SPECIAL ARTICLE

INTRACEREBRAL HEMORRHAGE ASSOCIATED WITH HYPERTENSION AND ARTERIOSCLEROSIS*

LEO M. DAVIDOFF, M.D.†

During a symposium on "Cerebrovascular Disease with Aging" recently conducted by Wright, Adams, Covalt, Fazekas, and Merritt at the New York Academy of Medicine, some pertinent statistics were cited concerning the increasing problem of cerebrovascular accidents in our population. In 1952 about 170,000 people, more than 44,000 of them under the age of 65, died of cerebral vascular disease in the United States. Moreover, an estimated 1,800,000 still alive are known to have suffered some manifestation of cerebral vascular disease. Many of these are sufficiently incapacitated to require the full-time or part-time services of from one to three other persons. Many thousands are occupying beds in nursing homes, in private, municipal, state or federal veterans' hospitals for prolonged periods of time, and thousands more represent heavy burdens to their families at home. While spontaneous intracerebral hemorrhage represents only a portion (about 25 per cent) of this serious problem, it nevertheless proved to be, according to a Metropolitan Life Insurance Company Bulletin in 1946, the fourth most common cause of death in the United States of America. Indeed, the mortality from spontaneous intracerebral hemorrhage, without surgical interference, is appallingly high. Thus Aring and Merritt found a mortality of 98 per cent in 116 cases. Rose reported on 205 patients, of which 80 per cent had died within 24 hours. Zimmerman, who reviewed 107 cases, described a 94 per cent mortality with the first attack, and in the remainder death occurred within 5 weeks after the onset.

There are many conditions that may be responsible for intracerebral bleeding. Among these are hypertension, arteriosclerosis, cerebral aneurysm, cerebral vascular anomalies, septicemia, subacute bacterial endocarditis, brain tumors, periarteritis nodosa, lupus erythematosus, tuberculosis, syphilis, eclampsia, trauma, blood dyscrasias, and scurvy. Hemorrhage may also occur when heparin or other anticoagulants are used in the treatment of thromboses. It is clear that in each of these conditions the cerebral hemorrhage is an incident in an underlying disease, and the success or failure of treatment of the hemorrhage depends often upon the prognosis in the disease responsible. On the other hand, the catastrophic occurrence of a massive hemorrhage in a chronic condition like hypertension or arteriosclerosis, or a silent condition like a berry aneurysm or vascular anomaly, is frequently

* Prepared at the request of the Editorial Board of the Journal of Neurosurgery.
† Professor and Chairman of the Department of Surgery, Albert Einstein College of Medicine, Yeshiva University, New York, New York.
the precipitating cause of death, unless, by surgical evacuation of the clot, the immediate danger can be allayed.

Very few clinics are able to accumulate a sufficient number of surgically treated cases with any one type of etiologically based hemorrhage, and the majority of reports in the literature include the author’s experience with all his cases of hemorrhage of whatever etiology. The result is likely to be confusing, since material reported under similar titles often deals with widely dissimilar situations. Since in the majority of cases* cerebral hemorrhage is caused by hypertension and arteriosclerosis, I propose, therefore, to discuss this type alone in order to help crystallize our thinking with regard to this major segment of our problem.

Jewesbury,7 in a paper on “Atypical Intracerebral Haemorrhage,” in defining the typical case with which he did not intend to deal, inadvertently succinctly epitomized the very situation that I wish to discuss here:

“The hypertensive, rather elderly man, while at work, suddenly develops headache which is often associated with vomiting. Consciousness is quickly lost and there are signs of hemiplegia. Blood may be found at lumbar puncture and death occurs in the course of a few hours or days. At autopsy arteriosclerosis is commonly found and the internal capsule and basal ganglia are the site of a haemorrhage from rupture of a basal branch of the middle cerebral artery.”

Let us see how this definition conforms to the combined experience of the many authors in their publications on this subject. The number of pertinent reports in the world literature is voluminous, but fortunately there is now available the detailed summary of all of these contributions in the monograph by Guy Lazorthes on L’hémorragie cérébrale vue par le neuro-chirurgien.

In this we learn that the patient is, indeed, in the older age group, ranging between 40 and 60 years; those of 65 years of age are more likely to have cerebral softening rather than hemorrhage. Of 21 patients operated upon by me only 1 was under 40 years old, and 4 were over 60. Patients younger than 40, without hypertension, who suffer from intracranial hemorrhage, do so more often as a result either of vascular malformation or of unknown cause. And as for sex, the proportion of males to females is two to one, as reported in the literature. Among the 21 patients in my own series, however, 8 were males and 13 females.

The immediately precipitating cause may be physical exertion, emotional shock, or extremes of temperature, such as severe cold in midwinter or extreme heat in midsummer.

In the majority of instances the vessels involved are the lateral striate

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* Dorothy Russell11 in 1954 found that out of 461 cases of intracerebral hemorrhage coming to autopsy at the London Hospital between 1912 and 1952, 232 were in patients who had suffered from vascular hypertension (54 per cent). Lazorthes8 reported that out of 345 cases of hematoma treated by surgery, in the literature, on which figures were available, arterial hypertension was present in 28 per cent of the cases. Since surgical reports are likely to be on selected cases, the proportion of hemorrhage in patients with hypertension in Russell’s figures is probably more representative of the actual situation. In Lazorthes’ personal series there were 17 patients with vascular hypertension out of 35 cases, and in mine2 there were 21 out of 33 cases.