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# A case of a pilocytic astrocytoma with histological features of anaplasia and unprecedented genetic alterations

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## Abstract

We report a case of pediatric glioma with uncommon imaging, morphological, and genetic features. A one-year-old boy incidentally presented with a tumor in the fourth ventricle. The tumor was completely resected surgically and investigated pathologically. The mostly circumscribed tumor had piloid features but primitive and anaplastic histology, such as increasing cellularity and mitosis. The Ki-67 staining index was 25% at the hotspot. KIAA1549::BRAF fusion and KIAA1549 partial deletions were detected by direct PCR, supported by Sanger sequencing. To the best of our knowledge, this is the first report of a glioma with both deletion of KIAA1549 p.P1771\_P1899 and fusion of KIAA1549::BRAF. The tumor could not be classified using DNA methylome analysis. The present tumor fell into the category of pilocytic astrocytoma with histological features of anaplasia (aPA). Further studies are needed to establish pediatric aPA.

**Keywords:** KIAA1549::BRAF; anaplastic pilocytic astrocytoma; brain tumor; pathology; pediatric tumor.

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