BILATERAL SIMULTANEOUS CAROTID ARTERIOGRAPHY*

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The increasing usefulness of arteriography has come about, at least in part, through greater safety and simplification of the procedure. In an attempt to simplify the test further, bilateral simultaneous injection of the carotid artery for the anteroposterior projection has been carried out in 100 cases. There has been no increase in morbidity or mortality in this series. In contrast to separate injection of the left and right sides for anteroposterior projection, bilateral simultaneous injection reduces the necessary number of exposures as well as the time consumed in individual injections. Further, and perhaps most important, bilateral demonstration of vessels provides for comparison of both sides on a single plate under similar conditions of injection.

TECHNIQUE

Under Pentothal anesthesia the right carotid artery is cannulated with a #17 gauge spinal needle, with the head turned to the left, and 8 cc. of methylglucamine diatrizoate (Renografin 60 per cent) are injected. A series of lateral exposures are then made. The left carotid artery is then cannulated, with the head turned to the right, and the opposite group of lateral exposures are obtained. To obtain simultaneous bilateral anteroposterior projections both needles in the carotid arteries are then connected through a Y-tube arrangement with a 20 cc. syringe of the contrast material (Fig. 1). Approximately 15 cc. of radiopaque medium are used to make this bilateral injection.

RESULTS

It usually is possible to obtain films demonstrating bilaterally equal filling of each carotid system (Fig. 2A). At times, however, one side may fill sooner than the other. This was true particularly when we at first attempted injection of the two sides independently but simultaneously on a given signal (Fig. 2B). Use of the Y-tube arrangement has largely overcome this obstacle. In some cases dysphasic injection can also result when one needle is placed more distally in the carotid artery than the needle of the opposite side. Transient hemiparesis has occurred on 3 occasions. No permanent neurologic deficit or bilateral defect has occurred.

DISCUSSION

Though no reference to simultaneous bilateral injection of the carotid artery was found in the English literature, personal correspondence with several neurosurgeons suggests that the author's experience is not unique. When this routine was adopted 3 years ago iodopyracet (Diodrast 35 per cent) was used as a contrast medium and the complications that occurred seemed in part attributable to this material. Technique at first consisted of injecting each carotid artery individually at a given signal.

With the introduction of diatrizoate so-

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Fig. 1. Simultaneous carotid injection using Y-tube in injecting system.
Fig. 2. Bilateral simultaneous carotid injection using Renografin: (A) S.A., aged 14; (B) D.M., aged 58. Note considerable variation of extracranial portions of internal carotid artery as well as minor intracranial asymmetry.

Fig. 3. (A) Glioma of left thalamus producing some elevation of left carotid bifurcation. Note marked difference in anatomy of extracranial carotid artery in two sides. (B) Huge adenoma of pituitary gland with extension beneath right temporal lobe.