



A Rare Reason for the Misdiagnosis with Colored Doppler Ultrasonography in Carotid Stenosis

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Short Communication

Internal carotid artery stenosis is one of the common causes of preventable stroke. Estimates of ischemic stroke attributable to carotid stenosis range from 7% to 18% of all incident stroke [1]. According to previous literature, several different multicenter randomized clinical trials reported that carotid endarterectomy for stroke prevention in asymptomatic patients has significant benefits compared to medical therapies [2-4]. When carotid stenosis is suspected, even if it's symptomatic or asymptomatic, Colored Doppler Ultrasonography (CDU) has been used as the first step diagnostic method because of its noninvasive procedure. However, it's well known that CDU might report false positive or negative results sometimes. For example, it's reported that CDU can overestimate high-grade ICA stenosis [5]. So, an angiographic evaluation should be considered the confirmatory test for degree of stenosis in certain patients before definitive surgical treatment [6].

We herein present a rare reason for the misdiagnosis with CDU on the basis of a patient.

A 60-year-old female patient was admitted to the hospital after a Temporary-Ischemic Attack (TIA). In the CDU examination, a critical stenosis was mentioned which required surgical intervention. No other evidence was available to explain the TIA. She had a history of stent implantation into a coronary artery a long time ago. Coronary + carotid angiography was decided when the age of the patient was taken into consideration. During this procedure, a stent was implanted into her right coronary artery. But the interesting thing is, there was no stenosis in the carotid arteries of the patient. However, the patient's carotid arteries were observed to have excessive folds.

As seen in the Figure 1A, 1B, when looked from the different points of the angiographic scene, patient's carotid arteries have excessive folds, but there is not any significant stenotic lesion which can be a reason for her clinical events. Can this phenomenon be explained by the fact that the CDU exaggerated the stenosis as described in the previous literature? We think that it is more appropriate to answer "No" to this question.

In fact, if the angiographic image in Figure 2 -which was taken from another angle during the procedure, is evaluated carefully, it can be observed that the carotid artery appears to be narrower in some places but wider in some segments due to the superposed folds. This observation suggests that in the evaluation of carotid artery stenosis with CDU, the position of the probe is very important. This can be only a single one reason for the misdiagnosis of stenosis especially in the patients with short neck and excessive vascular folds.

It was concluded that the patient's symptoms were related to intracranial neurovascular events

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Figure 1: Angiographic view of the patient from different angles (A and B). Note the excessive folds of the carotid system without any stenotic lesion.

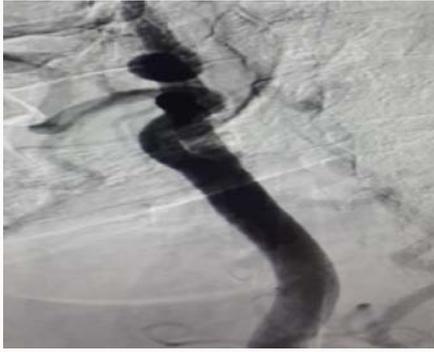


Figure 2: Angiographic view of same patient from another angle. Please note that the carotid artery appears to be narrower in some places but wider in some segments due to the superposed folds.

in advanced neurological examinations after excluding of extracranial carotid artery stenosis.

Conclusion

1. CDU has an important place at the first stage of the diagnosis of the carotid artery stenosis.
2. However, it shouldn't be forgotten that CDU may exaggerate the carotid lesions. Because of this reason, any angiographic evaluation should be added before final decision.
3. Excessive folds of the carotid artery are one of the rare causes of false positive CDU reports.

4. The most practical way to get rid of this false positive evaluation would be to keep the probe at very different angles during the CDU assessment.

5. It should be kept in mind that this error can be seen more frequently in patients with short neck.

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