Screw-clamp Stenosis for Internal Carotid Aneurysms

To THE EDITOR: Dr. Cook’s comment in the January 1973 Neurosurgical Forum on the article by Kak, et al. (Kak VK, Taylor AR, Gordon DS: Proximal carotid ligation for internal carotid aneurysms. A long-term follow-up study. J Neurosurg 39:503-513, October, 1973), reminds me that there is a better operation for most intracranial aneurysms than carotid ligation. Ligation of the internal carotid artery carries a high morbidity and mortality due to ascending thrombosis and irreversible ischemia. This is reduced somewhat by ligation of the common carotid artery, but once this artery is tightly ligated, flow cannot be reestablished in case symptoms develop, except by a prosthetic procedure on the artery. It is far better to make the initial operation one of screw-clamp stenosis of the common carotid artery. This should be done under local anesthesia, just as soon after the bleed as arteriographic study has been concluded and the patient is awake and cooperative. The clamp is turned down until a high degree of stenosis is produced as judged by just a whisper of a bruit on direct auscultation of the arterial wall distal to the clamp, possibly aided by finger palpation or use of a flowmeter. The important thing is to bring the two internal surfaces of the artery very close together and to reduce flow, but not to injure the intima or completely obliterate flow. The patient is then observed for 30 minutes to an hour while the wound is being slowly closed. If later in that day or the next, or the one after that, any indications of ischemia develop, the wound can be quickly opened over the screw and the stenotic aperture enlarged.

After this stenotic clamping is carried out, the arterial wall will atrophy a bit and the open lumen will increase with return of the superficial temporal artery pulse. As soon as the superficial temporal artery pulse can be palpated, in a week and a half or 2 weeks, the patient should have repeat angiography. Unless the aneurysm is obliterated or distinctly smaller, the wound over the clamp should be opened and further closure, short of complete occlusion, carried out. After this the patient can leave the hospital, but needs to have a third arteriogram made in about 3 months, by which time the aneurysm ought to be somewhat smaller. If not, the screw can be turned a little further and angiography should be continued at ever-lengthening intervals for some 2 to 3 years before the patient is released as having no further threat.

In my opinion, screw-activated clamps are useless when closed daily by a device going through a wound in the neck. For one thing, this introduces the possibility of infection, and anyone who has ever tried to remove a clamp from an infected neck wound never wishes to repeat the experience. For another thing, the intracranial vessels do not develop collateral circulation except as spasm may abate. What happens is that the clamp is finally turned all the way off up on the ward, and a critical ablation of circulation is accomplished days after the clamp was installed, at the time when alertness on the part of attendants is at a low ebb. The patient is likely to be found hemiplegic 4 or 5 hours after the last turn of the screw is made. It is far better to employ the screw-clamp in the operating room in the manner described, when everyone is ready to take needed countermeasures.

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