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CASE REPORT PRIKAZ BOLESNIKA

MASSIVE STROKE IN A YOUNG MALE PATIENT AS A MANIFESTATION OF TAKAYASU'S ARTERITIS

MASIVNI MOŽDANI UDAR U MLADOG BOLESNIKA KAO MANIFESTACIJA TAKAYASUOVOG ARTERITISA

Mónica Fernandes-Pineda, Luis Fernando Medina-Quintero

Department of Internal Medicine, Universidad del Valle, Santiago de Cali, Colombia / Zavod za internu medicinu, Universidad del Valle, Cali, Kolumbija

Corresponding author / Adresa autora za dopisivanje:
Mónica Fernandes-Pineda, MD / dr. med.
Hospital Universitario del Valle / Sveučilišna bolnica del Valle
760032 Santiago de Cali
Colombia / Kolumbija
Phone number / Broj telefona: (+57) 3122985912
E-mail / e-pošta: monica.fernandes.pineda@gmail.com

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Abstract

Takayasu's arteritis (TA) is a less common type of large vessel vasculitis associated with inflammation of the wall of the aorta and its major branches. Patients with Takayasu's arteritis are at risk of developing neurological complications, such as cerebrovascular ischemic events. In this paper, we present a case of a male in his mid-fifties with no prior medical history, who abruptly developed right-sided hemiplegia and motor aphasia. Brain and neck angiography revealed an infarction in the territory of the left middle cerebral artery, along with a substantial occlusion of the left common carotid artery and left subclavian artery. The patient was diagnosed with Takayasu's arteritis. The occurrence of stroke in young patients should include, among the differential diagnoses, rheumatological diseases such as Takayasu's arteritis. A prompt diagnosis can lead to early treatment and reduced complications.

Keywords: Takayasu's arteritis, young-onset stroke, large vessel vasculitis, pulseless disease

Sažetak

Takayasuov arteritis (TA) rjeđi je tip vaskulitisa velikih krvnih žila povezan s upalom stijenke aorte i njezinih glavnih ogranaka. Bolesnici s Takayasuovim arteritisom izloženi su riziku od neuroloških komplikacija, poput cerebrovaskularnih ishemijskih događaja. U ovom radu predstavljamo slučaj muškarca u srednjim pedesetim godinama bez prethodne povijesti bolesti, koji je naglo razvio desnu hemiplegiju i motoričku afaziju. Angiografija mozga i vrata otkrila je infarkt u području lijeve srednje mozgovne arterije, zajedno sa značajnom okluzijom lijeve zajedničke karotidne arterije i lijeve potključne arterije. Bolesniku je dijagnosticiran Takayasuov arteritis. U slučaju moždanog udara u bolesnika mlađe dobi među diferencijalne dijagnoze treba uključiti i reumatološke bolesti kao što je Takayasuov arteritis. Brza dijagnoza može dovesti do ranog liječenja i manjeg broja komplikacija.

Ključne riječi: Takayasuov arteritis, moždani udar u mlađoj dobi, vaskulitis velikih krvnih žila, bolest bez pulsa

INTRODUCTION

Takayasu's arteritis (TA) is an infrequently occurring form of large vessel vasculitis linked to inflammation in the walls of the aorta and its primary branches, resulting in a reduction in blood flow and subsequent affectation (1). This leads to a pulseless disease with claudication, compromised peripheral pulses, and frequent ischemia (2).

UVOD

Takayasuov arteritis (TA) oblik je vaskulitisa velikih krvnih žila koji se rijetko javlja i povezan je s upalom stijenki aorte i njezinih primarnih ogranaka, što dovodi do smanjenja protoka krvi i posljedičnog oštećenja (1). To dovodi do bolesti bez pulsa s klaudikacijom, kompromitiranim perifernim pulsom i čestom ishemijom (2).

TA is rare, with some studies reporting an incidence of 1 patient per 1 million inhabitants and tends to be more common in women, with the onset of symptoms typically occurring between the ages of 15 and 25 (3).

Neurological involvement can occur in half of the patients, and strokes are a common complication of Takayasu's arteritis (4). In this paper, we describe the case of a male patient suffering from Takayasu's arteritis, who had a severe ischemic stroke as a manifestation.

CASE REPORT

In this paper, we present a case of a male in his mid-fifties with a history of generalized myalgias and arthralgias, accompanied by headaches and cervical pain that had worsened over the previous month. Due to the abrupt development of right-sided hemiplegia and motor aphasia, he was admitted to our hospital. No other systemic symptoms accompanied the patient's presentation.

