Glioblastoma in neurofibromatosis type 1

Glioblastoma in patients with NF1 is rare. Huttner et al. [1] reported that children with NF1 may be at risk of glioblastoma and that the prognosis of glioblastoma in children with NF1 might be better than those without NF1.

A 51-year-old female patient complained of headache and left limb weakness lasting for 20 days. The patient underwent a cesarean section 20 years ago and hysterectomy 1 year ago because of uterine leiomyomas. Multiple café-au-lait spots and neurofibromas were found over patient's chest, neck, back, and arms. The myodynamia of left distant and proximate epipodite were grade 0 and grade 1 respectively. The myodynamia of lower left limb was grade 3.

Diagnoses: Magnetic resonance imaging revealed a malignant lesion which was most likely a glioblastoma in the right temporo-parietal lobe, approximately 5.6 × 5.9 × 6.9 cm in size with a rounded boundary.

Interventions: A right temporo-parietal craniotomy was performed to resect the space-occupying lesion for gross total removal. Then, the patient received concurrent chemoradiotherapy. Histological examination confirmed a glioblastoma without v-RAF murine sarcoma viral oncogene homolog B1 gene, isocitrate dehydrogenase 1 gene, and telomerase reverse transcriptase gene promoter mutations.

Outcomes: After surgery, the headache was relieved and the muscular strength of left limbs did improve. After receiving the standard treatment regimen, the patient was alive at 13 months follow-up.

Lessons: This is the first reported glioblastoma in female neurofibromatosis type 1 patient without v-RAF murine sarcoma viral oncogene homolog B1 gene, isocitrate dehydrogenase 1 gene, and telomerase reverse transcriptase gene promoter mutations. Tumors in adult patients with these signatures were less aggressive with well-circumscribed border and had long-term survivals which strengthened the evidence that these patients may comprise a unique subset in glioblastoma [2].

1)
Huttner AJ, Kieran MW, Yao X, Cruz L, Ladner J, Quayle K, Goumnerova LC, Irons MB, Ullrich NJ. Clinicopathologic study of glioblastoma in children with neurofibromatosis type 1. Pediatr Blood Cancer. 2010 Jul 1;54(7):890-6. doi: 10.1002/pbc.22462. PMID: 20310005.
2)
Cai JW, Chen XY, Chen JY, Wu ZY, Wu XY, Yu LH, You HH. Glioblastoma in a female neurofibromatosis 1 patient without IDH1, BRAF V600E, and TERT promoter mutations: A case report. Medicine (Baltimore). 2021 Apr 2;100(13):e25346. doi: 10.1097/MD.0000000000025346. PMID: 33787635; PMCID: PMC8021349.