transplantation rate of about 80% on the subcutaneous inoculation of trypsinized viable $10^6$ tumor cells. The mice which had rejected the first tumor grafts showed the complete resistance to subsequent challenge of the same dose of the same tumor. The main mechanism of this rejection, however, is probably due to the transplantation immunity. Experiments using inbred animals are now in progress.

**d-9. Classification of Glioma Groups**

**Naoki Kageyama**

*Department of Neurosurgery, Kansai Medical College*

Classification of glioma arranged by Bailey and Cushing in 1926 was based upon histogenesis. After Bailey & Cushing, many scholars reported their own way of classification, which were somehow different each other, but most of them were based upon histogenesis.

Contemporary science shows that mutation, anaplasia, metaplasia, kataplasia of the cells result in tumor formation and brain tumors cannot be of exception. Kernohan and Willis reported their own classification based on the idea that tumors arose from adult cells.

I have seen many histological specimens of brain tumors, (about 1,000 cases at Kyoto University Hospital, about 1,500 cases at Montefiore Hospital in New York and about 200 cases at Kansai Medical College Hospital and others) and tried to design a new classification of glioma groups with background of my own experience of histopathology, tissue culture and electron microscopic study. Our experience of tissue culture of medulloblastoma proved only axon formation and no clear glial cells were found to emigrate at any stage of the culture. Therefore this tumor is to be classified not as a glioma but is to be treated as a neurogenic tumor.

The word “spongioblastoma plare” is inadequate from many reasons. Tumors consisting of cells resembling astroblast, oligodendroblast and ependymoblast seems to be not clear.

Some scholars believe that all of glioblastoma are astrocytic tumors, but I do not believe that glioblastoma is always of astrocytic origin. Some of glioblastoma seems either of ependymal cell origin or of oligodendroglial origin. With electron microscope some glioblastomas are definitely of ependymal origin, in which cilia, desmosome and blepharoblast are observed in tumor cells.

Judging from above-mentioned study a simplified classification of glioma based upon cancer classification is designed as follows: Benign form is consisted of 3 groups in which tumor cells look like normal glial cells. Malignant tumor with cell pattern of unknown origin is classified as glioblastoma. All other glial tumors are classified in between and put a simple word of “malignant” in front.
of the benign form. Therefore “malignant astrocytoma” includes not only astrobloma, anaplastic astrocytoma, some of polar spongioblastoma but also most of so-called glioblastoma. In “malignant ependymoma” all ependymomas with malignant features such as polymorphism, mitotic figure, necrosis are included, and so-called neuroepithelioma are also included in this group.

Discussion to d-9.

**Evidence of Cilia and Concentric Lamellation of Glial Processes in Human Astrocytoma**

Eiichi Tani, Toshio Ametani, Yasuo Kawamura and Hajime Handa

*Department of Neurosurgery Kyoto University Medical School*

Simplification of glioma classification is much better. For example, most of astrocytomas, fibrillary or protoplasmic, have fibrillary, protoplasmic, and gemistocytic astrocytes. In addition, there are transitional or intermediate forms of three classes of astrocytes in most tumors.

Specimens shown here were taken from an astrocytoma in the subcortical area of the temporal lobe on the right side. The presence of cilia has been reported in the cells of ependymoma and colloid cyst. Single cilia are evident in