During the physical examination, his vital signs revealed a normal heart and respiratory rate, with no need for oxygen support. However, it was unusual that the blood pressure in his right arm was recorded as 72/55 mmHg. The patient was non-verbal but responsive when it came to simple commands, and he exhibited right hemiplegia. Brain computed tomography (CT) showed the absence of hemorrhaging and mass effect. The patient was treated within a 4-hour timeframe from the onset of the stroke with alteplase, and there were no complications, but there was also no improvement in his neurological status.

Brain and neck angiography revealed an infarction in the territory of the left middle cerebral artery, along with a substantial occlusion of the left common carotid artery and the left subclavian artery, with extensive collaterals of the vertebral arteries and basilar artery. No signs of aortic dissection were observed. (Figure 1).

Brain magnetic resonance imaging (MRI) showed a left hemispheric stroke in the left middle cerebral artery (MCA), involving the temporal region, without any hemorrhagic transformation. (Figure 2).

This pattern was highly suggestive of Takayasu's arteritis. In a focused physical examination, the patient exhibited a wide pulse deficit and a difference in blood pressure of >10 mmHg between the two arms.

Laboratory tests revealed a normal hemogram with no electrolyte abnormalities. However, the erythrocyte sedimentation rate (ESR) was elevated at 40 mm/hour (normal range: 0–15 mm/hr). The rheumatological profile showed negative results for anti-nuclear antibodies (ANA), including extractable nuclear antigens (ENA) and double-stranded DNA (dsDNA). Additionally, vasculitis studies indicated negative results for anti-neutrophil cytoplasmic antibodies (ANCA).

With the findings of a pulseless disease, elevated erythrocyte sedimentation rate (ESR), and arterial

Takayasuov arteritis (TA) rijetka je bolest, a neka istraživanja pokazuju incidenciju od jednog bolesnika na milijun stanovnika. Bolest je češća u žena, sa simptomima koji se obično javljaju u dobi između 15 i 25 godina (3).

Neurološka zahvaćenost može se javiti u polovice bolesnika, a moždani udari česta su komplikacija Takayasuovog arteritisa (4). U ovom radu opisujemo slučaj bolesnika s Takayasuovim arteritisom koji je kao manifestaciju imao teški ishemijski moždani udar.

PRIKAZ BOLESNIKA

U ovom radu predstavljamo slučaj muškarca u srednjim pedesetim godinama s poviješću bolesti generaliziranih mialgija i artralgija, popraćenih glavoboljama i cervikalnim bolovima koji su se pogoršali tijekom prethodnog mjeseca. Zbog naglog razvoja hemiplegije na desnoj strani tijela i motoričke afazije, bolesnik je primljen u našu bolnicu. U kliničkoj slici bolesnika nisu bili prisutni drugi sustavni simptomi.

Tijekom fizikalnog pregleda, njegovi vitalni znakovi otkrili su normalan broj otkucaja srca i normalno disanje, bez potrebe za potpornom terapijom kisikom. Međutim, zanimljivo je da je njegov krvni tlak zabilježen kao 72/55 mmHg u desnoj ruci. Bolesnik je imao neverbalnu komunikaciju, ali je reagirao na jednostavne naredbe, a pokazivao je znakove hemiplegije na desnoj strani tijela. Kompjuterizirana tomografija mozga (CT) nije pokazala krvarenje ili masovni učinak. Liječen je alteplazom unutar vremenskog razdoblja od četiri sata od početka moždanog udara i u tom razdoblju nije došlo do komplikacija, ali nije došlo ni do poboljšanja bolesnikova neurološkog statusa.

Angiografijom mozga i vrata otkriven je infarkt u području lijeve srednje mozgovne arterije, zajedno sa značajnom okluzijom lijeve zajedničke karotidne arterije i lijeve potključne arterije, s opsežnim kolateralama vertebralnih arterija i bazilarne arterije. Nije bilo znakova disekcije aorte. (slika 1)

Magnetska rezonancija mozga (MR) pokazala je infarkt lijeve hemisfere u lijevoj srednjoj mozgovnoj arteriji (engl. *middle cerebral artery*, MCA), zahvaćajući temporalnu regiju, bez hemoragijske transformacije. (slika 2)

Ovaj je obrazac ukazivao na Takayasuov arteritis. Na fokusiranom fizikalnom pregledu, bolesnik je pokazao izražen deficit pulsa, a zabilježena je i razlika u krvnom tlaku od > 10 mmHg između dviju ruku.

