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Original Research Paper

Oncopathology

PRIMARY GERMINOMA OF OPTIC CHIASMA: ROLE OF FROZEN SECTION

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ABSTRACT Primary CNS germinoma is rare. We present an unusual case occurring in an adolescent female involving optic chiasma.

KEYWORDS : Germinoma, Primary, Optic Chiasm, Female

INTRODUCTION

CNS germ cell tumors can be primary or secondary. Frozen section is a valuable diagnostic tool.

Case Study

A 14-year-old female presented with headache and diminished vision for 2 months. Radio imaging showed a mass suggestive of glioma. (Figure 1)

The frozen section showed dual cell population suggesting germ cell tumor. (Figure 2a, 2b)

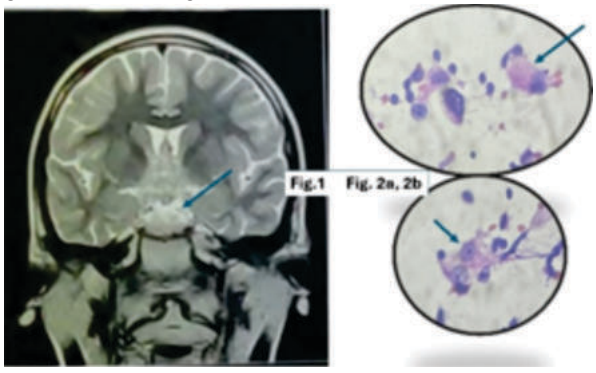

Figure 1: Magnetic resonance imaging shows 2.2 x 2.1 x 2.3 cm contrast enhancing mass in the optic chiasma.
2a,2b: Squash cytology shows large cells with eccentric vesicular nucleus and prominent nucleolus. The background shows lymphocytes

Subtotal resection was done. Histopathology confirmed germinoma. Immunohistochemistry was positive for CD 117 and PLAP, while negative for CD30, GFAP and pan cytokeratin (Figure 3a, b, c).

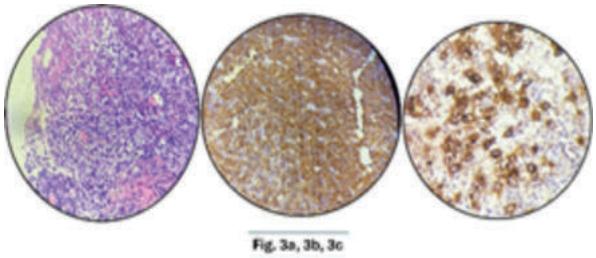

Figure 3a: Photomicrograph shows nests of tumor cells interspersed with mature lymphocytes. Cells have clear cytoplasm, vesicular nuclei and prominent nucleolus. Fig 3b: Diffuse positivity for CD 117. Fig 3c: Membranous positivity for PLAP

No evidence of raised serum LDH/ alpha fetoprotein or β hCG, thus ruling out yolk sac tumor and choriocarcinoma. There was no ovarian mass or prior history of ovarian surgery, thus ruling out ovarian primary.

DISCUSSION

Germ cell tumors are classified as germinoma and non-germinoma. The latter comprises of choriocarcinoma, yolk sac tumor, embryonal tumor and mixed variant. Worse prognosis is observed in females, age > 18 years, choriocarcinoma component with raised β hCG. Chemotherapy with neoadjuvant radiotherapy offers good prognosis. [1]

CNS germ cell tumors originate either from endogenous neural stem cells with overexpression of Oct 2 gene or from aberrant migration of pluripotent germ cells with low DNA methylation. They tend to locate in midline - pineal, suprasellar and basal ganglia.

Optic chiasma germinoma has only 12 cases reported in literature, mostly in males. Newer modalities like platinum-based chemotherapy, gamma knife radiosurgery and dasotinib are promising. [2,3]

CONCLUSIONS

Our case is special since it involved young female and a rare optic chiasma location.

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