

INTERVIEW

Carotid Webs in Young Women: Diagnosis and Treatment

An Interview With Bruce Perler, MD, MBA

[Bruce Perler, MD](#)

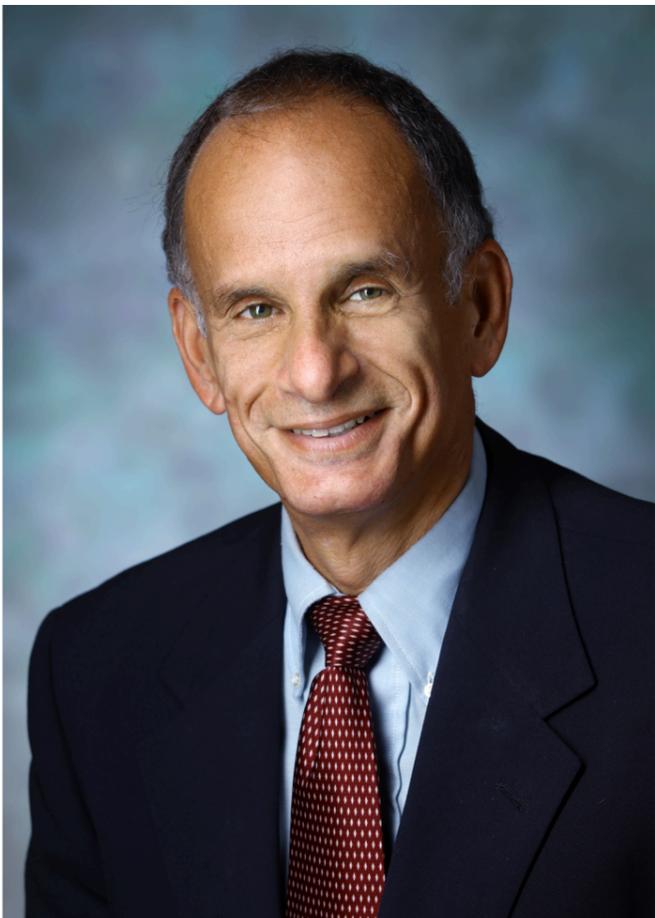
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At the 2024 VEITH Symposium, vascular surgeon Bruce Perler, MD, MBA, from Johns Hopkins Medicine in Baltimore, Maryland, gave a presentation entitled “Carotid Webs: An Important Etiology of Devastating Strokes, Especially in Young Women. How Should They Be Diagnosed and Treated?” *Vascular Disease Management* spoke with Dr Perler about his presentation and the best ways to diagnose and treat carotid webs.

What imaging modality do you find most effective for identifying carotid webs, and are there specific features radiologists should be trained to recognize to avoid missed diagnoses?

I think the most reasonable first step and cost-effective modality is a carotid duplex scan. But you have to be thinking about the diagnosis and looking for the web because if you just look at velocities, they are often normal or fairly unremarkable, and the web can be easily missed. But a well-done duplex scan by an experienced sonographer can visualize the web of tissue just beyond the carotid bifurcation. In our IAC Accredited Vascular Noninvasive Vascular Laboratory, our sonographers are well aware of this diagnosis and how to look for these lesions. The diagnosis can be confirmed with a computed tomography angiogram, magnetic resonance angiography, or even an arteriogram. On an arteriogram, if you look at the straight AP view, you can miss the web, but if you look at the lateral view, you will see this little lateral ledge of tissue. The key is to be aware of it, thinking about it, and looking for it, because it is very easy to miss.

Considering the potential for devastating strokes, what criteria do you use to decide between medical management, endarterectomy, or stenting for carotid webs?

One of the unanswered questions is, “What do you do if you find an asymptomatic web?” I am not sure how often that would happen because if someone is having a carotid duplex scan, you are typically evaluating a patient who has experienced symptoms. On the other hand, if a patient has experienced a stroke due to a web and undergoes successful intervention, and an asymptomatic web is identified in the contralateral internal carotid artery, I think one could make a case for electively intervening, although there is no objective evidence to support that judgment. However, there is really no evidence to support intervening on carotid webs in completely asymptomatic patients. But once a patient has experienced symptoms, and one of the unusual and unfortunate aspects about carotid webs is that the overwhelming majority of symptomatic patients with carotid webs present with strokes rather than transient ischemic attacks (TIAs), carotid intervention is indicated. In some series, roughly 90% of patients presented with a stroke rather than a TIA.

One other somewhat unusual aspect of carotid web patients is that several published series have documented that antiplatelet therapy is very ineffective in preventing recurrent symptoms in these patients. The recurrence rate of patients who are placed on antiplatelet therapy is significant; it is very, very high. Studies have looked at whether dual antiplatelet therapy is any better than

monotherapy, and it isn't. Once a patient has had a stroke due to a carotid web, they should undergo an intervention. In terms of carotid endarterectomy vs stenting, several reports published up until very recently were case reports or small case series. There was a recent large series from Ochsner Health that included roughly 50 patients. About half underwent carotid endarterectomy and half underwent stenting, and had excellent results with each approach, no complications and no recurrent events. One might ask, how can you safely stent these patients since the pathophysiology of symptoms is related to thrombus that forms on the web? Specifically, the way these webs cause strokes is the webs cause turbulent flow, which leads to thrombus deposition on the web, and when that thrombus embolizes the patient typically suffers a stroke. And so, to return to the question of how can you put a stent in a lesion that has a clot on it? Won't you send a clot to the brain? Typically, once the patient has had a stroke, the clot has gone to the brain, and when the patient presents to us, all we see is this tissue, the web on imaging, but the thrombus is no longer present and so it appears relatively safe to stent.

Now, one can question whether it is a good idea to put a carotid stent in an otherwise healthy 35-year-old woman who has 50 years of life ahead of her, and in my opinion in that scenario I would favor traditional carotid endarterectomy. But if the patient is significantly impaired by a stroke due to a web, a stent may be a good option in that setting and appears to be safe.

Given the association with younger women, do you recommend routine screening for carotid webs?

No. Even screening asymptomatic patients for atherosclerotic carotid artery disease is very controversial. There is absolutely no evidence for screening women for carotid webs. The problem is that on a duplex scan you may see a little shadow here, a little irregularity there, and so forth. I am concerned there would be thousands of patients undergoing operations they don't need, based on subtle duplex findings, so unfortunately you typically have to wait until the patient has an event then aggressively look for a web and treat it.

We are increasingly recognizing carotid webs as a cause of so-called cryptogenic strokes, strokes of unknown etiology, in young individuals. Once you see somebody like that, you need to look for a web as the responsible etiology.

Are there any ongoing studies or recent advances in understanding carotid webs that might influence future diagnostic or treatment approaches?

Not really. For a number of reasons, we think it is a variant of fibromuscular disease, partly because of the population in which it occurs, typically young women, but there are no ongoing studies that I am aware of. I think if you diagnose the carotid web in a young woman, it is probably worth looking for other manifestations of fibromuscular disease, such as renal artery stenosis, or intracerebral problems. ■