Laboratorijske pretrage pokazale su urednu krvnu sliku (hemogram) bez poremećaja ravnoteže elektrolita. Međutim, sedimentacija eritrocita (SE) bila je povišena na 40 mm/h (normalni raspon: 0 – 15 mm/h). Reumatološki profil pokazao je negativne rezultate za antinuklearna antitijela (ANA), uključujući ekstrakti-

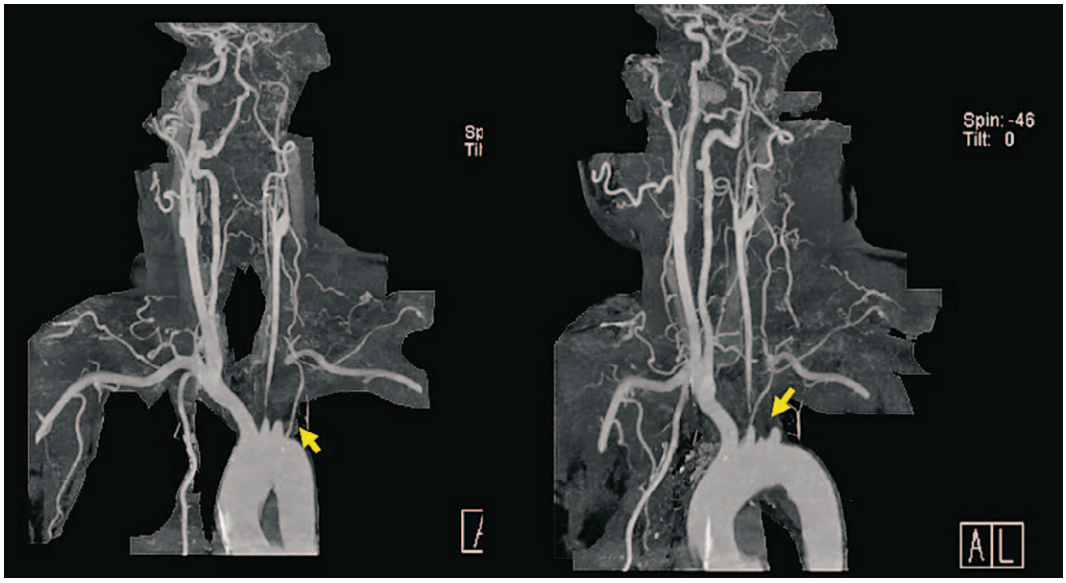

FIGURE 1. *Neck and brain CT angiogram.* Stenosis involving the origin of the left common carotid artery and left subclavian artery, with extensive collaterals of the vertebral arteries and basilar artery
SLIKA 1. CT angiografija vrata i mozga. Stenoza koja zahvaća ishodište lijeve zajedničke karotidne arterije i lijeve potključne arterije, s opsežnim kolateralama vertebralnih arterija i bazilarne arterije

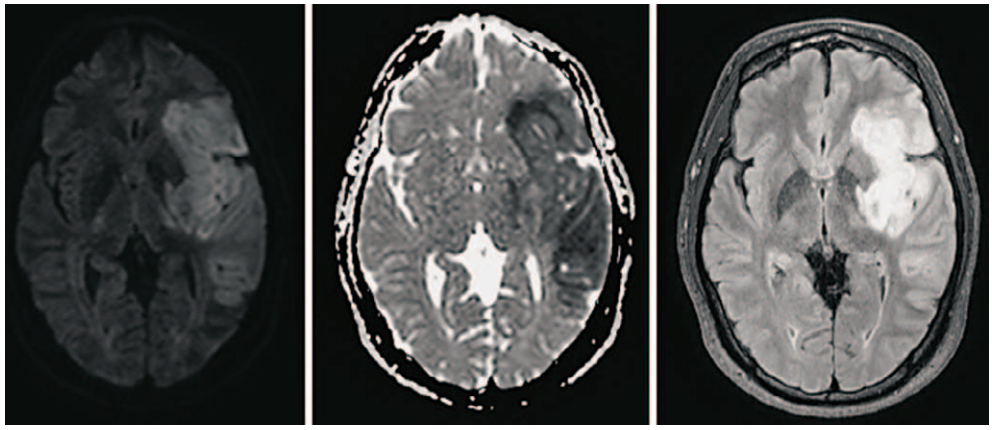

FIGURE 2. *Brain magnetic resonance image (MRI).* Evolving infarct involving the area of the middle cerebral artery (MCA)
SLIKA 2. Magnetska rezonancija mozga (MR). Razvoj infarkta koji zahvaća područje srednje mozgovne arterije (MCA)

