UTTAR PRADESH JOURNAL OF ZOOLOGY

42(24): 159-164, 2021
ISSN: 0256-971X (P)

CENTRAL NERVOUS SYSTEM NEOPLASMS IDENTIFIED BY HISTOPATHOLOGICAL

V. SRI LAKSHMI PRIYA [a] AND J. PRIYADHARISINI [a*]

[a] Department of Pathology, Sri Lakshmi Narayana Institute of Medical Sciences Affiliated to Bharath Institute of Higher Education and Research, Chennai, Tamil Nadu, India.

AUTHORS' CONTRIBUTIONS

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

Article Information

Editor(s):
(1) Dr. Juan Carlos Troiano, Professor, University of Buenos Aires, Argentina.
Reviewers:
(1) Kabyik Goldar, Teerthanker Mahaveer University, India.
(2) K.P.Indira, India.
(3) Pushpendra Kumar, National Institute of Technology, India.

Received: 05 October 2021
Accepted: 11 December 2021
Published: 13 December 2021

Short Communication

ABSTRACT

The brain, spinal cord and meninges make the central nervous system and mde up of specialized neuron cells. They are the cause for transmission and storage of information. The lesions in intracranial space cause significant proportion of mortality worldwide. Those lesions are said to be anatomical lesions and severely affect the inner body systems and most of the patients were unaware until the stages reach its crust, fatal. The present study aimed to use advanced radiological methods for finding out such kind of anatomical lesions.

Keywords: Central nervous system; neuroglia cells; glial cells; neurons.

1. INTRODUCTION

The nervous system is broadly classified in to central and peripheral nervous system. The central nervous component consists of spine, brain and meninges. Two types of specialized cells were making up tit namely, nervous and glial cells. [1 - 3]. The tumor arising in those organs are severely fatal and without cure at most circumstances. Central Brain Tumor Registry of United States (CBTRUS) estimated its occurrence was 28 out of 100,000 persons. These brain tumors are the most important cause for death in children next to leukemia. Among them, medullablastoma, play a prominent prevalence in children and it cause remains uncertain. The radiation, metal industries and the familial history play an important role for causing the brain tumors [4, 7, and 8]. Though the sophisticated radiological investigations are available, those brain tumors remain as a challenge for diagnosing and curing. The diagnosis majorly depends on the imaging and supported by the histological examination of the tissue biopsy [5-11].

2. MATERIALS AND METHODS

The specimen was fixed with 10% formalin and the

**Corresponding author: Email: priyadharsini158@gmail.com;*

sections were stained with haematoxylin and eosin method. Among the 95 cases, 49 cases showed the presence of astrocytoma and 19 were meningioma.

3. PRESENTATION OF SYMPTOMS IN CNS TUMORS

The results showed the majority of the participants were headache (43%) Seizures (19%) and hemiparesis (12%). The frontal lobe was the common site and the parietal and temporal lobe were followed respectively (chart – 5). The radio logically Low grade glioma was classified and appeared without enhancement. It was found with the hemorrhage, necrosis and irregular margins. Hence radiology and histopathology was very useful in detecting the CNS neoplasms. CNS neoplasms. (52% cases were with astrocytomas and 8% was with Pilocytic astrocytoma (Fig. 1). 13% was with grade II tumors. Five cases were found with eosinophilia cytoplasm and nuclei pushed (Fig. 2). The results showed that 26% were from grade III astrocytoma's with fibrillary stromal (Fig. 3).

The mesenchyme component was stained with the Reticulum stain and showed the individual tumor cells. (Fig. 7).

3.1 Pilocytic Astrocytoma Grade I

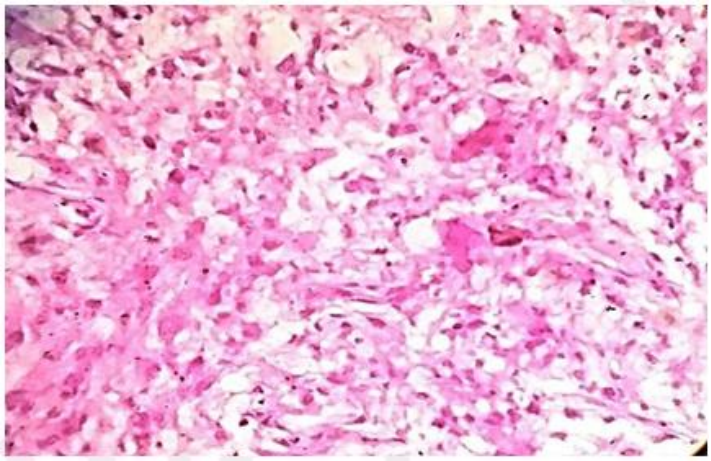

Fig. 1. Pilocytic Astrocytoma as seen with the Rosenthal fibers and the network of hair like structures (H&E.400X)

