Spontaneous Intracerebral Hematomas

A Surgical Appraisal

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PARALLELING the upsurge of degenerative vascular diseases of the central nervous system, there is a concomitant rise in the incidence of spontaneously occurring intracerebral hematomas. For example, while only 80 cases were reported from this institution from 1947–1959, in the succeeding years from 1959–1962, 102 cases were collected. Though increased diagnostic facilities and sharpened diagnostic acumen undoubtedly play their parts, lengthened longevity and a more stressful situation in life must likewise contribute. A survey of the literature discloses that cerebral arteriosclerosis stands pre-eminent as an etiologic factor1,3,8,16 trailed by small angiomatic malformations which are mostly undetectable angiographically and presumed destroyed by the hematoma itself.10,14,15 Their exact share is therefore difficult to assess.

The present communication is a continuation of that reported previously. A total of 182 surgically treated cases of spontaneous intracerebral hematomas have thus been accrued in a period of 15 years, from 1947–1962. However, only the last 102 cases accumulated in the 4-year span from 1959–1962 will be the subject of the present analysis. Some of these cases are lacking in certain clinical details, thus accounting for some discrepancies in some of the figures.

Material and Method

All 102 cases conform to the following definition of spontaneous intracerebral hematomas: a localized collection of liquid and/or clotted blood in the substance of the brain not caused by detectable aneurysms, angiomatic malformations, trauma or neoplasms and distinct from hemorrhagic infarcts. All these patients were treated surgically and the hematomas were thus verified. Their volumes and locations were estimated during the operation as correlated with the clinical picture and diagnostic studies like angiographies, pneumographies, and electroencephalographies. All the patients were subjected to angiography, the other two procedures being supplemented when the need arose. Determinants for urgency of operative intervention, in their descending order of importance, were: deteriorating conscious and mental states, progressive focal neurologic deficit, ocular signs, hemi-motor and sensory deficits and stability of vital signs. Preoperative and postoperative managements consisted of maintenance of patent airways, balance of body fluid and electrolytes, proper nutrition and steroids, and hypertonic agents to combat cerebral edema. In most cases, and exclusively lately, a 6-cm. trephine was used in lieu of a cranioplastick flap. This has been found to be simpler and just as effective. Preliminary aspiration has been the practice not only for verification but to effect decompression. Open evacuation followed.

Analytical Study

The 102 cases comprised 71 males and 31 females, a ratio of 2.3:1. The ratio of the earlier group was about 1:1.6 The ages ranged from 27 to 88 years. The incidence relative to each age bracket in decades is given in Table 1. Thus the highest incidence occurs at the 5th decade. This is in accord with the earlier series8 and others.14 Compilation of statistical data is meaningless unless appraised against certain reference points. To our minds the two most important reference points in a study of such a nature are:

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TABLE 1

Incidence of intracerebral hematomas
relative to age

<table>
<thead>
<tr>
<th>Age</th>
<th>20-29</th>
<th>30-39</th>
<th>40-49</th>
<th>50-59</th>
<th>60-69</th>
<th>60+</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>2</td>
<td>8</td>
<td>16</td>
<td>22</td>
<td>25</td>
<td>20</td>
</tr>
</tbody>
</table>

1) Outcome or result of such management.
2) Anatomical location of the lesion. Accordingly, patients are classified in reference to outcome as follows:

Class I—Those virtually without neurologic deficit.
Class II—Those with some neurologic deficit.
Class III—Those with moderate neurologic deficit.
Class IV—Those with severe neurologic deficit.
Class V—Those who succumbed.

By neurologic deficits are meant the same determinants described earlier in conjunction with operative intervention. With reference to anatomical localization, the patients are subdivided into two groups.

1) Nuclear—when the hematomas implicate the deep-seated nuclear structures (basal ganglia, diencephalon, internal capsule, etc.).
2) Medullary—when the subcortical white matter, i.e., the centrum semiovale, is involved primarily (Figs. 1 and 2).

An analysis of our series in terms of incidence is shown in Table 2. Therefore from a purely statistical point of view, we obtain a figure of 8 per cent as mortality rate against a 5 per cent rate of satisfactory recovery. Should we consider Class II as within the realm of the satisfactory group, then a total figure of 34 per cent is obtained. Nonetheless against a formidable figure of 32 per cent which represents Class IV (totally disabled), there undoubtedly is considerable room for further improvement.

Table 3 considers outcome in relation to anatomic localization. It is obvious that anatomic location definitely influences mortality and morbidity, a universally recognized fact.

An attempt to delineate the influence of age on outcome is shown in Table 4. If Table 4 were studied in conjunction with the corresponding incidences according to age and

TABLE 2

Analysis in terms of incidence

<table>
<thead>
<tr>
<th>Class</th>
<th>Incidence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of Cases</td>
</tr>
<tr>
<td>I</td>
<td>6</td>
</tr>
<tr>
<td>II</td>
<td>30</td>
</tr>
<tr>
<td>III</td>
<td>25</td>
</tr>
<tr>
<td>IV</td>
<td>33</td>
</tr>
<tr>
<td>V</td>
<td>8</td>
</tr>
</tbody>
</table>

Anatomic localization*

Nuclear—54.
Medullary—48

* This was determined on the basis of data contained in the operative report of the surgeon in the case, the angiographic findings and/or air studies, supplemented by other pertinent clinical data in the protocols reviewed, and whatever autopsy data were available.