Late Onset Buerger's Disease with Multiple Cerebral Infarcts

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ABSTRACT

The first case of late onset Buerger's Disease with synchronous cerebral involvement is reported. A 57-year-old male, who was a heavy smoker, presented with sudden onset right limb numbness. Physical examination showed cross-over numbness on the left side of his face and right side of his trunk, left homonymous hemianopsia and extra-ocular muscle limitation. The brain MRI showed multiple new infarcts in the cerebellum, occipital lobe and left thalamus. Cyanosis of the digits of the left hand was also discerned, with progression accompanied by pain and repeated episodes of biphasic color changes indicating Raynaud's phenomenon. The angiography showed stenosis at the left distal ulnar and radial arteries of the wrist, and collateral vessels from the anterior interosseous artery. Serological study showed no evidence of autoimmune disease. The patient was advised to stop smoking and medication was also given. His pain and cyanosis gradually improved within 1 week. The clinical course, imaging results and laboratory study of this unique case is demonstrated herein. (***Tzu Chi Med J*** 2007; **19**:28-31)

Key words: Buerger's disease, cerebral infarcts, late onset

INTRODUCTION

Thromboangiitis obliterans (Buerger's disease, BD) is an uncommon vaso-occlusive, inflammatory disease occurring in young male smokers. It predominantly produces occlusion of small to medium-sized arteries and veins of the extremities. The incidence of BD in white men under the age of 45 years is 7-8 case/100,000/yr [1]. Although cerebral involvement is uncommon and accounts for less than 2% of all BD cases, it can be a cause of brain infarction, especially in those without cardiovascular risk factors except smoking [2]. Parallel to BD, cerebral involvement also occurs exclusively in those aged below 45 years. Only 2 cases of BD with cerebral involvement at ages above 45 years have been reported in the English literature and both of them had their BD initially diagnosed when they were below 45. We herein report the first case of late onset BD initially presenting in a 57 year-old with synchronous left upper extremity and cerebral vessel involvement, and presenting as sudden onset right limb numbness.

CASE REPORT

A 57-year-old male patient was admitted to our hospital for sudden onset right limb numbness that began after he awoke from a nap. Neurological examination revealed a crossed sensory deficit over the left side of his face and right side of his trunk and extremities, a left homonymous hemianopsia and limitation in eye movements. A diagnosis of left pontine infarct and right occipital infarct was made. On the second hospital day, the patient was found to have acrocyanosis in his left hand, which progressed gradually, and was accompanied by pain and episodic changes in color to either pallor or blue (Raynaud's phenomenon) (Fig. 1). The pulses

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in the distal extremities were present. The rest of the physical examination was unremarkable. Except for having smoked 20 cigarettes per day from age 15, the patient had no vascular risk factors such as vascular spasm or connective tissue disease.

The brain MRI showed multiple new infarcts in the cerebellum, occipital lobe (Fig. 2a) and left thalamus (Fig. 2b). The angiography showed stenosis of the left distal ulnar and radial arteries at the wrist, and collateral vessels from the anterior interosseous artery (Fig. 3). The laboratory investigations were within normal ranges, including complete blood counts, fasting plasma glucose, lipid profiles, autoantibodies, cryoglobulins, hepatitis B and C antigens, urine analysis and echocardiography. We suggested that the patient stop smoking. The pain and cyanosis were relieved within one week after he was given a non-steroid anti-inflammatory drug (celecoxib), calcium channel blocker (nifedipine, to relive the symptoms of Raynaud's phenomenon) and anti-platelet agent (aspirin). Five weeks after the cerebral infarct, the acrocyanosis was greatly improved (Fig. 4).

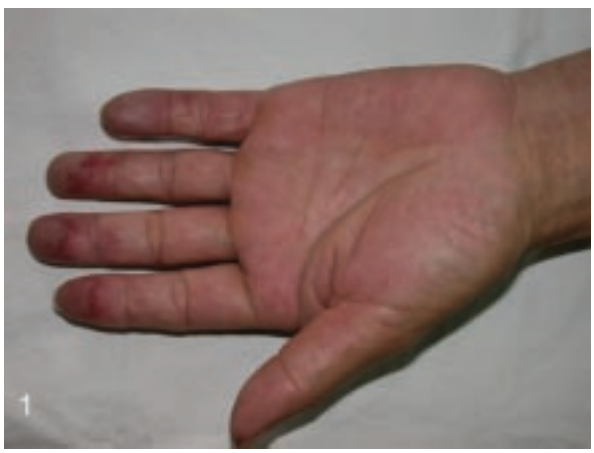

Fig. 1. Left hand showing digital cyanosis on the second day of admission.

