Arq Neuropsiquiatr 2007;65(2-A):345-347

OLIGOSYMPTOMATIC AND GIANT BASILAR ARTERY DOLICHOECTASIA DISCOVERED AFTER A STROKE

Case report

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ABSTRACT - The most frequently diagnosed complication of vertebrobasilar dolichoectasia (VBD) is the compression of structures adjacent to the vertebral and basilar arteries. A giant VBD with only slight compressive symptoms is unusual. In this setting, the diagnosis of VBD may be casually revealed after the occurrence of a posterior circulation stroke, another potential complication. We report a 48-year-old woman who presented a two-month history of continuous buzz and a slight right-sided hearing loss that was followed by a cerebellar ischemic stroke. Brain CT and MRI revealed a marked compression of the brainstem due to an ectatic, tortuous and partially thrombosed basilar artery (BA). The largest cross-sectional diameter of BA was 18 mm. The patient had a good functional recovery within the two-month follow-up after stroke with modified Rankin scale score (mRSS)=2. At the one-year follow-up, patient still kept the complaints of continuous buzz, slight right-sided hearing loss and the mRSS was the same. We call attention for an unusual giant VBD that caused an impressive brainstem compression with displacement of important structures in an oligosymptomatic patient. Diagnosis was made only after the occurrence of a stroke. Despite of the good functional recovery after stroke, the presence of significant atherosclerotic changes and the large BA diameter may indicate a poor outcome. However, after one year, she remains oligosymptomatic.

KEY WORDS: vertebrobasilar dolichoectasia, basilar artery, ectasia, stroke.

Dolicoectasia gigante e oligossintomática da artéria basilar descoberta após uma isquemia: relato de caso

RESUMO - A complicação mais freqüentemente encontrada na dolicoectasia vertebrobasilar (DVB) é a compressão de estruturas adjacentes às artérias vertebrais e à artéria basilar. Uma DVB gigante apenas com sintomas compressivos leves é infreqüente. Nesse caso, o diagnóstico pode ser descoberto ao acaso após uma isquemia da circulação posterior, outra complicação possível da DVB. Relatamos o caso de uma mulher de 48 anos com história de zumbido e perda auditiva leve a direita por 2 meses, desenvolvendo, a seguir, uma isquemia cerebelar. A tomografia e a ressonância magnética demonstraram uma compressão acentuada do tronco cerebral devido a uma artéria basilar (AB) ectásica, tortuosa e preenchida parcialmente por trombo. O maior diâmetro axial da AB tinha 18 mm. A paciente apresentou boa recuperação funcional dentro dos primeiros dois meses após a isquemia, com escore de Rankin modificado (ERM)=2. Após um ano, a paciente ainda mantinha as queixas de zumbido e perda auditiva leve à direita, e o ERM ainda se mantinha=2. Chamamos a atenção para um caso raro de DVB gigante que causou impressionante compressão do tronco cerebral, com deslocamento de importantes estruturas, numa paciente oligossintomática. O diagnóstico só foi realizado após a ocorrência da isquemia. Apesar da boa recuperação funcional inicialmente observada, a presença de alterações ateroscleróticas e o grande diâmetro da AB podem indicar um prognóstico ruim. Contudo, após um ano a paciente ainda se mantinha oligossintomática.

PALAVRAS-CHAVE: dolicoectasia vértebro-basilar, artéria basilar, ectasia, isquemia.

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Received 24 August 2006, received in final form 24 November 2006. Accepted 24 January 2007.

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Vertebrobasilar dolichoectasia (VBD) is an elongation and a dilatation of the major arteries of the posterior fossa, which may squeeze and displace the brainstem. The most frequently diagnosed complication of VBD is the compression of structures adjacent to the vertebral arteries and to the basilar artery (BA), such as the nerves that traverse the cerebellopontine angle cistern and the brainstem[1,2]. Unusually, a giant VBD may be asymptomatic or present slight symptoms. In this setting, it may be revealed only after the occurrence of a stroke, another potential complication[3,4].

