

CASE REPORTS

Intraoperative stenting of the internal carotid artery after unsuccessful eversion endarterectomy

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Stenting of the internal carotid artery (ICA) has been shown to be feasible in atherosclerotic lesions, in restenosis after carotid endarterectomy, and in spontaneous carotid dissections. To correct an intimal flap that detached distal occlusion of the ICA after eversion carotid endarterectomy, as shown with intraoperative completion angiography, we successfully used stenting of the ICA with a self-expandable stainless steel stent placed during surgery through the common carotid artery. (*J Vasc Surg* 1999;30:355-6.)

Eversion carotid endarterectomy (CE) has been shown to be a good alternative to standard carotid endarterectomy and is used by an increasing number of institutions. One of the major drawbacks with this technique is that if the intimal endpoint is not well adherent to the outer wall layers, an intimal flap may develop after the flow is restored. This may be self-limiting or may proceed distally, determining obstruction of the vessel. These defects may be well documented with an intraoperative completion arteriography. If this is the case, the currently used options include resection and bypass grafting or a longitudinal incision on the internal carotid artery (ICA), with fixation of the intimal flap with tacking sutures and patch closure. Both options may be technically difficult, if possible at all, when the intimal flap extends distally in the ICA. Moreover, recent studies show that intraoperative surgical correction of technical defects may not avoid the increased risk of stroke in these patients.

CASE REPORT

This case was carried out in the operating room with loco-regional anesthesia, with the aid of portable digital fluoroscopy. After the distal occlusion of the left ICA was docu-

mented (Fig 1), with the patient still undergoing heparin therapy, the common carotid artery (CCA) was cannulated with a short (13-cm), 8F introducer sheath, which was previously advanced in the operating field through a separate stab incision of the skin. Through the introducer, a guidewire was inserted in the ICA well distal to the site of occlusion. An Easy Wallstent (Schneider-Boston Scientific, Bülach, Switzerland) was inserted in the ICA over the dissection site and released. Angiographic results through the sheath showed good expansion of the stent with complete restoration of distal flow (Fig 2). The stent was adequately expanded to a diameter of approximately 5 mm, and no adjunctive balloon expansion of the stent was performed. After removal of the sheath, a 6-0 suture on a pledget was placed on the CCA. Interestingly, the proximal portion of the stent was visible through the thin endarterectomized wall of the ICA (Fig 3).

In a further case, the patient had a transient ischemic attack 1 hour after eversion CE was carried out with loco-regional anesthesia. The patient underwent immediate carotid arteriography through a transfemoral approach that showed a small discrete flap at the distal end of the endarterectomy. In this case, the stent was placed through the transfemoral approach in the hemodynamic suite. The patient underwent intravenous heparin therapy (5000 IU), the right CCA was cannulated with a 65-cm length and 8F introducer sheath, and a soft tip 0.014-inch coronary guidewire was inserted in the ICA. An Easy Wallstent (Schneider-Boston Scientific) was inserted in the ICA over the flap and expanded without further balloon dilatation. The angiographic appearance at the end of the procedure was satisfactory in all projections.

In both cases, the angiographic result was excellent and the postoperative course was uneventful. The patients underwent antiplatelet therapy, and color-coded duplex sonographic results showed a widely patent ICA with a well-expanded stent in place.

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Fig 1. Distal occlusion of the left internal carotid artery after eversion carotid endarterectomy.



Fig 3. Proximal portion of the stent visible through the thin endarterectomized wall of the internal carotid artery.



Fig 2. Restoration of the internal carotid artery flow after stent insertion.

DISCUSSION

Although carotid stenting is still an investigational procedure, its technical feasibility has been well documented. We believe that there is a strong rationale for the use of a self-expandable stent to secure the distal end of the intima after a non-satisfactory eversion CE. The risk of distal embolization related to the passage of the guidewire and the device is much reduced because the atheroma has already been removed. Moreover, the availability of self-expandable stents and the absence of an actual stenosis makes it unnecessary to use a balloon in the carotid artery. However, the success of this technique relies on the immediate availability of the facilities and the skills for the timely placement of the stent, either in the operating room or in the hemodynamic suite, after detection of the defect.

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Please see related commentary by Beebe et al on page 372.