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### **Hemolytic anemia requiring transfusion after naphthalene mothball ingestion in a 21-month old with glucose-6-phosphate dehydrogenase (G6PD) deficiency.**

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**Objective:** Naphthalene is an aromatic hydrocarbon that may be found in deodorizers and moth repellants. Ingestion of naphthalene-containing mothballs may potentially produce hemolysis, especially in patients with glucose-6-phosphate dehydrogenase (G6PD) deficiency. We present a case of hemolysis requiring blood transfusion in a 21-month old boy with a history of G6PD deficiency after ingestion of a naphthalene mothball.

**Case Report:** A 21-month old male presented to the emergency department after an exploratory ingestion of half of a naphthalene-containing mothball. Initial vital signs were a pulse oximetry of 95% oxygen on room air, respiratory rate 32 breaths per minute, heart rate 165 beats per minute, temperature 310.5 Kelvin (99.4°F) and blood pressure 99/55 mmHg. The patient was initially asymptomatic, but exhibited non-bilious, non-bloody vomiting three hours after ingestion, with four subsequent episodes overnight. Examination was otherwise unremarkable. Laboratory studies drawn six hours after ingestion revealed a hemoglobin of 2.79 mmol/L (4.5 g/dL), hematocrit of 0.14 fraction (14.1%), and LDH of 10.55 ukat/L (633 U/L). Laboratory studies also demonstrated a BUN of 7.86 mmol/L (22 mg/dL) and total bilirubin of 69.43  $\mu$ mol/L (4.06 mg/dL). The patient was evaluated by hematology immediately and was transfused two units of 7.5 cc/kg packed red blood cells. It was determined after review of the patient's history that he had G6PD deficiency. Repeat studies after successful transfusion showed a hemoglobin of 5.71 mmol/L (9.2 g/dL) and hematocrit of 0.28 fraction (27.5%), LDH 6.18 ukat/L (371 U/L), BUN < 1.79 mmol/L (< 5 mg/dL) and total bilirubin of 6.84  $\mu$ mol/L (0.40 mg/dL). The parent compound naphthalene was undetectable by GCMS in the blood. Urine testing for the metabolites 1-naphthol and 2-naphthol was not completed.

**Conclusion:** One mothball may contain 250 - 500 mg of naphthalene; which is sufficient to induce hemolysis, particularly in patients with G6PD deficiency. Identification of 1-naphthol and 2-naphthol in the urine can help confirm exposure to naphthalene. This case describes the augmented effect of hemolytic anemia secondary to ingestion of naphthalene-containing mothballs in a patient diagnosed with G6PD deficiency. The patient was successfully treated with supportive care and blood transfusion. On outpatient follow-up two months later, hemoglobin and hematocrit were within normal limits. The patient's parents were counseled on the avoidance of foods and substances that can trigger hemolysis in G6PD deficiency.