DISCUSSION

BD, first described by von Winiwarter et al, is an inflammatory disease involving small and medium-sized arteries, and veins of the extremities [3]. It predominantly affects young male smokers, with a mean age of 40 years.

The clinical diagnosis of BD is typically made in a patient with a history of smoking who presents with ischemic digital lesions after excluding other possible causes [4]. As a rule, routine hematology, serum chemistry and urinalysis reveal negative results in the victims of BD; in contrast, abnormalities in these tests might suggest other etiologies. Furthermore, it has been proposed that confirmatory evidence of BD is obtained by digital angiography, which shows characteristic multiple, bilateral focal segments of stenosis or occlusion affecting the distal arteries and associated with abundant 'cork-

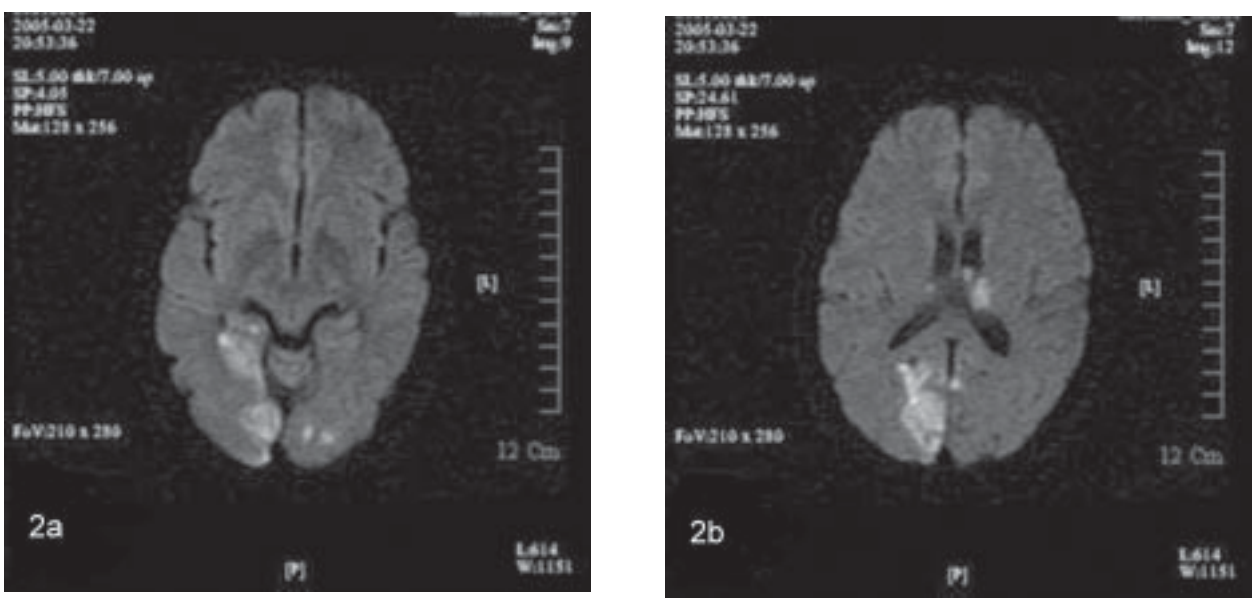

Fig. 2. Brain MRI showing multiple new infarcts in the cerebellum, occipital lobe (a) and left thalamus (b) on the fifth day of admission.

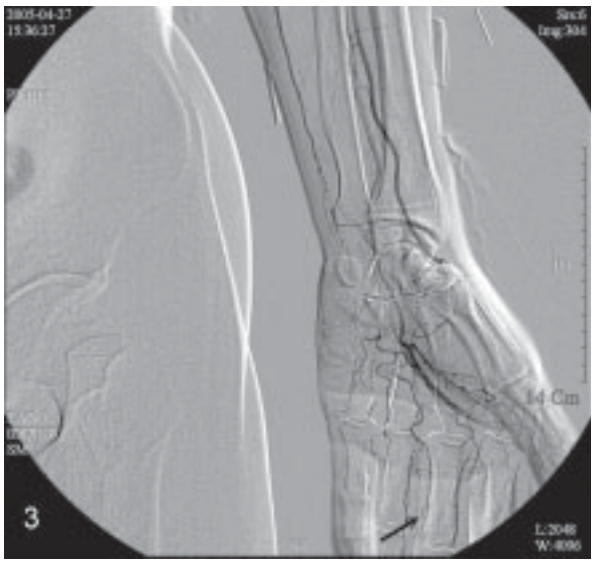

Fig. 3. Angiogram of the hand showing multiple occlusions of the digital arteries, with collateralization ("corkscrew collaterals") around the areas of occlusion (arrows).

