

Gliomas and nephrotic syndrome: Coincidental comorbidity or pathogenic association?

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A 20-year-old male was diagnosed with an intracranial lesion measuring 45mm*54.5mm*45.4mm due to intermittent headache and dizziness lasting for more than two weeks. He has a history of vitiligo and nephrotic syndrome (NS), confirmed as minimal change disease. Leflunomide and Methylprednisolone were taken regularly but exhibited poorly controlled hypoalbuminemia and proteinuria. Physical examination revealed Romberg Sign, pretibial edema, and laboratory results, including total protein at 37 g/L, albumin at 17.5 g/L, triglycerides at 3.52 mmol/L, cholesterol at 12.52 mmol/L, and urine protein (+++). Additionally, CT and MRI revealed a mass in the cerebellar vermis (Figure 1, Panels A-D). Postoperatively, the pathology indicated pilocytic astrocytoma, with Ki67(2%~5%), GFAP(+) and Olig-2(+) (Figure 1, Panels E-H). However, at discharge, there was no significant improvement in the NS. In the follow-up, the patient noted improvement in renal and edema symptoms, but details are unclear as the patient did not return for further examinations at our facility.

The occurrence of NS combined with tumors is relatively rare. Inappropriate treatment for either condition may lead to renal deterioration or tumor recurrence, resulting in a poor prognosis. Understanding the unique pathophysiology of this coexisting condition aids in formulating effective strategies to enhance treatment. In such cases, renal pathology is predominantly membranous nephropathy, and the primary tumor is often lung cancer, prostate cancer, or gastric cancer. No literature reports of NS combined with CNS tumors have been found. For the mechanism of this comorbidity, one possible explanation is that primary glomerulopathy promotes the development of tumors, which may relate to chronic inflammation and immune dysfunction.¹ Renal damage caused by immunosuppressive therapy is another factor to be considered. Other reasons, such as paraneoplastic glomerulopathy or merely a coincidence, should be differentiated. In vitiligo, a concurrent occurrence with tumors is typically rare. The increased self-reactive CD8+ T cells and IFN- γ may help attack tumors, suggesting that

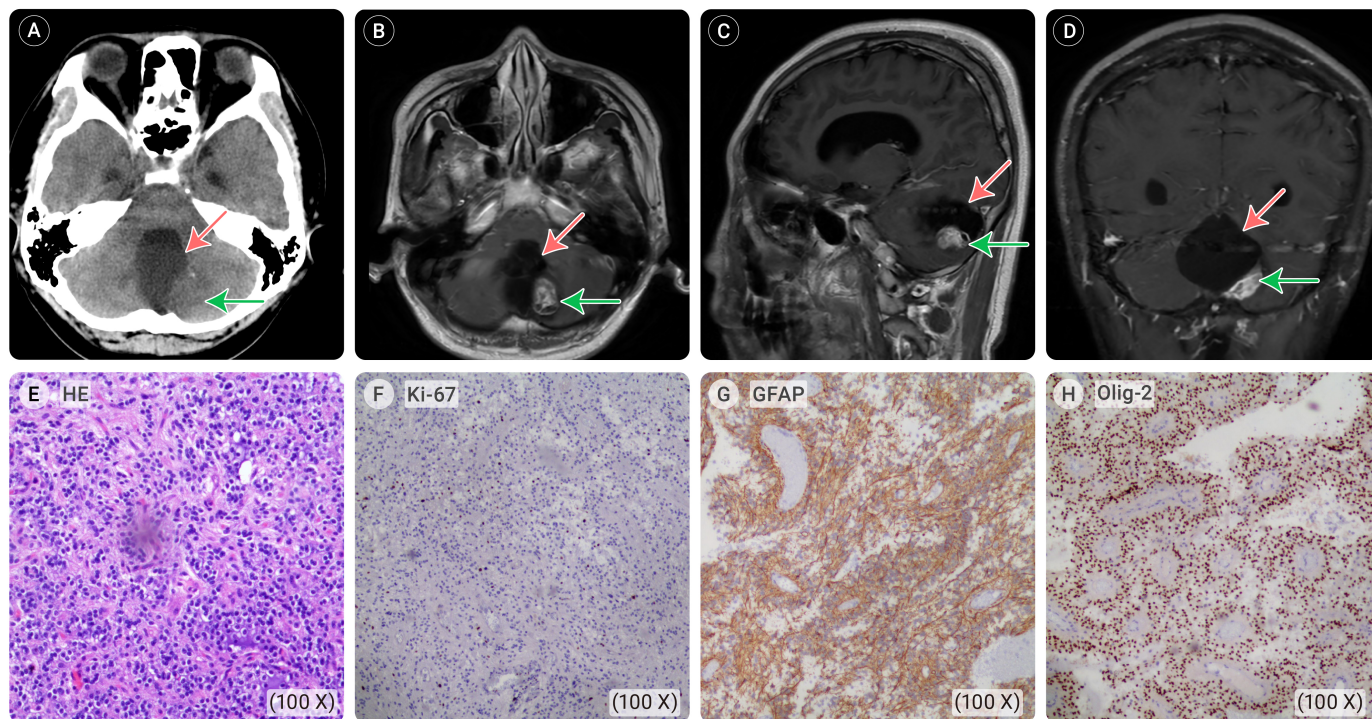


Figure 1. The radiological and pathological findings of the tumor (A-D) Shows preoperative CT and MRI scan, The red arrow indicates the cystic cavity of the tumor, while the green arrow points to the solid nodule of the tumor. (E-H) illustrates the pathological results of the pilocytic astrocytoma.

enhanced immune surveillance can suppress oncogenesis.² However, the odds of some other autoimmune diseases developing malignant tumors are higher than that of the masses,³ potentially attributed to the chronic systemic inflammatory response and the immunosuppressive therapy or TNF inhibitors that enhance carcinogenesis. In this case, the patient's renal status demonstrated amelioration after tumor resection to some extent. It is posited that the emergence of NS may be attributable to the presence of a brain tumor or, at the very least, may be associated with certain intrinsic relationships with the carcinoma. However, elucidating the precise mechanisms necessitates subsequent detailed follow-up and further in-depth research.

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DECLARATION OF INTERESTS

The authors declare no competing interests.