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Letter to Editor

A rare adult case of H3K27M mutation diffuse midline glioma in the dorsal medulla oblongata: Imaging findings

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Dear editor,

Across all midline neoplasm locales, H3 K27M-altered diffuse midline glioma (DMG) has a considerably poorer prognosis that is only about nine months.[1–5] The characteristics of this neoplasm entity are mostly astrocytic differentiation, K27M mutation in either H3F3A/-HIST1H3B/C and mainly manifests in the thalamus, pontine, and spinal regions, all of which are complex surgical treatment sites.[2–5] Recording to past reports, the identical H3 K27M mutation has been observed in certain neoplasms that are different glioma types. The prognostic effect of H3 K27M mutations in these additional malignancies is, however, little understood. So, the term DMG with H3 K27M-altered is only supposed to be used to refer to H3 K27Mmutant neoplasm which is invasive growth glioma on the midline structure.[3,5] As previously stated, adult instances of H3 K27M-altered DMGS are very uncommon and are mostly observed in children.[1–5] Here, we share an adult female case.

A 52-year-old female displayed 3-month headaches aggravated for a month and visited our hospital. Physical examination showed the positive for fast alternating movements, heel-knee-shin experiment, and Romberg Sign.

Then, she completed a brain magnetic resonance imaging (MRI) and showed a cystic and solid mass, about 26.6 × 10.2 × 16.2 mm, in the dorsal medulla oblongata, which the substantial component was hypointense on T1-weighted imaging (T1WI) and hyperintense on T2-weighted imaging (T2WI) (Fig. .1A–C). In addition, the solid component of the mass showed an irregular and annular enhancement (Fig. .1D–F). In conclusion, the radiological findings suggested as ependymoma.

The patient underwent a total resection craniotomy surgery through the centre of the posterior occipital. Gross appearance showed a grayish-white and grayish-red mass (Fig. 1 G), and the fragments of it were sent for histological examination about 1.5 × 1.5 × 0.3 cm in size. Histopathology revealed that the tumor showed glial proliferation, increased nuclear density with atypia, vascular hyperplasia and local palisade-like arrangement of tumor cells, consistent with glioma (Fig. .1H–I).[2–5] The tumor cells' immunohistochemical labeling revealed that they were positive for GFAP and only weakly positive for olig-2, ARTX, Ki67, and MGMT, and demonstrated a diffuse midline glioma with H3 K27M-altered corresponding to WHO grade 4[2–5].

As is well-known, H3 K27M-altered DMG usually have a poor prognosis, and some researchers consider that the prognosis may correlate with the texture of neoplasm.[4] Notably, the diagnosis of H3 K27M-altered DMG is based on immunohistochemical analysis. Early and accurate recognition of H3K27M-altered is crucial to elect treatment options.[5] In conclusion, our case suggests that H3 K27M-altered should be universal testing in midline gliomas. Radiologists and clinicians should raise awareness of H3 K27M mutation DMG.