compromise observed on a CT angiogram, the patient was diagnosed with Takayasu's arteritis. Treatment was initiated with high-dose steroids and cyclophosphamide (5), due to the unavailability of biologic therapies targeting TNF-alpha and IL-6 at the hospital. At the patient's follow-up at the Department of Rheumatology, the therapeutic plan was adjusted, with the introduction of tocilizumab into therapy. Two months later, the patient demonstrated partial recovery of movement but continued to experience aphasia. Currently, he is undergoing an intense rehabilitation program.

DISCUSSION

Takayasu's arteritis presents as a pulseless disease and it was first described in 1908 by Mikito Takayasu as *"a case of peculiar changes in the central retinal ves-*

bilne nuklearne antigene (ENA) i dvolančanu DNA (dsDNA). Osim toga, ispitivanja vaskulitisa pokazala su negativne rezultate za antineutrofilna citoplazmatska antitijela (ANCA).

Uz nalaz bolesti bez pulsa, povišenu sedimentaciju eritrocita (SE) i kompromitirani arterijski dotok uočen na CT angiografiji, bolesniku je dijagnosticiran Takayasuov arteritis. Liječenje je započeto visokim dozama steroida i ciklofosfamida (5), zbog nedostupnosti bioloških terapija usmjerenih na TNF-alfa i IL-6 u bolničkoj ustanovi. U praćenju na Zavodu za reumatologiju terapijski plan je prilagođen te je u liječenje uveden tocilizumab. Dva mjeseca kasnije bolesnik je pokazao djelomični oporavak opsega pokreta, ali je i dalje imao afaziju. Trenutno je uključen u intenzivan rehabilitacijski program.

sels." In this condition, the pulse is altered due to inflammation of the wall of the aorta and its major branches (6). The etiology of Takayasu's arteritis is still idiopathic (7).

The clinical manifestations of Takayasu's arteritis (TA) can vary widely, ranging from asymptomatic to severe neurological complications. There are also differences in presentation between younger and older patients (those over 40 years of age), with diagnosis often being delayed in the latter group (1). Therefore, it is important to investigate the signs of generalized inflammation syndrome in patients with TA who present with symptoms such as fever, night sweats, malaise, anorexia, weight loss, and diffuse myalgias, as this condition can often be misdiagnosed as an infection (7). In the case of our patient, frequent cervical pain and headaches were associated symptoms.

It is important to emphasize the triphasic pattern of the disease, as patients often present during the prepulse inflammatory phase with non-specific systemic symptoms (fever, arthralgia, and weight loss). Due to this, they are initially diagnosed with a prolonged viral syndrome (8). However, in the case of our patient, systemic symptoms were not considered until neurological complications developed.

Approximately 50% of patients suffering from Takayasu's arteritis can experience neurological symptoms, with visual symptoms being the most prevalent. The neurological presentation is so forgotten that there are Neurorheumatology books in which there is no description of it.(9) Strokes can affect 10% of the patients. The presentation of embolic disease in Takayasu's arteritis has been associated with stenotic or occlusive lesions in the aorta and its branches. Additionally, it is linked to subsequent hypertension or eventual cerebral hypoperfusion (4).

Our patient experienced a manifestation of the disease with a massive ischemic stroke. According to the criteria outlined by the American College of Rheumatology in 1990, he met five of them, which led to the suspicion of the diagnosis of Takayasu's arteritis. This was not the sole factor leading to the diagnosis; considering the radiological characteristics, other potential causes of medium vessel vasculitis were taken into account. In the differential diagnosis of cranial artery involvement, distinguishing between Takayasu's arteritis and giant cell arteritis (GCA), it's crucial to note that GCA primarily does not impact intracranial (i.e., cerebral) arteries (10).

