

H₂O₂ may cause rapid and life-threatening corrosive injury to both airway and GI tract as well as gas embolism.

Toxicity / Risk Assessment

- Hydrogen peroxide is both corrosive and can generate gas via oxygen production (1mL of 3% produces 10 mL of oxygen when ingested)
- Large ingestions may lead to gas embolism
- Ingestion of < 30mL of 3% H₂O₂: mild GI irritation only
- Larger volumes of 3% H₂O₂: More significant GI effects in addition to risk of gas embolism
- Smaller volumes of concentrated solutions (> 10%) can cause corrosive injury to both airway and GI tract as well as gas embolism

Clinical features:

- Ingestions:

Corrosive injury, nausea, vomiting, excess salivation
In severe cases, mouth blistering and stridor
Manifestations of gas embolism: tachycardia, confusion, coma, seizures, sudden death

- **Inhalation:** Coughing and transient dyspnea only

- **Dermal:** Chemical burns (with concentrated solutions)

- **Ocular:** Any solution can cause corneal injury

Management

Decontamination: **Dermal:** Wash with soap and water.

Ocular: Immediate and thorough irrigation

Ingestion: There is no role of activated charcoal following ingestion

- Aggressive airway management with early intubation for large oral ingestions with laryngeal oedema
- Hyperbaric oxygen therapy may be of value in treating gas embolism (discuss with clinical toxicologist)
- Patients at risk of gas embolism should be nursed in the Trendelenburg position
- Consider nebulized adrenaline and IV corticosteroids in cases of laryngeal / upper airway oedema

Investigations:

- Any patient with suspicion of perforation or gas embolism should undergo CT imaging as first modality
- Upper GI endoscopy should be considered if signs or symptoms suggestive of corrosive injury
- Patients with CNS manifestations of gas embolism and a negative CT brain should be considered for MRI

Disposition:

- Patients who are asymptomatic one-hour post-ingestion of a small volume (<15 mL of 6% or < 30 mL of 3%) can be discharged pending mental health assessment
- Patients who are asymptomatic following ingestion of >10% should be observed for at least 6 hours
- Patients who are symptomatic following ingestion or inhalation of >10% H₂O₂ require at least 24 hours observation due to possibility of delayed toxicity
- All eye exposures with corrosive injury should be referred for evaluation by an ophthalmologist