Methanol is a toxic alcohol that can cause optic neuropathy leading to bilateral optic disc edema, which may resemble papilledema but is due to direct toxic injury, not increased intracranial pressure.

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□ Pathophysiology of Methanol Toxicity Methanol is metabolized in the liver by alcohol dehydrogenase to:

Formaldehyde, then to

Formic acid (the main toxic metabolite)

Formic acid inhibits mitochondrial cytochrome oxidase \rightarrow leads to:

Lactic acidosis

Retinal and optic nerve toxicity

CNS depression

Ocular Findings Bilateral optic disc swelling

Decreased visual acuity (may progress to complete blindness)

Central scotomas on visual field testing

Pupils may be sluggish or non-reactive to light

Fundus: hyperemic or pale swollen discs, sometimes hemorrhages

▲ Key Distinguishing Features Feature Methanol Toxicity True Papilledema Cause Toxic optic neuropathy Raised ICP Vision loss Early and profound Mild early, progressive Systemic symptoms Metabolic acidosis, CNS depression Headache, nausea, diplopia Imaging Normal brain/optic nerve (early) May show mass, hydrocephalus, etc. CSF pressure Normal Elevated Fundus May mimic papilledema True disc swelling, often with hemorrhages []* Management Fomepizole or ethanol (inhibit alcohol dehydrogenase)

Hemodialysis (removes methanol and formic acid)

Bicarbonate (for acidosis)

Folate (enhances formate metabolism)

Supportive care and ophthalmology consultation

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