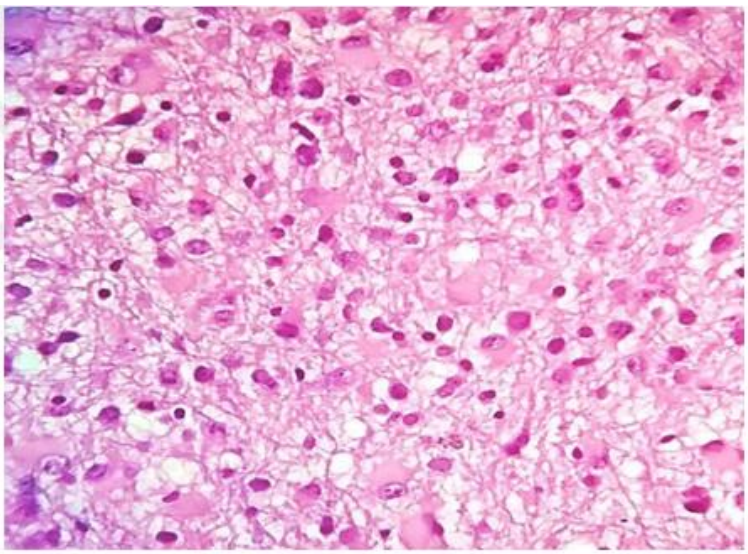

Fig. 2. Grade II - Gemistocytic Astrocytoma (H&E. 400X). The eosinophilia cytoplasm and the associated eccentrically nucleus were also seen

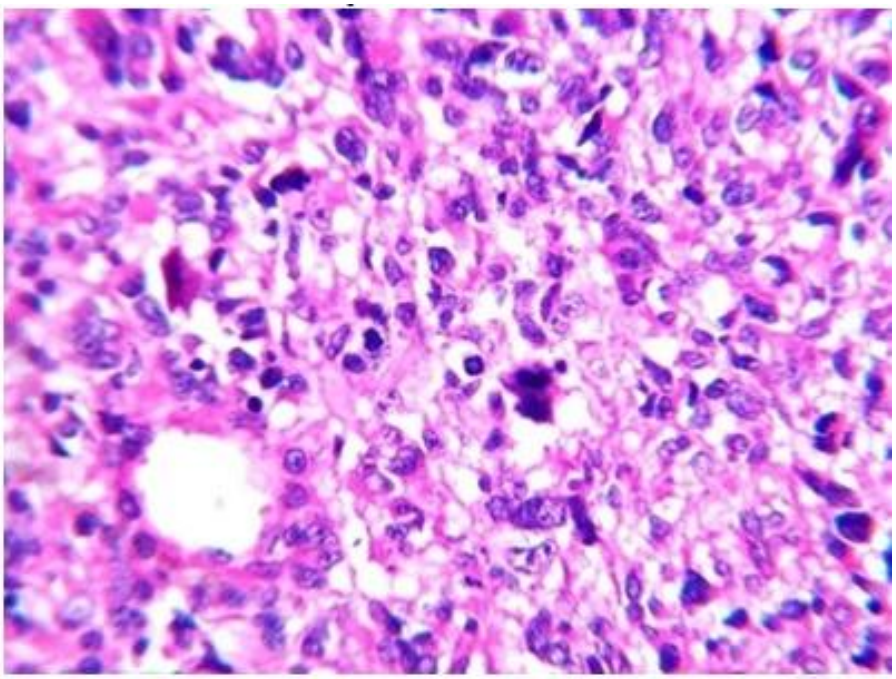

Fig. 3. Astrocytoma Grade III (with the cellular neoplasm and pleomorphic nuclei on mitosis stage, H&E 400X)

