



# Pleomorphic Xanthoastrocytoma

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**Figure 1:** (Top Left and Top Right) This pleomorphic xanthoastrocytoma (PXA) demonstrates avid enhancement on postcontrast T1-weighted imaging. The nonenhancing cystic components are also evident. The

adjacent enhancing dural thickening (dural tail) is also a variable feature of PXAs. (Bottom) Edema is also variable and can be present, as shown in this axial T2-weighted image.

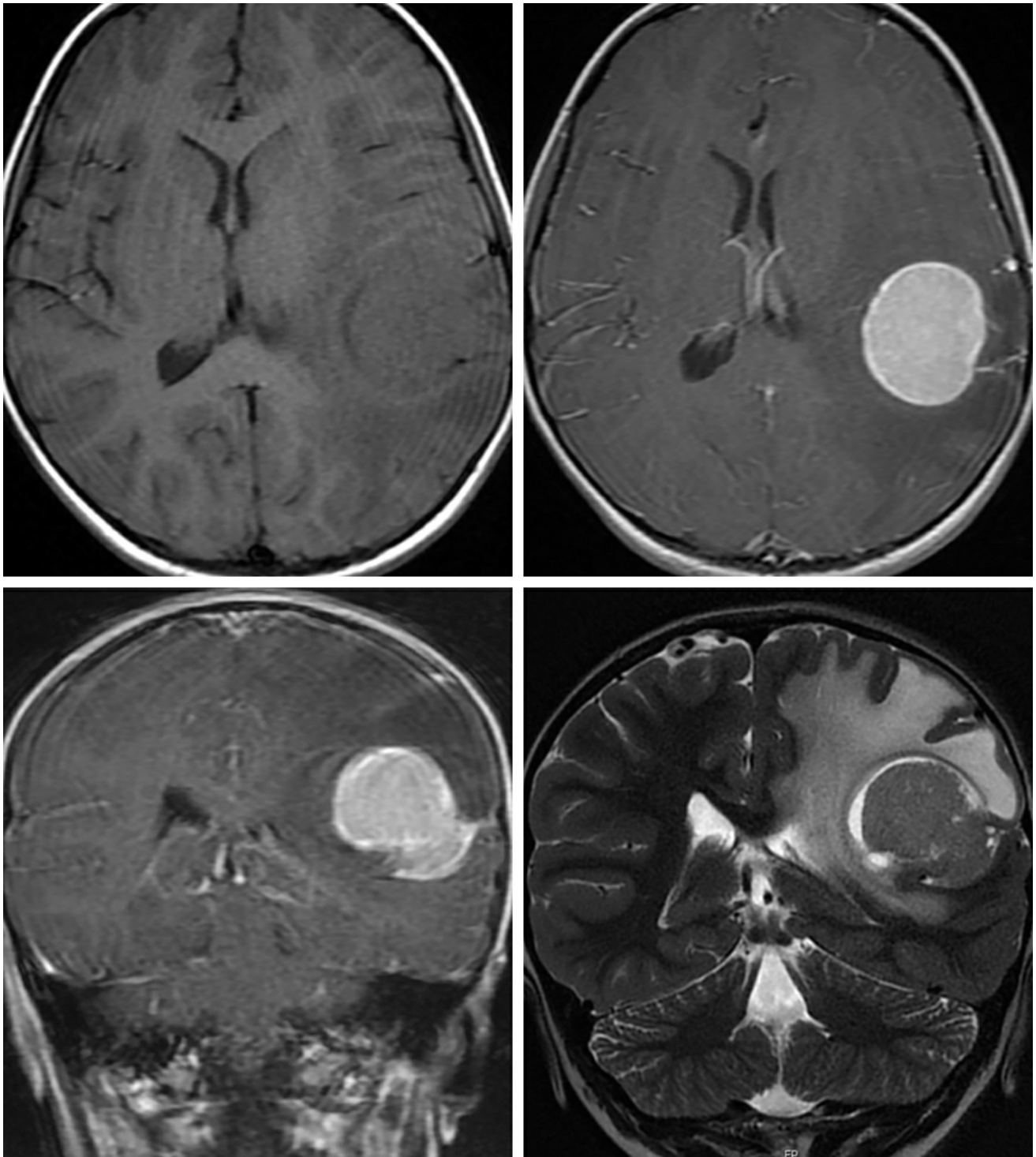


Figure 2: T1-weighted precontrast (top left) and postcontrast (top right [axial] and bottom left [coronal]) images show a brightly enhancing superficial lesion in the left parietal lobe. Although sometimes present, no dural tail is visible in this example of PXA. A cyst or CSF cleft around the mass is clearly visible on coronal T2-weighted imaging (bottom right). The large amount of surrounding hyperintense edema is also more clearly

visible on T2-weighted imaging.

## BASIC DESCRIPTION

- Supratentorial cortical/peripheral astrocytic tumor

## PATHOLOGY

- WHO grade II
- Astrocyte pleomorphism and lipid-containing cells
- Can show anaplastic features (10%–15%)
- Malignant transformation in minority of cases

## CLINICAL FEATURES

- Typically afflicts children and young adults (10–36 years of age; mean, 26 years)
- No gender predilection
- Commonly presents with seizures, often of temporal lobe origin
- Overall good prognosis
  - 10-year survival, 70%
  - Extent of tumor resection and mitotic index are important prognostic factors
  - Younger patient age and BRAF mutations are associated with better prognosis

## IMAGING FEATURES

- General
  - Hemispheric tumor often located peripherally with cortical ± leptomeningeal involvement
  - Temporal lobe > frontoparietal > occipital
  - Classically cystic with solid mural nodule; nodule often abuts pial surface

- Can have enhancing dural tail of leptomeningeal attachment
- Often with infiltration of adjacent parenchyma beyond margin of visible tumor
- ±Adjacent [cortical dysplasia](#)
- CT Imaging
  - Hypodense cystic component; isodense to hyperdense mural nodule or solid components
  - Minimal-to-moderate adjacent edema
  - Calcification and hemorrhage uncommon
  - Strong enhancement of mural nodule/solid components on contrast-enhanced CT imaging
- MRI
  - T1WI: solid component isointense to hypointense to gray matter; cystic component isointense to cerebrospinal fluid (CSF)
  - T2WI: solid component isointense to hypointense to gray matter; cystic component isointense to CSF; minimal-to-moderate surrounding T2-hyperintense vasogenic edema
  - FLAIR: heterogeneous signal intensity
  - DWI: solid components can show diffusion restriction
  - T1WI+C: generally strong enhancement; sometimes enhancing dural tail/leptomeninges

## IMAGING RECOMMENDATIONS

- MRI with contrast, including coronal images for temporal lobe evaluation

For more information, please see the corresponding chapter in [Radiopaedia](#).

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