HEMIPLEGIA CAUSED BY CEREBROVASCULAR THROMBOSIS

AN ARTERIOGRAPHIC STUDY

KENNETH E. LIVINGSTON, M.D.,* ALFONSO ESCOBAR, M.D., AND GREGORY D. NICHOLS, M.D.

Portland, Oregon

(Received for publication February 7, 1955)

With the development of carotid arteriography, the vascular bed supplied by the internal carotid artery has become readily accessible for diagnostic study. As a result, cerebral angiography has provided a rational basis for advances in the therapy of many intracranial lesions. The greatest contribution has been to the management of the primary vascular abnormalities such as aneurysm and the congenital vascular malformations. However, cerebrovascular thrombosis, another clinically important lesion accessible to arteriography, has not been systematically investigated.

A majority of reports in the literature pertaining to thrombosis affecting the cerebral circulation are concerned with occlusions of the internal carotid artery proximal to the cerebral vessels.\(^7,9,13,16,17,20\) In 1950 Almeida Lima,\(^2\) in his monograph *Cerebral Angiography*, presented arteriograms illustrating thrombosis of the internal carotid artery, and described the principal characteristics of the clinical syndromes associated with this lesion. In 1951, in a very comprehensive review of the literature, Johnson and Walker\(^9\) found 101 reported cases of internal carotid thrombosis in which the sites of the occlusion were either within a few centimeters of the carotid bifurcation in the neck or within the internal carotid siphon intracranially. While internal carotid thrombosis is undoubtedly more frequent than previously suspected, it is probable that the hemiplegic syndrome clinically considered secondary to thrombosis results more commonly from occlusion of the cerebral portion of the circulation. Although Almeida Lima presented the arteriograms of 3 cases of suspected brain tumor in which occlusion of the intracerebral vessels was found, he did not study cases in which cerebrovascular thrombosis was a primary diagnosis. Wechsler and Gross\(^23\) in 1949 presented 4 cases of "cerebrovascular accident" in which occlusion of the internal carotid or cerebral vessels was demonstrated. In 1951, in an analysis of electroencephalographic changes secondary to cerebrovascular thrombosis, Jones and Bagchi\(^10\) presented clinical data on 10 cases in which thrombosis of major cerebral vessels was proven by arteriography. A similar study was reported in 1952 by Bergouignan *et al.*,\(^3\) and in 1954 more extensive arteriographic
Figs. 1 and 2. (Left) Case 4, Table 1. Complete obstruction of internal carotid artery at common carotid bifurcation. Additional views showed no evidence of retrograde filling of cerebral vessels from the ophthalmic artery on the involved side, but cross-filling into both middle and anterior cerebral arteries from the opposite carotid. (Right) Case 6, Table 1. Thrombosis of internal carotid artery in the neck with partial recanalization.

Fig. 3. Case 8, Table 1. Complete obstruction of internal carotid artery in the third portion of the carotid siphon.