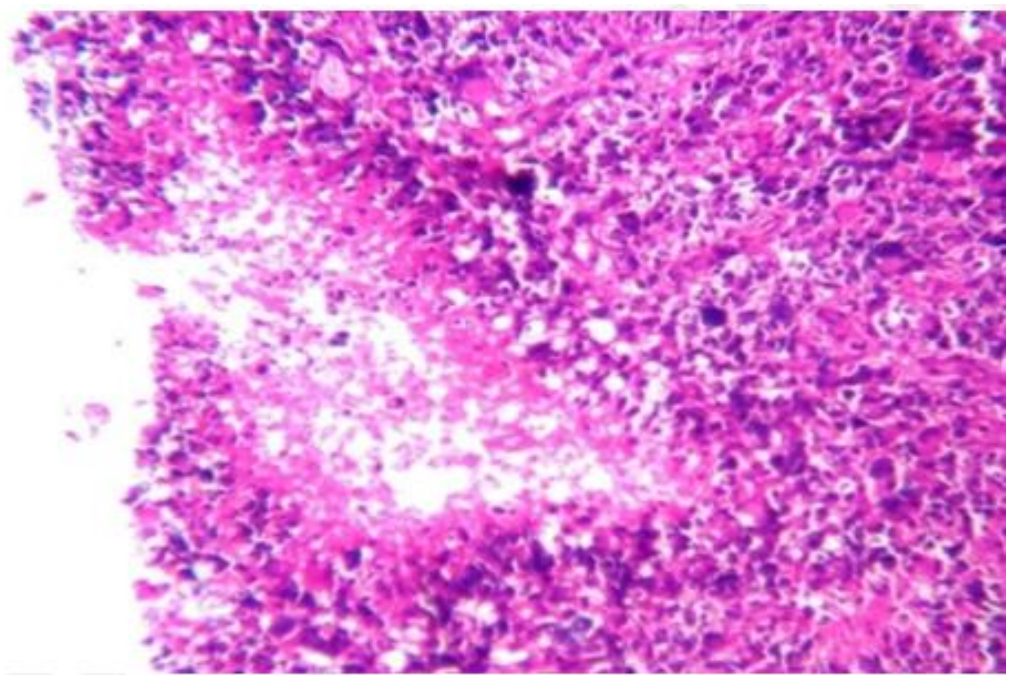

Fig. 4. Astrocytoma grade IV- Glioblastoma multiform (Necrosis at the central area with the pseudo palisading necrosis, H&E.100x)

