Conclusion

In spite of variety of the biological characteristics of the original tumors, the parameters of dose-survival relation were not different from each other in all the cell lines examined.

Radiosensitivity was enhanced by oxygen three times as much in oxygenated condition as in anoxic condition with exception of HeLa cell.

A-74. Studies on the Craniopharyngioma in Tissue Culture

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In the course of studying characteristics of various brain tumors in tissue culture, it was found that craniopharyngiomas showed a unique growth pattern, different from other brain tumors including glioma. Since the literatures on the tissue culture of craniopharyngioma have been scant, probably due its difficulty of *in vitro* propagation, the present report concerned some *in vitro* growth pattern of this epithelial tumor.

The biopsied materials were cut into small fragments, about 1–2 mm in diameter, and directly cultured at 37°C in 199 medium containing 10% calf serum, 100 units/ml penicillin and 100 μg/ml dihydrostreptomycin. Medium was changed every three days.

By this simple method, six tumors out of nine different cases were successfully cultured. Four to five days after putting into a glass bottle, monolayer sheet developed from each fragment, extending out in eccentric directions from the center.

The cells of the monolayer sheet have a polygonal, rich cytoplasm and an oval nuthe cleus, and tightly contacted each other. In marginal zone, the cells with an extremely large cytoplasm and acellular circular spaces were frequently seen. Free margin of the cell sheets was always sharp without scattered cell around them.

Under electronmicroscope (monolayer embedding method), abundant desmosomes as well as tonofilaments could be seen as in cases of the original tumors.

On the other hand, under scanning electronmicroscope, cell surface of this cultured cell was relatively smooth.

From these findings, it was concluded that the cultured cells in the monolayer sheets originated mostly in the epithelial cells of craniopharyngioma but not in glial cells or fibrocytes.

The growth rate of the epithelial cell sheets could be estimated by measuring the area of the cell sheets. During initial ten days, most sheets became two to five times in area and grew gradually during 30 to 40 days, until the diameter of sheets became five to fifteen mm. Thereafter, they were not enlarged but survived for 150 to 430 days.

As far as examined, *in vitro* propagation of cells seemed independent from whether or not the patients received previous irradiation or administration of chemotherapeutants such as bleomycin. In addition, it seemed also likely that trypsin digestion was inadequate for long-term proliferation of cells.

Anyway, cultured craniopharyngiomas may be useful for studying their distinct characteristics from various angles including screening of effect of chemotherapeutants.

A-75. Cytology of the Cerebrospinal Fluid
A simple method using cell-culture technique

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In order to alleviate the technical difficulties involved in the identification of tumor cells in the cerebrospinal fluid, the authors have developed a simple method using cell-culture technique. A mixture of about 3 ml of CSF with equivalent amount of culture medium was incubated at 37°C stationarily in two Leighton tubes containing a cover slip. Culture medium, HAM-F12 (Nissan) supplemented with 20% fetal calf serum, was used.