Recently, the placement of a variety of stents was introduced into brachiocephalic angioplasty. This report is based on 299 performed angioplasty procedures. This number is divided as follows: innominate artery 7 (2 with stents), left subclavian artery 49 (15 with stents), right subclavian artery 18 (5 with stents), left common carotid artery 12 (6 with stents), right common carotid artery 5 (3 with stents), external carotid artery 21 (1 with stent), left internal carotid artery 5 (2 with stents), right internal carotid artery (2 with stents), bifurcation of the left common carotid artery 88 (85 with stents), bifurcation of the right common carotid artery 67 (60 with stents), left vertebral artery 16 (8 with stents), right vertebral artery 9 (6 with stents).

The following are examples in which the angioplasty could not be fully successful without the use of stents. The first example was a young woman with a traumatic dissection and pseudoaneurysm on the right internal carotid artery. A 20 mm Palmaz-Schatz (Cordis, Miami, FL) stent was placed within the stenotic segment and at the level of the pseudoaneurysm below the base. A 4-month controlled arteriogram showed normal appearance of the right internal carotid artery.

The second patient was a middle-aged woman who developed left-sided ear bruit. An arteriogram showed fibromuscular dysplasia on the left internal carotid artery with a 90% stenosis. An angioplasty was performed and two 20 mm Palmaz-Schatz stents were placed. A six-month controlled arteriogram showed a normal appearance of the internal carotid artery.

The third patient of this group, was a woman with a spontaneous dissection on the right internal carotid artery who developed several TIA’s with a left-sided hemiparesis. An arteriogram showed almost complete occlusion of the right internal carotid artery just below the base of the skull. An angioplasty was performed, and a Cook Flex stent (Bloomington, IN) was placed within the petrous portion of the internal carotid artery, followed by Palmaz-Schatz stents on the neck portion of the same vessel. A controlled arteriogram was performed 2 days later showing a normal right internal carotid artery and a normal intercranial vasculature.

Angioplasty of the subclavian artery is an accepted procedure performed routinely in a multiple of centers. Stent placement is very useful especially if the stenoses is located close to the ostium of the vessel or if dissection during the angioplasty develops.

The next example was an angioplasty and recanalization of a completely occluded right common carotid artery with patent external and internal carotid arteries. Significant stenosis was seen at the origin of the right subclavian artery as well. This stenosis was opened and a Palmaz-Schatz stent was placed within the origin of the right subclavian artery. An angioplasty of the right common carotid artery was performed and a Wallstent...
Schneider USA, Minneapolis, MN) was placed within. A controlled study showed flow through the reopened common carotid artery into the internal and external carotid arteries.

The second example of the PTA of the common carotid artery is a patient with a diffuse atherosclerotic disease of the internal carotid artery and common carotid artery. A significant stenotic lesion was noted on the common carotid artery. The patient was treated with a Cook Flex stent placed within the internal carotid artery, and a Wallstent within the common carotid artery.

Our past experience with the angioplasty of the ostium of the vertebral artery showed a very high percentage of restenosis. This is not only due to the elastic recoil, but also to the fact that the atherosclerotic lesion involves the junction between a small and large artery. Therefore, after performing an angioplasty of the ostium of the vertebral artery, in the last 12 patients, the lesion was stented with a 10 mm Palmaz-Schatz stent to assure the widest opening of the stenosis. In 3 patients, an angioplasty on the neck portion of the vertebral artery was performed with the placement of a Cook Flex stent. A six-month control study consisting of 7 patients showed patency of the stented segments.

In the last set of examples, angioplasty was performed on the innominate artery. Again, tight calcified lesions tended toward immediate recoil. In the last 2 patients a stent was placed within the innominate artery; in one patient a Palmaz-Schatz stent was used, in the other a 10 x 20 Wallstent was used.

Using the PTA combined with stenting, the results of the angioplasty were surely improved. Stenting is also helpful at the location of the brachiocephalic vessels where in the past, the angioplasty was not possible. This is especially true in internal carotid artery dissection, pseudoaneurysms and vessel recanalizations.