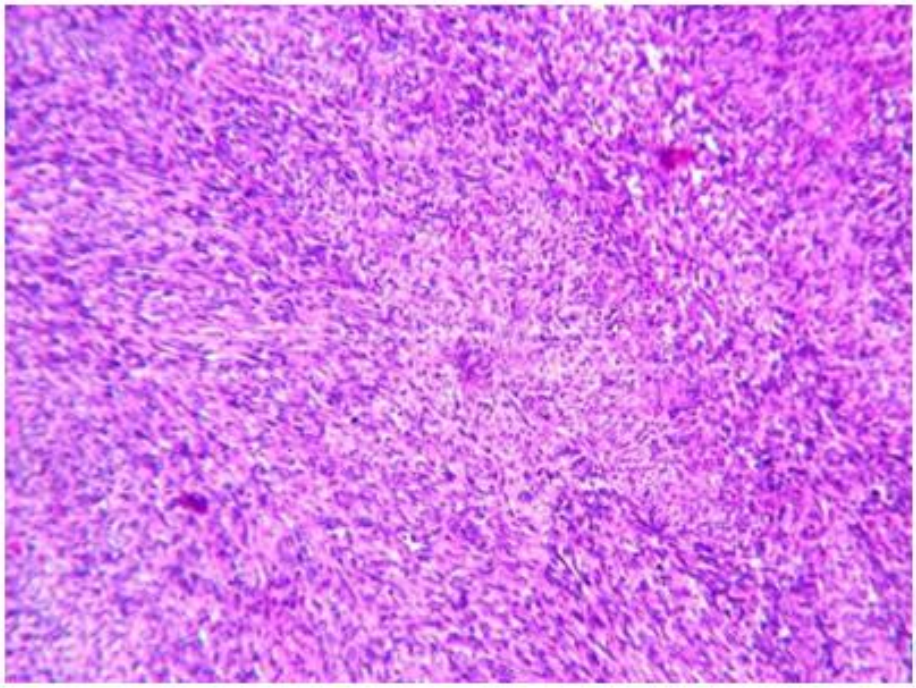

Fig. 5. Gliosarcoma (with spindle cell and glial component, H&E 100X

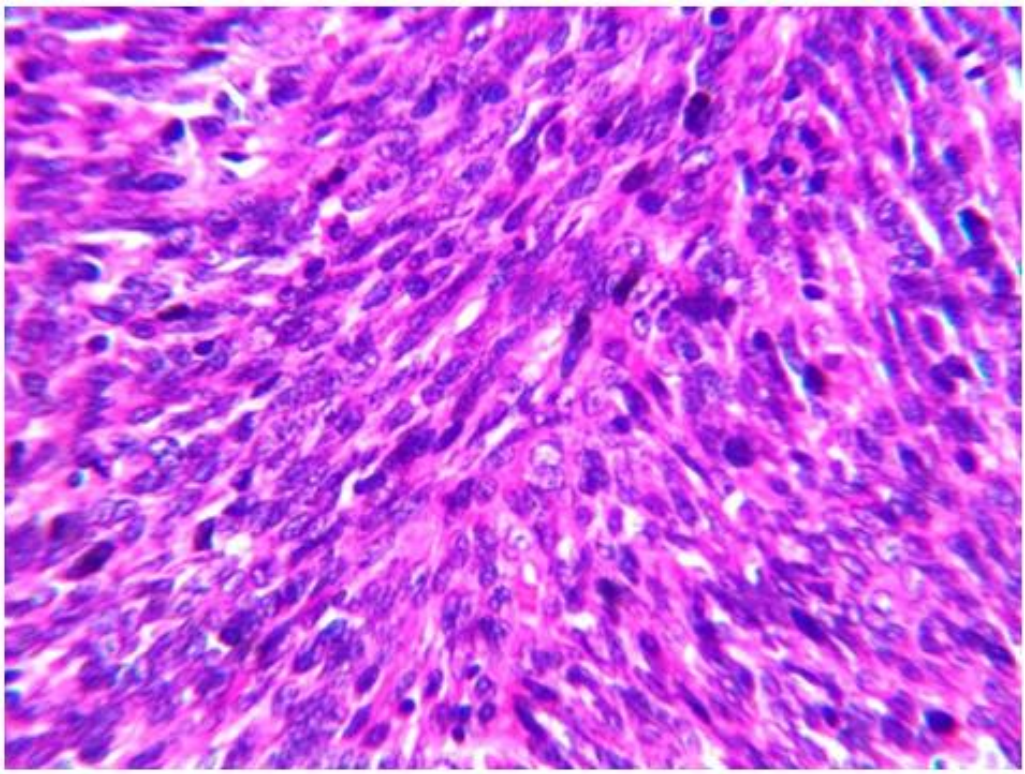

Fig. 6. Pleomorphic spindle cells and hyper chromatic nuclei, H&E-400 X)