Standard treatment with high-dose steroids and cyclophosphamide as additional immunomodulators was initiated (11). However, corticosteroids need to be withdrawn as soon as possible to avoid side effects, and it is preferable to consider new biological therapies, es-

RASPRAVA

Takayasuov arteritis predstavlja se kao bolest bez pulsa, a prvi ga je put 1908. opisao Mikito Takayasu kao „slučaj čudnih promjena u središnjim retinalnim žilama". U ovom stanju puls je promijenjen zbog upale stijenke aorte i njezinih glavnih ogranaka (6). Etiologija Takayasuovog arteritisa još uvijek je idiopatska, to jest, nepoznata (7).

Kliničke manifestacije Takayasuovog arteritisa (TA) mogu uvelike varirati, u rasponu od asimptomatskih do teških neuroloških komplikacija. Također postoje razlike u kliničkoj slici mlađih i starijih bolesnika (onih iznad 40 godina), pri čemu se dijagnoza često kasnije postavlja u potonjoj skupini (1). Stoga je važno ispitati sindrom generalizirane upale u bolesnika s TA koji imaju simptome kao što su vrućica, noćno znojenje, malaksalost, anoreksija, gubitak tjelesne težine i difuzna mijalgija, jer se ovo stanje često može pogrešno dijagnosticirati kao infekcija (7). U slučaju našeg bolesnika česta cervikalna bol i glavobolja bili su pridruženi simptomi.

Važno je naglasiti trofazni obrazac bolesti, budući da se bolesnici često javljaju tijekom prestimulus intervala upalne faze s nespecifičnim sustavnim simptomima (vrućica, artralgija i gubitak težine). Zbog toga se bolesnicima u početku dijagnosticira sindrom produžene virusne infekcije (8). Međutim, u slučaju našeg bolesnika, sustavni simptomi nisu uzeti u obzir sve dok se nisu razvile neurološke komplikacije.

Otprilike 50% bolesnika s Takayasuovim arteritisom može doživjeti neurološke simptome, pri čemu su vizualni simptomi najčešći. Neurološki simptomi bolesti toliko su zaboravljeni da njihov opis ne postoji ni u nekim knjigama o neuroreumatologiji (9). Moždani udar može se dogoditi kod 10% bolesnika. Simboli embolije kod Takayasuovog arteritisa povezani su sa stenoznim ili okluzivnim lezijama u aorti i njezinim ograncima. Uz to, povezani su s naknadnom hipertenzijom ili eventualnom cerebralnom hipoperfuzijom (4).

Naš je bolesnik doživio manifestaciju bolesti u obliku masivnoga ishemijskog moždanog udara. Prema kriterijima koje je 1990. postavila organizacija *American College of Rheumatology* bolesnik je zadovoljavao njih pet, što je dovelo do sumnje na dijagnozu Takayasuovog arteritisa. Ovo nije bio jedini čimbenik koji je doveo do dijagnoze. S obzirom na radiološke značajke, uzeti su u obzir i drugi mogući uzroci vaskulitisa srednjih krvnih žila. U diferencijalnoj dijagnozi zahvaćenosti kranijalnih arterija, u razlikovanju Takayasuovog arteritisa i arteritisa divovskih stanica (engl. *Giant Cell Arteritis*, GCA), ključno je napomenuti da GCA prvenstveno ne utječe na intrakranijalne (tj. cerebralne) arterije (10).

Započeto je standardno liječenje s visokim dozama steroida i ciklofosfamidom kao dodatnim imunomo-

pecially tocilizumab, an IL-6 inhibitor, in order to improve the course of the disease (12).

CONCLUSSION

Nowadays, the physical exam has been relegated to a secondary role, but there are certain diseases where an exhaustive physical examination could easily lead to an early clinical diagnosis. In this report, we emphasize the severity of Takayasu's arteritis in a young male patient, a condition that could have a different course if diagnosed during the pre-pulse inflammatory phase.

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dulatorima (11). No, kortikosteroide je potrebno što prije ukinuti kako bi se izbjegle nuspojave, a poželjno je razmotriti nove biološke terapije, posebice tocilizumab i inhibitor IL-6 kako bi se poboljšao tijek bolesti (12).

ZAKLJUČAK

U današnje vrijeme fizikalnom pregledu pripisuje se manja, to jest, sekundarna uloga, ali postoje određene bolesti kod kojih detaljan fizikalni pregled može lako dovesti do rane kliničke dijagnoze. U ovom izvješću naglašavamo težinu Takayasuovog arteritisa kod mladog bolesnika, bolesti koja bi mogla imati drugačiji tijek ako se dijagnosticira tijekom prestimulus intervala upalne faze.

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