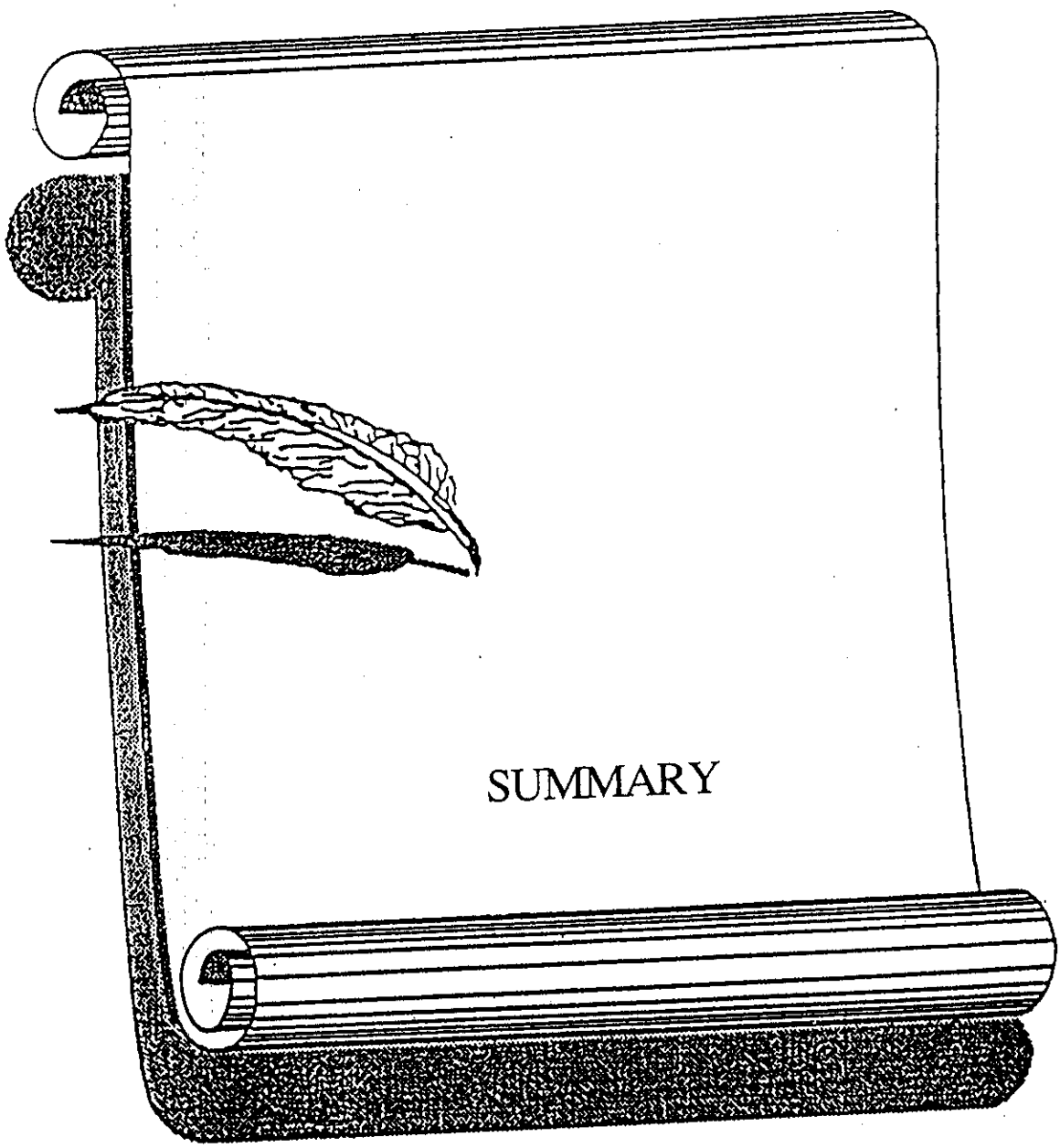

SUMMARY

Cell proliferation is a fundamental biological process and its direct or indirect assessment is essential to the practice of histopathology . (Hall et al , 1988) .

In this work , the first aim was to study the histopathological features in gliomas and evaluation of the usefulness of the monoclonal antibody Ki-67 which is one of the proliferating cell markers in diagnosis of intracranial gliomas = (and whether it can add useful additional information for histopathological grading which , by supplementing and refining the traditional WHO grading system , might lead to a better assessment of the biological behavior of intracranial gliomas .

The second aim of this work was demonstration of T lymphocytic and natural killer cellular infiltrates in gliomas , as a possible immunological response , and attempts to correlate this response with survival through a follow up of 25 months .

