SEIZURES FOLLOWING SURGICAL TREATMENT
OF INTRACRANIAL ABSCESSES

A CLINICAL AND ELECTROENCEPHALOGRAPHIC STUDY

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UNTIL recent years the attention of those concerned with the manage-
ment of intracranial abscesses has been largely directed to a study of
the findings in mortal cases. 1,2,5,8,9,12,15,17,18,20,24,26,27,30,32,33,41,51,53,54,60
But now that antibiotic therapy and improved surgical techniques can re-
duce the risk of death from this dread disease from over 70 per cent to about
25 per cent 1,4,6,7,17–19,34,57,28,31–33,41,42,49,52,54,57,60,66 the morbid—rather than the
mortal—consequences of cerebral abscess formation assume increasing im-
portance.

Among these consequences, the three principal disorders that may mar
the life of a patient surviving after treatment of a cerebral abscess 5,18,60
are pareses, mental disorders and seizures† (Table 1). These disorders, in
the series of cases reported in this communication, occur respectively in
25 per cent, 25 per cent and 47 per cent of the cases of successfully treated
brain abscesses. Of all the complications of survival, seizures are therefore
the more common, occurring sooner or later in almost half of the patients
surviving after treatment of an intracerebral abscess.

Our object, then, in this communication is to arouse interest in the clinical
and pathological problems of post-abscess seizures, which form the most
important complication of what otherwise may be satisfactory recovery
from the disease. For it seems to us that if the principal provocative factors
in this connection can be identified, an attempt might be made to eradicate
or alleviate them in the course of surgical treatment.

CLINICAL MATERIAL

The clinical material forming the basis of this study is drawn from a
series of 100 consecutive cases of intracranial abscess treated, during the
past 8 years, in the Neurosurgical Centre of the South-East Metropolitan
Region. Twenty-three of these patients had abscesses confined to the cere-
bellum, and are not considered further here, as none of the survivors had

* A preliminary report of these findings was presented at the Second International Congress of

† In this communication the term seizure embraces not only muscular convulsions (whether focal
or generalised) but also all paroxysmal disorders of sensory and psychical function constituting "sensory
seizures" and "psychical seizures."

949
postoperative seizures. Of the remaining 77 patients with supratentorial abscess, 12 had subdural abscesses alone, while 65 had one or more intracerebral abscesses—and it is to this latter group that attention is principally directed. It should perhaps be added that 8 of the 65 patients with intracerebral abscess had multiple lesions, while 5 had a subdural as well as an intracerebral abscess.

The regional distribution of the intracerebral abscesses in the brain is indicated in Table 2. The multiple abscesses involved these same regions of the brain, with additional abscesses in structures of the brain stem in 1 case. In 22 per cent of the cases the abscesses were multilocular.24

Most of the intracerebral and subdural abscesses in this series were treated by repeated puncture through burr-holes, with aspiration of their contents and instillation of the appropriate antibiotics together with radio-opaque material (either Thorotrast or Pyelosil). The choice of antibiotics was governed by estimation of the sensitivity of the organisms (in all cases except 5) to an array of antibiotics. Systemic therapy with antibiotics and/or sulphonamides was also provided, supplemented by intrathecal or intraventricular injections of antibiotic when necessary.4, 53, 63 Anticonvulsant drugs were not given as a routine on discharge of the patient, being withheld until the development of seizure phenomena. Some of the subdural abscesses were drained through tubes inserted into multiple burr-holes, antibiotic solutions being instilled through these same tubes.49 In a few of the earlier cases, an intracerebral abscess was also treated in this manner.17 Excision of the abscess was performed in 3 cases only,7, 11, 28 and in 1 case a frontal lobectomy (to include the abscess) was carried out.

Thirty-six of the patients with intracerebral abscess are still alive and available for study (a crude survival rate of 55 per cent24, 60), as are 9 of the 12 with pure subdural abscess (crude survival rate 75 per cent).* Twenty-eight of the former group, and 6 of the latter group have outlived their illness by a year or more, 19 of those with intracerebral abscess having survived for periods in excess of 3 years. Ten of the surviving patients in the intracerebral group (28 per cent) now show no morbid sequela of their illness whatsoever, although 4 of them did so temporarily. Five of the surviving patients in the subdural group (56 per cent) likewise are entirely normal, 3 of them having been so since completion of their treatment.

ANALYSIS OF MATERIAL

1. General Incidence of Seizures. The general incidence of seizures of all types after treatment of intracerebral abscess is 47 per cent (Table 1). The comparable incidence of seizures in cases of pure subdural abscess is 22 per cent. It is therefore apparent that the risk of the development of seizures following treatment of an intracerebral abscess is more than twice as great

* In a further 2 of the intracerebral cases the abscess recurred in its original site, after apparently successful treatment—an incidence of recurrence in the survivors of 5 per cent. Both patients died, in spite of treatment.