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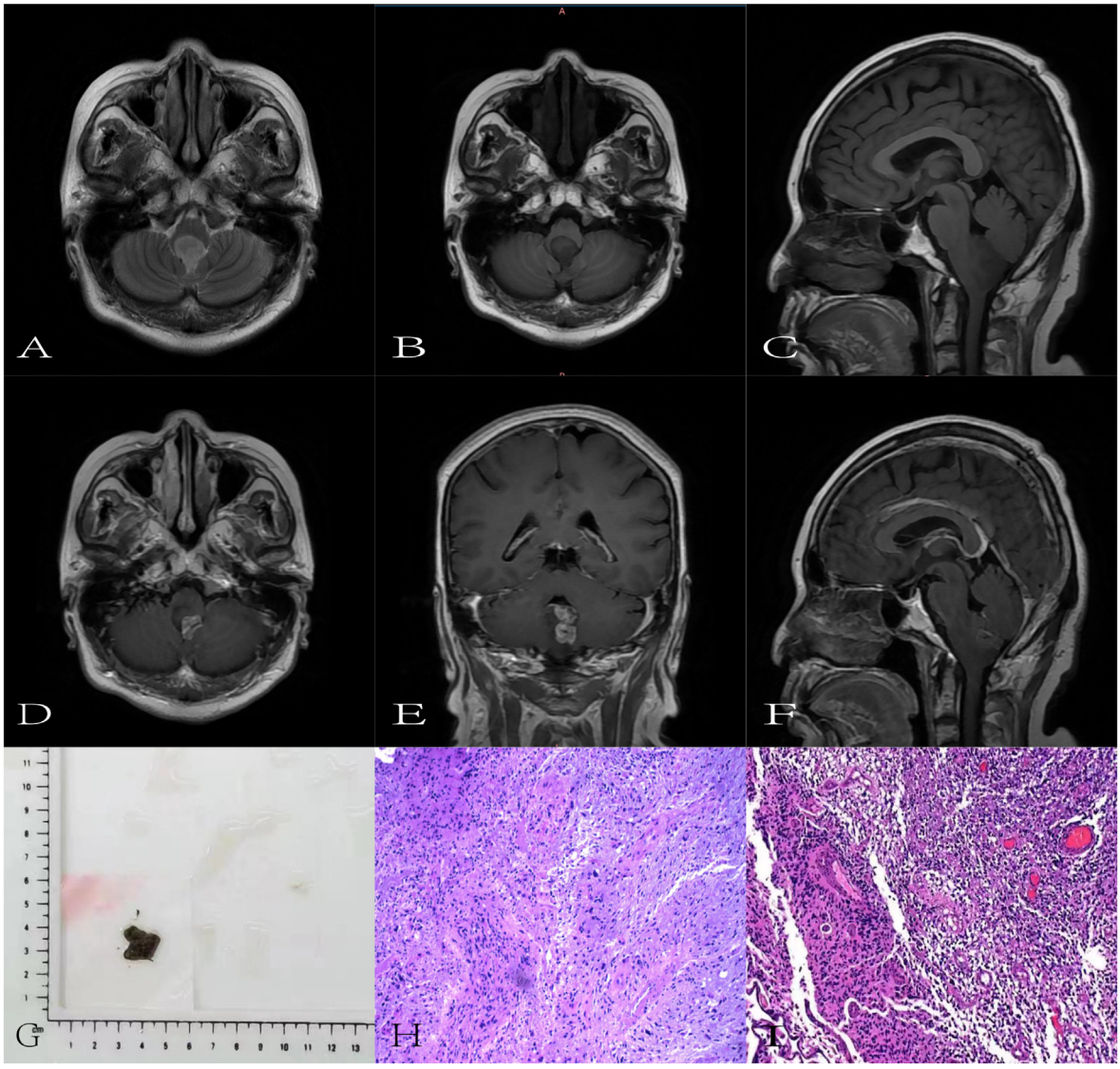

Fig. 1. (A and B) Axial brain MRI without contrast showing a solid lesion (hypointense in T1 and hyperintense in T2) with cystic component in the dorsal medulla oblongata (C) Sagittal T1-weighed images reveal the tumor infiltrative growth into the medulla oblongata (D) Axial contrast-enhanced T1-weighted image (E–F) Sagittal and Coronal contrast-enhanced T1-weighted image. The contrast-enhanced images demonstrate the solid lesion was irregular and annular enhancement, and the cystic was not-enhancement. It measures 26.6 × 10.2 × 16.2 mm in anteroposterior, transverse, and craniocaudal diameters (G) Gross appearance showed a grayish-white and grayish-red mass, and the fragments of it were sent for histological examination about 1.5 × 1.5 × 0.3 cm in size (H–I) Histopathology showed glial proliferation, increased nuclear density with atypia, vascular hyperplasia, and local palisade-like arrangement of tumor cells, consistent with glioma.

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Availability of data and materials

Not applicable.

Ethics approval and consent to participate

This study was approved by the patient and pass the ethical review.

Declaration of competing interest

The authors declare that they have no competing interest.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.asjsur.2023.07.139.

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