REVERSE INSERTION OF NEEDLE IN CAROTID ARTERIOGRAPHY

A METHOD RECOMMENDED IN CASES OF SUSPECTED THROMBOSIS OF INTERNAL CAROTID ARTERY IN THE NECK

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The conventional method of insertion of the needle into the common carotid artery in the direction of blood flow has two disadvantages. The first is seen in patients with varying degrees of arteriosclerotic occlusion of the internal carotid artery in the neck. The tip of the needle may be threaded into the involved segment of the internal carotid artery and, theoretically, could dislodge a portion of the arteriosclerotic plaque or damage the intima of the vessel and promote thrombosis. The lateral roentgenogram shown in Fig. 1 was taken in a patient in whom it was felt prior to the injection of contrast medium that the needle had been placed low enough in the neck to prevent the tip from entering the proximal portion of the internal carotid artery.

The second disadvantage is seen less commonly. The needle infrequently will be threaded into the external carotid artery, and, following injection of the contrast medium, the erroneous diagnosis of thrombosis of the internal carotid artery will be made. In the case shown in Fig. 2, a diagnosis of thrombosis of the internal carotid artery was made initially because only the external carotid artery filled during injection. However, arteriography was repeated 5 days later with the needle placed at a lower level in the neck (Fig. 3). The internal carotid artery filled well with no abnormalities noted in its intraluminal portion.

Insertion of the needle in a reverse direction in the common carotid artery will obviate the disadvantages described above. Percutaneous place-

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Fig. 1. Lateral roentgenogram of head and neck during injection of 10 cc. of 50 per cent Hypaque. The tip of the needle is shown in the proximal portion of the internal carotid artery, which is partly occluded by an arteriosclerotic plaque.

Fig. 4 (left). Lateral roentgenogram of head and neck during “retrograde” injection of 15 cc. of 50 per cent Hypaque. There is good filling of the carotid vessels in the neck and intracranially. No abnormalities are seen.

Fig. 5 (right). Lateral roentgenogram of head and neck during “retrograde” injection of 10 cc. of 50 per cent Hypaque. There is segmental partial occlusion at bifurcation of the common carotid artery.

* 17 gauge Huber point thin wall &30 T 466 LNRH. Becton, Dickinson and Co., Rutherford, New Jersey.

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Fig. 2 (left). Lateral roentgenogram of head and neck during injection of 10 cc. of 50 per cent Hypaque. There is filling of the external carotid artery and its branches. A presumptive diagnosis of thrombosis of the internal carotid artery in the neck was made.

Fig. 3 (right). Same case as in Fig. 2. Arteriogram was repeated 5 days later with needle placed at a lower level in the neck. There is good filling of the internal carotid artery in the neck as well as intracranially.
ease with which the needle can be threaded down the lumen of the vessel. A catheter filled with saline is connected to the needle prior to making the injection. The carotid vessels in the neck as well as intracranially can be outlined well by the rapid injection of 10 to 15 cc. of 50 per cent Hypaque (Figs. 4 and 5). A large anteroposterior film is taken during the injection with the head turned to the opposite side.

The arteriograms obtained with the needle placed in a retrograde direction in the common carotid artery are comparable in quality to those obtained when the needle is directed in the conventional or cephalic direction. We have used the retrograde method in a total of 60 patients as a means for obtaining an indirect vertebral arteriogram and find that the carotid arteriograms are comparable to those made with the needle inserted in the conventional manner.²

REFERENCES