



Severe Gastrointestinal Hemorrhage and Death Following Accidental Ingestion of Turpentine: A Case Report

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ARTICLE INFO

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How to Cite this article: : George A.J. Severe Gastrointestinal Hemorrhage and Death Following Accidental Ingestion of Turpentine: A Case Report. *Journal of Indian Society of Toxicology* 2019;15(2):39-41. DOI: [jst.org.in/10.31736/2019v15i2/p39.pdf](https://doi.org/10.31736/2019v15i2/p39.pdf)

Keywords:

Turpentine, accidental poisoning, children, gastrointestinal hemorrhage, death.

Conflicts of Interest and Fundings: Declared none.

Received – 14th Sept 2019

Accepted – 14nd Apr 2019

Published – 30th Jun 2019

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Published at JIPMER, Pondicherry, 605006, INDIA Subscription & payment related queries at: toxicology@aims.amrita.edu and rest all types of queries related to the journal to be done at drambika_editor@jst.org.in

ABSTRACT

Accidental ingestion is a common mode of poisoning in children. Turpentine poisoning is very rare and literature describing its toxic effects in human are scarce. Turpentine poisoning is uncommon in children and massive upper gastrointestinal bleed (UGIB) has not been reported in children following turpentine ingestion. Here we report a case of a 3-year-old boy who was admitted to our Emergency Department (ED) with massive UGIB and respiratory distress following accidental ingestion of turpentine.

INTRODUCTION

The most common mode of poisoning in children is accidental. Turpentine belongs to the class of wood distillates composing mainly of turpentine and pine oil. It is predominantly composed of monoterpenes (α -pinene, β -pinene and 3-carene).¹ The toxic effects of turpentine in humans are not well studied and described in literature. Only very few case reports have been published regarding the toxicity of turpentines in humans.²⁻⁵ Here we present the case of a 3-year-old boy who had accidentally ingested turpentine and presented with severe gastrointestinal hemorrhage followed by death.

CASE REPORT

A 3-year-old boy was admitted to our ED, two hours after accidental ingestion of about 100 ml of Turpentine. The

child's father was a painter who was using turpentine as a paint thinner. The container was left unattended at home to which the child had access. On arrival in ED, the child was observed to have multiple episodes of vomiting frank blood. The presenting vitals were as follows: heart rate-152/min; Non-invasive blood pressure (NIBP) was non-recordable; palpatory systolic blood pressure was 60 mmHg; sPO₂-82% with high flow oxygen; respiratory rate - 44/min. The child appeared pale, with severe respiratory distress, cold and clammy extremities and altered mentation. He had coarse crepitations on auscultation of chest, probably due to pulmonary aspiration. The child was immediately intubated and airway secured. There was copious regurgitation of blood from the gastrointestinal tract, obscuring vision, while attempting to intubate. Two large bore intravenous (IV) cannulae were obtained and IV fluids and blood products

were initiated to correct hypovolemia and shock. An arterial blood gas was obtained which showed type 2 respiratory failure with severe metabolic and respiratory acidosis. An emergency endoscopy was planned after initial stabilization. However, the child soon went into cardiac arrest in the ED and could not be revived despite continual resuscitation efforts.

DISCUSSION

Turpentine is a thin, colorless, transparent oily liquid hydrocarbon with a strong odor and a bitter taste. It is derived from steam distillation of pine resin. It is often used as a solvent for paints and varnishes and also in certain herbal preparations.⁶ Toxicity can occur via oral, dermal and inhalational routes.⁶⁻⁸ The fatal oral dose of turpentine ranges between 15 and 150 ml.⁶ It is predominantly toxic to the pulmonary, central nervous and gastrointestinal systems. Turpentine ingestion causes burning sensation of the mouth, lips, tongue, throat and alimentary canal along with thirst, diarrhea and vomiting. Other clinical features include violet-like odor of breath and urine, hematuria, adult respiratory distress syndrome, aspiration pneumonitis, pulmonary edema, resistant metabolic acidosis, severe hypotension, liver failure, renal failure, convulsions, and coma.^{4,5,9} Death is often due to pulmonary complications associated with aspiration of turpentine. Pulmonary complications can occur either due to aspiration of gastric contents or by direct absorption from the gastrointestinal tract.¹⁰ A study conducted in the United States showed that hydrocarbons were the least common toxic agents ingested by children and only six cases of fatality were reported among 100,000 children of age less than 6 years.¹¹ A recent retrospective study, conducted in a tertiary care center in India on accidental ingestion of hydrocarbons in pediatric population showed that hydrocarbons constituted 29% of accidental intoxication in children of which only 6% were due to turpentine ingestion. No mortality was reported in this study.¹² These studies clearly indicate that mortality from turpentine poisoning is very rare which has prompted us to prepare this case report. There have been previous reports of mortality from turpentine ingestion in children. Pande et al have reported a case of status epilepticus and death in a 16-year-old boy following ingestion of about 200 ml of turpentine. Autopsy had revealed bleeding points in the gastric mucosa with congested lungs and kidneys.⁴ Another report was of a 11-month-old infant who was unintentionally poisoned by her grandmother. The child

was reported to have suffered arrhythmias, respiratory failure, convulsions and coma followed by death. The autopsy revealed coffee-ground appearance of gastric contents and congested mucosa.³ To the best of our knowledge massive upper UGIB at presentation has not been reported in literature. Management of turpentine poisoning is mainly supportive with optimization of airway breathing and circulation. Induced vomiting, cathartics and gastric lavage are not recommended for turpentine intoxication.¹³ Benzodiazepines may be required to control status epilepticus. Persistent hypotension is corrected by using vasopressors like dopamine.⁵ Prophylactic antibiotics and steroids are not currently recommended.⁹ All patients suspected of serious turpentine intoxication should be admitted and observed for seizure activity and pulmonary complications.

CONCLUSION

The Turpentine ingestion is a rare cause of poisoning in pediatric population which can have fatal consequences. Due to its widespread use in household products and industrial products, there is a possibility of increased access. Prevention of accidental ingestion can be minimized by using child proof containers, clearly labeling and by keeping them out of reach from pediatric population

Along with seizures and pulmonary toxicity, massive UGIB should also be added to the list of fatal complications of turpentine poisoning.

Abbreviations

UGIB	<i>Upper gastrointestinal bleed</i>
ED	<i>Emergency department</i>
NIBP	<i>Non-invasive blood pressure</i>
IV	<i>Intravenous</i>

Table 1: Arterial blood gas analysis on presentation

Blood Gas Parameters	Values
pH	7.078
pCO ₂	62.1 mmHg
pO ₂	39.9 mmHg
HCO ₃ ⁻	18.3 mmol/L
Base excess	-12.3 mmol/L
Sodium	139 mmol/L
Potassium	3.3 mmol/L
Calcium	1.18 mmol/L
Lactates	4.90 mmol/L
Glucose	519 mg/dL
Creatinine	0.43 mg/dL
Anion gap	14 mmol/L

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