Medulloblastomas and Cerebellar Sarcomas

A Clinical Survey

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From 1928 to December 31, 1958, that is over a 30-year period, 109 medulloblastomas and 20 cerebellar sarcomas were submitted to the Department of Neuropathology of the Montreal Neurological Institute and thus classified. This amounts to 4.05 per cent of a total of 2,443 intracranial tumours examined during the same period of time.

It is recognized that the existence of a separate entity of cerebellar tumours histologically very similar to, if not identical with, medulloblastomas has been a controversial subject for some time and the question has not yet been settled satisfactorily. Hanbery and Dugger suggested that the term perithelial sarcoma be retained to include similar tumours classified variously as primary reticulo-endothelioma, microglioblastoma, reticulum-cell sarcoma, perivascular sarcoma, and alveolar sarcoma. Recently, Smith et al., after reviewing the literature and evaluating their own therapeutic results, felt that, from a practical clinical viewpoint, cerebellar sarcomas were not distinguishable from medulloblastomas and that the distinction of these sarcomas from medulloblastomas, usually on the basis of the stain for reticulin on histopathological examination, was still a debatable point.

The percentage of medulloblastomas in 1,522 gliomas (Montreal Neurological Institute series, 1957) amounted to 6.7 per cent, which is comparable to the percentage in other large series, such as that of Ringertz and Tola who counted 7.06 per cent or 111 medulloblastomas in a total of 1,571 gliomas, or Christensen’s series of 4.8 per cent or 93 medulloblastomas in a total of 1,928 gliomas (Fig. 1).

In our series, follow-up was obtained in 128 of the 129 cases reviewed (medulloblastomas and cerebellar sarcomas), i.e. 99.2 per cent; 1 patient returned to her native Norway after operation and was not traceable.

In the medulloblastoma group of 109 cases, 4 patients were not treated and there were 22 postoperative deaths (i.e. patients who died within 1 month following operation).

Of these 22 postoperative deaths, 12 occurred following radical removal, 1 following partial removal and irradiation, 6 partial removal without radiotherapy, 2 were twist-drill biopsies with radiotherapy, and 1 underwent twist-drill biopsy followed by right ventriculoperitoneal shunt.

Of the 88 patients suffering from medulloblastoma and surviving longer than 1 month after operation, 7 had radical removal without radiotherapy, 47 had radical removal with radiotherapy, 7 had partial removal without radiotherapy, 11 had partial removal with radiotherapy, 10 had biopsy followed by radiotherapy, 1 of whom had a biopsy by craniotomy and the other 9, twist-drill biopsies, and 1 patient was treated by ventriculoperitoneal shunt.

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Of the 20 patients with cerebellar sarcoma, 1 was not treated; 1 died within the month following twist-drill biopsy without radiotherapy, thus constituting a postoperative death. Ten had radical removal with radiotherapy, 3 had partial removal without radiation, 2 had twist-drill biopsy with radiotherapy, 1 had laminectomy and removal of secondary deposit of tumour without treatment of the primary lesion which was thought to be a tumour of the 3rd ventricle on ventriculography, but at autopsy turned out to be a cerebellar sarcoma which had seeded through the ventriculoperitoneal shunt into the peritoneal cavity.

Age and Sex Incidence

In the group of medulloblastomas, the highest incidence occurred in patients aged between 5 and 7, with a peak at 6 years of age (Fig. 2).

If the incidence is computed on the basis of decades (Fig. 3), the highest incidence was noted in the first decade with 65 patients, of whom 40 were male and 25 female. In the second decade there were 18 males and 7 females. In the third decade there were 7 males and 6 females, in the fourth decade 3 males and 2 females and 1 male patient was in the 51–60 age group.

In the group of sarcomas (Fig. 4) the highest incidence was in the first and third decades. Contrary to the figures for medulloblastomas, there were more females than males. The youngest patient with sarcoma was a 3-month-old infant who was not operated upon, the tumour being found at autopsy. The oldest patient was a man aged 55 years.

The incidence of males was 67.8 per cent in the group of medulloblastomas, and 40 per cent in the group of sarcomas.

Main Symptoms and Signs

In the groups of medulloblastomas and cerebellar sarcomas the main symptoms and signs are shown in Figs. 5 and 6. It may be seen that vomiting, headache and unsteady gait were the main symptoms in both groups. As far as the objective findings were concerned, the three most important by far were increased intracranial pressure, cerebellar dysfunction and papilloedema. Diplopia, drowsiness and dizziness were of lesser importance. It is interesting to note at this point