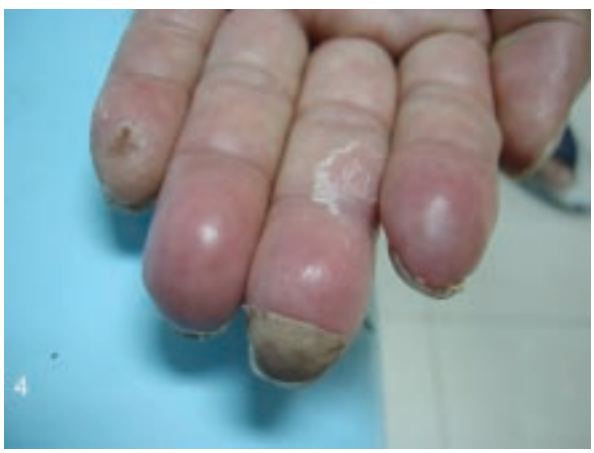

Fig. 4. Sharply demarcated pallor in the nail beds accompanied by desquamation.

screw' collateral vessels [5,6].

Although the clinical presentation of our case included a history of smoking, Raynaud's phenomenon, pain and ischemic changes of the digits represented a typical presentation of BD. However, the relatively older age of onset in our patient made the diagnosis of BD challenging. The most important differential diagnosis of stroke in such an age group is underlying atherosclerosis. It is, therefore, very important to perform arteriography to ensure that there is no underlying atherosclerosis and no proximal source of emboli.

Involvement of cerebral blood vessels is rare in BD and accounts for only 0.3% of all BD-induced infarctions. Clear cerebral involvement was described first by Jager et al [7]. Subsequently, Silbert et al found neurological involvement in 12 out of 1,700 BD patients [8]. Another study of 46 BD patients revealed cerebral impairment in only 1 case [9]. The middle and posterior cerebral arteries are most often affected [10]. The clinical manifestation of cerebral BD is highly variable and largely depends on the areas involved. Symptoms include grand-mal-type epileptic seizures [10-12], visual field reductions [10], ischemic optic neuritis [10], schizophrenia-like symptoms [13], transient aphasia [9,14], tension headache [9] and hemiparesis [9,14-16].

Adams et al proposed that a diagnosis of BD with cerebral involvement can be made only in one of three circumstances: (1) arteriographic or pathological evidence of obliteration of long stretches of brain arteries in the absence of atherosclerosis elsewhere or evidence of syphilis, (2) pathological findings of arterial obliteration with an acute inflammatory reaction that can be differentiated from giant cell arteritis by involvement of the intima and relative sparing of the media, or (3) cerebral arterial occlusion with characteristic involvement of the extremities [17]. Our case fulfilled the third criterion of BD with cerebral involvement.

In general, it takes 20 years for BD to progress from the initial diagnosis to cerebral involvement. However, occasional cases of synchronous cerebral involvement have also been reported [9,11-16,18]. Taking the above mentioned information together, stroke could be synchronous or subsequent to the onset of BD and should be considered as one of the complications of BD.

Traditionally, an age below 45 years is regarded as one of the diagnostic criteria of BD and this is largely supported by clinical findings. However, two cases of clearly defined BD with cerebral involvement in patients aged above 45 years have been reported. Bozikas et al described a 55-year-old male with cerebral involvement, presenting with a schizophrenia-like syndrome, 20 years after initial diagnosis of BD [13]. Inzelberg et al reported on a 59-year-old male patient with cerebral involvement, who presented with transient aphasia and right hemiparesis, 23 years after initial diagnosis of BD [9]. Interestingly, our case was extraordinary because of synchronous cerebral involvement and late onset BD, which has not been reported previously. Our findings are in line with Papa et al, who stated that an age above 45 years is not an absolute exclusion criterion for BD [19]. Moreover, although BD with cerebral involvement is uncommon, it is still worth including BD in differential diagnoses, even in the stroke patients over 45, and espe-

cially for those who have no cardiovascular risks except smoking. This is important because the treatment policies are quite different: treating BD with cerebral involvement requires only cessation of smoking, just as with BD with other organ involvement. The recurrence of BD with cerebral involvement is uncommon if absolute avoidance of smoking is achieved. For conventional brain infarctions, however, recurrent infarction is frequent due to the difficultly in completely correcting all the risk factors.

