To the Editor:

Some cases of lacunar infarction with middle cerebral artery (MCA) stenosis may be explained by the Bernoulli principle. In a constant flow system, the smaller the cross-sectional area, the greater the flow velocity, and the lower the perfusion pressure. If the flow were turbulent, the pressure would be lower still. Thus, if the origin of a lenticulostriate artery were within a stenotic segment of MCA, 1-2 the perfusion pressure in this segment would be reduced, compared to that in normal MCA segments, perhaps sufficiently to produce ischemia in the supply territory of the lenticulostriate artery. Such a hemodynamic mechanism might explain progressive lacunar infarction, which until now has not been satisfactorily explained. 4

As a limited test of this hypothesis, we have reviewed 62 cases of acute hemiplegia in whom transcranial Doppler was performed within 48 hours of onset. These included 10 cases of lacunar stroke, in five of whom MCA stenosis was presumed by the criterion of mean velocity 20-60% greater on the symptomatic system of MCA, 4 but is paradoxically associated with thrombotic events such as deep venous thrombosis, cerebral and extracerebral arterial disease, and cerebral venous thrombosis. Few angiographic results have been reported. We have encountered a patient who gave a history of two spontaneous abortions, the most recent one 2 months before, she had noted numbness of the right hand followed 2 months later by a left cerebral infarction caused by an internal carotid artery occlusion approximately 1 cm above the bifurcation. A cardiologist consultant examined the patient and her cardiac studies and found no basis for cardiogenic embolism. Angiographic studies in patients with the lupus anticoagulant have been summarized by Levine and Welch, 1 who reported a total of 17 patients. Six of these patients had an internal carotid artery stenosis or occlusion, but only one was reported to have been an extracranial internal carotid artery occlusion. 4 Two additional case reports were found. One patient was a 30-year-old man with a vasculitis who suffered infarctions in the left cerebral hemisphere caused by an intraluminal thrombus in the left internal carotid artery. He improved after surgical excision of the thrombus. 3 Another patient was a 38-year-old man with a diagnosis of systemic lupus erythematosus, who was hypertensive and a smoker. 2 Angiography disclosed an ulcerated, nearly occluded left internal carotid artery.

Our patient had a characteristic history for stroke associated with the lupus anticoagulant. She was young and suffered two spontaneous previous abortions, the most recent one 2 months before the stroke. There was neither a history of head or neck trauma nor use of birth control pills. She did not have systemic lupus erythematosus nor a cardiac source for embolism. Risk factors of smoking, migraine, and hypercholesterolemia were present, but none were likely to be the etiology of an extracranial internal carotid artery occlusion in a 24-year-old woman.

Lacunar Infarction due to Middle Cerebral Artery Stenosis

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Lupus anticoagulant associated with extracranial internal carotid artery occlusion.
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