The third point of aim was microspectrophotometric study for detection of DNA content of these tumors and research for its possible benefit for diagnosis as well as prognosis of these tumors .

- A fresh biopsies were obtained from brain tumors in the neurosurgery department of Kasr El Einy hospital Cairo University

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during open craniotomy from January to November 1991.

These tissue biopsies were divided into 2 parts , one was fixed in formaline , embedded in paraffin and the blocks were prepared , then 2 slides 4-6 um were obtained , one for the routine Hematoxylin and eosin stain for study of histopathological diagnosis and different criteria encountered in this study which were:

1- Cellular density scored from + : ++++ , and cell type divided as small uniform rounded to oval astrocytes - small anaplastic astrocytes, large bizarre and gemistocytic cells .

2- Vascular changes in the form of increased vascularity , hyalinization of blood vessel wall , endothelial proliferation , thrombosis and pseudoglomeruli .

3- Degenerative changes in the form of necrosis (coagulative and liquifactive necrosis and extent) , pseudopalisading and micro cysts with or without proteinious material .

4- Mitotic activity through detection of a mitotic count per 10 high power fields .

5- Cellular and stromal features in the form of multinucleation, gemistocytes and fibrosis .

The Second slide from paraffin blocks was stained with feulgen for detection of DNA content using the microspecterophotometer .

The second portion of the fresh tissue biopsies were frozen immediately, cryostat sections 4- 5 um were obtained and exposed to immunohistochemical staining with the monoclonal antibody Ki-67 as well as lymphocytic and natural killer cell markers , using the

direct peroxidase anti peroxidase technique (PAP) and then counter stained with hematoxylin and examined under light microscope .

The Ki-67 labelling index was calculated in a percent values , while the lymphocytic and natural killer cell infiltrates were recorded according to the density from mild to heavy infiltrates (+ : +++).

After these procedures , a statistical analysis with ANOVA method was done for a correlation between all these items and also with disease free survival to show positive data which could be useful in the aim of this work .

The results of this study revealed that :-

1- The forty cases with intracranial gliomas were classified according to WHO classification and were as follow , 3 cases diagnosed as astrocytoma grade I , 14 cases were astrocytoma grade II , 15 cases were astrocytoma grade III , 3 cases were glioblastoma multiformes , one case from all these types of tumors , ependymoma grade III , medulloblastoma , gliosarcoma, oligodendroglioma and choroid plexus papilloma .

2- The histopathological features studied revealed that : The low grade gliomas (I , II) showed mild to moderate cellular density , uniform rounded to oval neoplastic astrocytes , absence of necrosis and other degenerative changes except in individual cases in low grade gliomas , there is minimal vascular changes observed .

The mitotic count in low grade gliomas was less than 5/10 high power fields .

The high grade gliomas revealed by histopathological examination dense cellularity , predominance of small anaplastic astrocytes , presence of more than one type of cells , (large bizarre and gemistocytic cells) , high percent of cases showed extensive necrosis pseudopalisading , high mitotic count (more than 5/10 high power fields), increased vascularity , hyalinization , endothelial proliferation , thrombosis , and pseudoglomerular formation .

3- The labelling index of the monoclonal antibody Ki-67 was varied from one type and grade of gliomas to other , also it was high in high grade gliomas (grade III and IV) than in low grade gliomas (I and II) (15.56% ± 12.20% versus 1.55% ± 1.0%) $P < 0.0001$, which was of highly statistically significance.

4- The monoclonal antibody Ki-67 was correlated with most of the histopathological features studied in this work (Cellular density and type of neoplastic astrocytes , mitosis and multinucleation , necrosis , and vascular changes) .

5- The presence of { T } lymphocytic infiltrates (helper and suppressor subpopulations) in gliomas with heavy density in high grade tumor than in low grade .

6- Predominance of suppressor / cytotoxic T lymphocytes in high grade glioma .

7- Detection of natural killer cells in a small number of tumors (4 cases only , 10%)

8- A significant correlation between Ki-67 labelling index and lymphocytic infiltrates .

9- The cytophotometric study revealed :-

a) The histogram drawn for the normal samples showed a single peak within the 2C limits without polyploid cells , which are defined as cells distributed beyond the 4C region .

b) The data showed that not only malignant but also high proportion of benign gliomas are aneuploid , but the tetraploid aneuploidy was predominant in high grade tumors .

10- The statistical analysis revealed that there is no direct significant correlation between DNA and lymphocytic infiltration on one side and disease free survival on the other side .

But in another way an indirect correlation between these variables could be detected .