associated with higher risk of intracranial extension and therefore of subarachnoid haemorrhage), and the absence of brain ischaemia until that time. In any case, it should be noted that there are no data in the literature confirming that anticoagulant treatment contributes to the extension of the haematoma; we would expect this phenomenon to be rare, given the findings of studies into intravenous fibrinolysis in patients with CAD.[12] Therefore, further studies are needed to determine the most suitable pharmacological treatment for patients with multiple CADs.

In conclusion, physicians should be alert to the possibility of multiple, simultaneous CADs. There is a need for research into the association with recent history of infection, and close monitoring is needed to prevent potentially fatal complications; headache progression should be considered a key marker of disease progression.

Ethical standards

The patient gave informed consent for the publication of this case report.

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Role of the Carnett sign in the diagnosis of anterior cutaneous nerve entrapment syndrome misdiagnosed as somatic symptom disorder: A case report☆

Papel de la maniobra de Carnett en el diagnóstico de un síndrome por atrapamiento del nervio cutáneo anterior confundido con un trastorno por síntomas somáticos: a propósito de un caso

Chronic pain affects 17.25% of Spanish adults, and is frequently associated with such other comorbidities as anxiety (40.62%), depression (24.43%), and cardiovascular or gastrointestinal dysfunction.[1] Many patients presenting persistent pain with no clear biological basis are diagnosed with somatic symptom disorder (SSD) and, after being assessed by different specialists, are referred to the neurology department for comprehensive evaluation.

Somatic symptoms have traditionally been studied from the perspective of psychiatry; however, physicians of all specialties should be familiar with these symptoms, given their increasing prevalence. The DSM-5 differentiates between SSD with predominantly somatic symptoms and SSD with predominant pain. SSD is characterised by ''excessive thoughts, feelings, and behaviours related to the somatic symptom or associated health concerns.''[2] In most cases, clinicians are unable to objectively evaluate the symptoms reported by the patient, which places us in the difficult position of having to assess the veracity of the patient's claims.[3] It is therefore important to be familiar with examination techniques that may assist us in differentiating between organic or functional damage and non-organic somatic symptoms.[4] We present the case of a patient initially diagnosed with SSD and depression, who was subsequently diagnosed with anterior cutaneous nerve entrapment syndrome (ACNES). The patient gave written informed consent for the publication of his case.

Case report

Our patient was a 37-year-old Spanish man with generalised abdominal pain, which was more intense in the right periumbilical region, and a 5-month history of tiredness appearing upon awakening, accompanied by dyspnoea and marked asthenia, which prevented him from working. He was evaluated by the internal medicine department, presenting a cortisol level of 4.89 μg/mL (normal range: 5.0—17.9), which normalised after administration of ACTH. Hydrocortisone dosed at 5 mg/day improved asthenia, but abdominal pain and the sensation of tiredness persisted. Three months later, the patient was referred to a mental health centre, where he was diagnosed with depression; he was prescribed mirtazapine dosed at 30 mg/day, with mood improving within a month. He was also referred to the gastroenterology and endocrinology departments due to persistent abdominal pain; no intestinal alterations were detected, despite suspicion of irritable bowel syndrome, which was ruled out. An MRI scan of the pituitary gland and additional hormone tests ruled out an endocrine disorder. The patient was finally referred to the neurology department. An abdomen and pelvis CT scan revealed no alterations, but the physical examination revealed positive Carnett sign, which made us suspect ACNES. We opted for ultrasound-guided anaesthetic nerve block, injecting 1% lidocaine into the trigger points of the anterior cutaneous nerve; this considerably reduced abdominal pain. An additional session of anaesthetic infiltration performed the following week resulted in complete symptom resolution. The patient continues to be asymptomatic 7 months later; psychoactive drugs have been withdrawn and his life has returned to normal.

Discussion

ACNES is a little-known syndrome that causes chronic abdominal pain in the ventral region; although its incidence is unknown, it has been estimated at 1 case per 2000 patients.[5] Pain affects the terminal branches of intercostal nerves 8—12, which are entrapped through the abdominal muscles, causing chronic neuropathic pain that is difficult to diagnose. Due to the lack of complementary tests or a standardised physical examination for diagnosing ACNES,[6] many of these patients are diagnosed with SSD and referred to multiple specialists, which may delay diagnosis for months or even years.[7] Antidepressants are not effective as the source of the pain in ACNES is mechanical. However, a useful set of diagnostic criteria has been proposed (Table 1) for diagnosing ACNES in patients with normal CT/MRI findings and no signs of local cutaneous inflammation or

Table 1 Diagnostic criteria for anterior cutaneous nerve entrapment syndrome.

1. Presence of a small, localised, tender spot in the abdominal wall	1. Dermal hypersensitivity
2. Diameter of the painful area < 2.5 cm	2. Positive Carnett sign
3. Location of the pain does not vary.	3. Favourable response to injection of local anaesthetic agent at a trigger point

Anterior cutaneous nerve entrapment syndrome is diagnosed when the patient meets at least one criterion from each column.

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