We report a patient who had an oligosymptomatic exuberant compression of the surface of the brainstem due to an unusual giant VBD. The diagnosis of VBD was made only after the occurrence of a posterior circulation infarct.

CASE

A 48-year-old non-smoker woman with history of hypertension presented a 2-month history of continuous buzz and a slight right-sided hearing loss. Three weeks before admission, she presented an acute onset of dizziness, loss of balance, left-sided hypoesthesia and diplopia. On admission, the physical examination was unremarkable, except by arterial hypertension. Neurological examination showed gait imbalance, right limb ataxia, left brachiofacial weakness, left-sided hypoesthesia, multidirectional nystagmus, left abducens nerve paresis and a mild slurred speech (cerebellar dysarthria). There were no abnormalities corresponding to involvement of the V, VII, VIII and lower cranial nerves. Pupils were isochoric and normally reactive to light and near stimuli. Visual field testing and ophthalmoscopy were normal.

A contrast-enhanced computed tomography (CT) and magnetic resonance imaging (MRI) disclosed a right cerebellar ischemic stroke and dolichoectasia of the BA, which was partially thrombosed. There was a marked compression and a displacement of the left pons and lower mesencephalus by the BA. The IV ventricle was squeezed laterally (Fig 1). Magnetic resonance angiography (MRA) disclosed an elongation and C-shaped deformation of the BA (Fig 2). The largest cross-sectional diameter of BA was 18 mm. Transthoracic echocardiography showed left ventricular hypertrophy with no intracavital thrombus. Cervical arteries ultrasound Doppler was normal. Aspirin 300 mg/day was administered and the antihypertensive treatment was optimized.

Neurological symptoms improved progressively over two weeks. Dysarthria and VI nerve paresis resolved completely. She was discharged with only a mild gait difficulty due to incoordination, with a modified Rankin scale score (mRSS) =2. At the one-year follow-up, patient kept the complaints of continuous buzz, slight right-sided hearing loss and the mRSS still was 2.

This case report was authorized by the patient through informed consent term.

DISCUSSION

VBD is an anatomical term that refers to a vertebral or basilar artery that is enlarged, tortuous and partially displaced. If BA lies lateral to the margin of the clivus or dorsum sellae, or if it bifurcates above

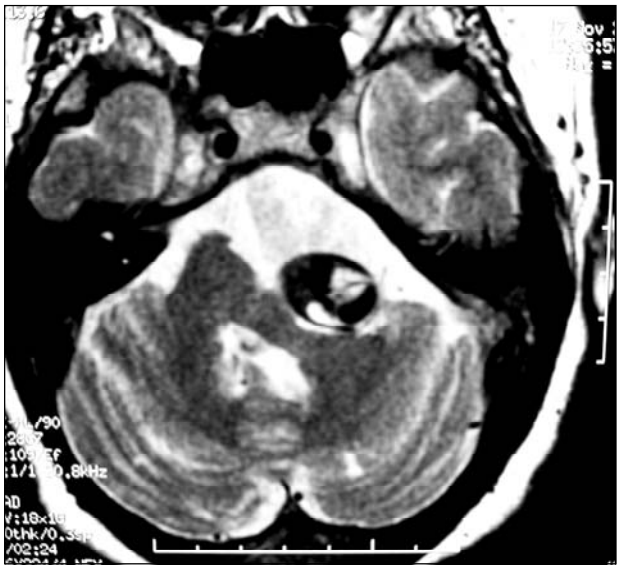

Fig 1. MRI (T2-weighted contrast-enhanced axial view) shows the dolichoectatic partially thrombosed BA indenting and compressing the left lower portion of the pons near the pontomedullary junction. The IV ventricle is squeezed laterally to right side.