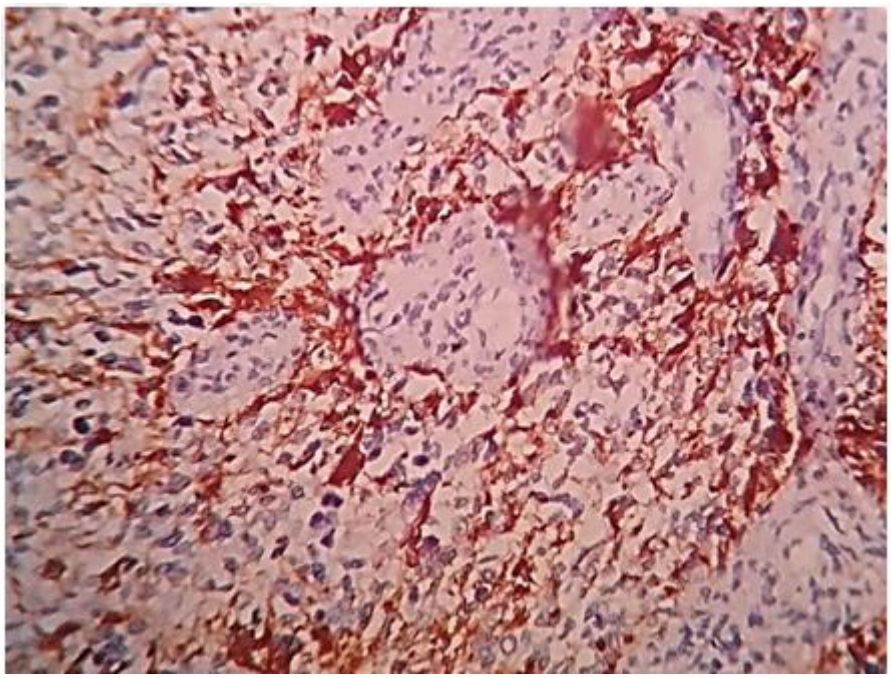

Fig. 7. Gliosarcoma (400X)

The present study showed that the astrocytomas were very common in male patients (65%) than females (35%). Previously, Das et al [4] and Intisar et al [4] also reported the higher prevalence among the male than the females. Ron Moan et al showed that the brain tumors are multi factorial spanning through the family and environmental histories. Incidence of childhood brain tumors are compared with other studies.

4. CONCLUSION

The present study showed that the radiological examination is necessary for the efficient examination for diagnosing the brain tumors.

ETHICAL APPROVAL

The study was approved by the Institutional Ethics Committee.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Lebrun C, Fontaine D, Ram aioli A, Vandenbos F, Chanalet S, Lonjon M, Michiels J F, Bourg V, Paquis P, Chatel M, Frenay M. Long-term outcome of oligodendrogliomas. Neurology. 2004; 62:1783-1787.
2. Johnson JH Jr et al. Clinicopathological outcome of pediatric gangliogliomas ninety nine cases over 20 years. Pediatric Neurosurg. 1997;2794:203-207.
3. Anadure HN, Ravindra RS, Karnappa AS. Morphological patterns of intracranial lesions in a tertiary care hospital in North Karnataka: A Clinicopathological and Immunohistochemical Study.
4. Tekautz TM, Fuller CE, Blaney S, Fouladi M, Broniscer A, Merchant TE, KrasinM, Dalton J, Hale G, Kun LE, Wallace D, Gilbertson RJ, Gajjar A. Atypical teratoid/rhabdoid tumors (ATRT): improved survival in children 3 years of age and older with radiation therapy and high-dose alkylator-based chemotherapy. J Clin Oncol. 2005;23:1491-1499.
5. Ashru K. Banerjee., Bhawani S, Sharma. Gliosarcoma with cartilage formation. Cancer. 1989;63:518 -523.
6. Bancroft's Theory and practice of Histological techniq ues, Seventh edition, Elsevier. 210-212.
7. Kudo H, Oi S, Tamaki N, Nishida Y, Matsumoto S; 1990. Childs Nerv Syst. Nov; 6(7):375-8.
8. Ohgaki H, Dessen P, JourdeB, Horstmann S, Nishikawa T, Di Patre PL, Burkhard C, Schuler D, Probst-Hensch NM, Maiorka PC,

Baeza N, Pisani P, Yonekawa Y, Yasargil MG, Lutolf UM, Kleihues P. Genetic pathways to glioblastoma: a population-based study. Cancer Res. 2004;64:6892 - 6899.

9. Ependymoma diagnosed in the first year of life in Japan in collaboration with the International Society for Pediatric Neurosurgery. Childs Nerv Syst. 6: 375-378.
10. Lagerwaard FJ et al. Identification of prognostic factors in patients with brain metastasis: review of 1292 pat ients. J Radiation oncol Biol Psys. 1999;43(4):795-803.
11. Meenakshi Sundarm K, Uma Devi, Manivannan, Rajakumar, In Silico Discovery of Seaweed Molecules againstMatrixmetalloproteinase-26 accepted in Journal of Advanced Bioinformatics Applications and Research, J. Adv. Bioinfo. Res. 2015:6(2):52-61.