CONCLUSION

We show herein the first case of late onset BD with synchronous cerebral involvement. We emphasize that BD with cerebral involvement should also be included in the differential diagnosis of infarction in smokers aged above 45 years, even for those without previous BD history. Further evaluation for confirmatory evidence for diagnosis is mandatory because of the differences in the clinical management of BD with cerebral involvement and conventional stroke.

REFERENCES

1. DeBakey ME, Cohen B: Buerger's disease: Follow-up study of World War II Army cases. Springfield, Illinois: Charles C Thomas Publishing, 1963, pp 21.
2. Diener HC, Kurth T: Buerger's Disease (Thromboangiitis Obliterans) Uncommon Causes of Stroke. Cambridge, UK: Cambridge University Press, 2001, pp 43-45.
3. Von Winiwarter F: Ueber eine eigentuemliche form von endarteritis und endophlebitis mit gangraen des fusses. Arch Klin Chir 1879; **23**:202-218.
4. Olin JW: Thromboangiitis obliterans (Buerger's disease). N Engl J Med 2000; **343**:864-869.
5. Mishima Y: Thromboangiitis obliterans (Buerger's disease). Int J Cardiol 1996; **54(Suppl)**:185-187.
6. Suzuki S, Yamada I, Himeno Y: Angiographic findings in Buerger disease. Int J Cardiol 1997; **54(Suppl)**:189-195.
7. Jager E: Zur pathologoschen Anatomie der Thromboangiitis obliterans bei juveniler Extremitatengangran. Virchows Arch Path Anat 1932; **284**:526-583.
8. Silbert S: Etiology of thromboangiitis obliterans. JAMA 1945; **129**:5-12.
9. Inzelberg R, Bornstein NM, Korczyn AD: Cerebrovascular symptoms in thromboangiitis obliterans. Acta Neurol Scand 1989; **80**:347-350.
10. Berlit P, Kessler C, Reuther R, Krause KH: New Aspects of thromboangiitis obliterans (von Winiwarter-Buerger's disease). Eur Neurol 1984; **23**:394-399.
11. Dotti MT, De Stefano N, Vecchione V, Correra G, Federico A: Cerebral thromboangiitis obliterans: Clinical and MRI findings in a case. Eur Neurol 1995; **35**: 246-248.
12. Calguneri M, Ozturk MA, Ay H, et al: Buerger's disease with multisystem involvement. A case report and a review of the literature. Angiology 2004; **55**:325-328.
13. Bozikas VP, Vlaikidis N, Petrikis P, Kourtis A, Karavatos A: Schizophrenic-like symptoms in a patient with thrombo-angiitis obliterans (Winiwarter-Buerger's Disease). Int J Psychiatry Med 2001; **31**:341-346.
14. Bischof F, Kuntz R, Melms A, Fetter M: Cerebral vein thrombosis in a case with thromboangiitis obliterans. Cerebrovasc Dis 1999; **9**:295-297.
15. Drake ME Jr: Winiwarter-Buerger disease ('thromboangiitis obliterans') with cerebral involvement. JAMA 1982; **248**:1870-1872.
16. Biller J, Asconape J, Challa VR, Toole JF, McLean WT: A case for cerebral thromboangiitis obliterans. Stroke 1981; **12**:686-689.
17. Adams RD, Michelson JJ: Inflammatory lesions of the blood vessels of the brain, in Proceedings of the First International Congress of Neuropathology. Torino, Italy: Rosenberg & Sellier, 1952, pp 347-371.
18. Harten P, Muller-Huelsbeck S, Regensburger D, Loeffler H: Multiple organ manifestations in thromboangiitis obliterans (Buerger's disease). A case report. Angiology 1996; **47**:419-425.
19. Papa MZ, Rabi I, Adar R: Point scoring system for the clinical diagnosis of Buerger's disease. Eur J Vasc Endovasc Surg 1996; **11**:335-339.