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Spinal Diffuse Midline Glioma *H3 K27M*-Altered: Report of a Rare Tumor with Extracranial Skeletal Metastases and Review of Literature

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Abstract

Diffuse midline glioma, *H3 K27*-altered is a rare and aggressive pediatric brain tumor with a grim prognosis. Diffuse midline glioma is characterized by specific molecular alterations, including *H3 K27* mutations, and involves deep midline structures such as the brainstem, cerebellum, spinal cord, and thalamus. These tumors present with a classic triad of symptoms and have limited surgical options due to their challenging locations. Extra-neural metastases are an unusual occurrence in diffuse midline glioma and have been rarely described. Here we report a 17-year-old girl with spinal diffuse midline glioma, *H3 K27M-mutant,* who presented with multiple metastatic osseous lesions confirmed on biopsy of the thoracic vertebral lesion. Due to the rapid disease progression, the patient was recommended palliative therapy. Extra-neural metastases in diffuse midline glioma are rare, with only 16 reported patients, and no standard therapy exists. An accurate and early diagnosis is necessary to develop a personalized plan of treatment. Further research is needed to gain insights into the molecular pathology of diffuse midline glioma, *H3 K27*-altered, and improve the quality of life and the outcome of patients with this deadly disease.

Keywords: H3 K27; diffuse midline glioma; metastases; pediatric.