

ASTROCYTOMA, IDH-Mutant:

↳ isocitrate dehydrogenase:

→ It is a diffusely infiltrating IDH1 - IDH2 mutant glioma that arises from astrocytes.

site → supratentorial compartment near or within frontal lobes.

PATHOGENESIS:

Knock out of IDH1/IDH2 And TP53, ATRX is the molecular mutation in IDH Astrocytoma.

① Driver mutation in IDH → This occurs in gliomagenesis. It favors the development or maintenance of stem cell like state subjected to self Renewal And tumorigenesis.

IDH mutation lead to production of oncometabolite

2-hydroxyglutarate.

② TP53 Mutation → lead to loss of cell cycle control. Lipid to tumorigenesis

③ ATRX Mutation → ATRX gene involved in chromatin Remodeling And telomere maintenance.

MORPHOLOGY

→ Grades:

Grade 2 And 3 → poorly defined gray infiltrate
Grade 4 → infiltrate brain parenchyma with delineated borders.

MICROSCOPY

Grade 2:

→ Mild to Moderate cellularity
→ Neoplastic fibrillary Astrocytes (glial cell)
→ Nuclear features → Recognition of neoplastic Astrocytes principally based on nuclear chromatin pattern

→ Absent mitotic Activity.

→ Fibrillary background

Grade 3

→ More densely cellular, increased nuclear pleomorphism
→ Mitotic Activity.

→ Absence of microvascular proliferation and necrosis
→ All the features present

Glioblastoma is IDH mutant:

↳ diff. Requires testing for IDH mutants

→ Area is ischemic zone or palisading necrosis

DAC → GFAP.