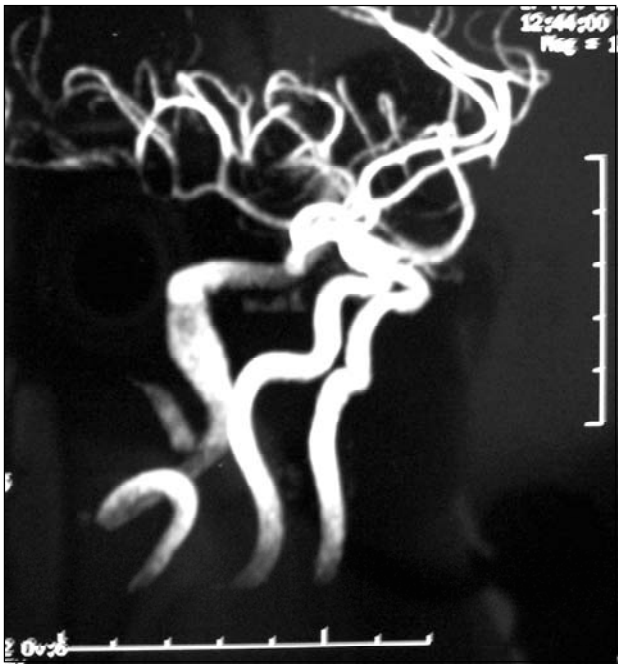

Fig 2. MRA shows the abnormal loop of BA, which is elongated and enlarged.

the plane of the suprasellar cistern, it may be considered elongated (from the Greek *dolichos*)[6]. An ectasy means distension and is considered when the diameter of the artery is greater than 4.5 mm[6]. Frequently, the diameter of the BA in VBD is lesser than 11 mm[5,6]. In our patient, the BA diameter was much larger (18 mm).

VBD may be a congenital non-atherosclerotic vasculopathy[7], but in most cases, atherosclerotic plaques are often present in the walls of dolichoectasic arteries. The clinical features include cranial nerves dysfunction, transient ischemic attacks, posterior circulation stroke, hydrocephalus and subarachnoid hemorrhage[1-5,8-10].

With the advent of CT angiography, MRI and MRA, VBD has been diagnosed noninvasively[7,11-13]. In our patient, an intravenous contrast-enhanced CT was the first investigation method and it was sufficient to establish VBD diagnosis. MRI was performed due to its ability to display the posterior circulation infarcts, the vascular anatomy and its relation to the posterior fossa structures, to delineate the mural thrombi and to detect a dissection, which is an unusual complication of dolichoectasia[9].

VBD may be an independent risk factor for stroke[7]. It may be found in 3% of patients with first cerebral infarction[11]. Patients with VBD and posterior circulation infarcts have a higher prevalence of atherosclerotic changes of the posterior circulation and a higher degree of vertical elongation of the BA than the patients with VBD without previous cerebrovascular events[5]. Additionally, a BA diameter above 4.3 mm is independently associated with increased 5-year stroke mortality[14]. As our patient presented significant atherosclerotic changes in BA and a large diameter of this artery, we believe that these conditions may play an important role in precipitating new ischemic events with potential fatal outcome.

Treatment of symptomatic cases is still controversial. Surgery may be harmful because any attempt to interfere with the vessel may run a high risk of ripping off one of the tiny vessels that come off the basilar artery, thereby causing a stroke. As in our patient, the VBD diagnosis was made after an ischemic stroke in posterior circulation and she had only few compressive symptoms (buzz and slight hearing loss), the conservative approach with antiplatelet therapy was adopted to reduce the chances of a complete thrombosis of the arterial lumen.

In conclusion, we call attention for an unusual large size of VBD, maybe one of the largest in the literature, which caused an impressive brainstem compression with displacement of important structures in a patient with relatively few compressive symptoms and who presented an ischemic stroke. Despite of the good clinical recovery initially observed within the two-month follow-up after the first stroke episode, the significant atherosclerotic changes and the large diameter observed in her BA might indicate a poor outcome. However, at the one-year follow-up, the patient remained oligosymptomatic.

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