CONDITION

Cedar leaf oil poisoning

Learn how cedar leaf oil poisoning happens, which symptoms need emergency care, how it is treated, and what to expect during recovery.

WHAT IT IS
Poisoning from concentrated cedar leaf oil

BODY SYSTEM
Nervous and digestive systems

MAIN SYMPTOMS
Mouth and throat burning, vomiting, confusion, seizures

WHAT CAUSES IT
Toxic thujone exposure

HOW IT IS DIAGNOSED
Exposure history, symptoms and physical examination

MAIN TREATMENT
Supportive hospital care

CAN IT BE CURED?
Sometimes - recovery depends on exposure severity

IS IT AN EMERGENCY?
Sometimes - seizure or severe breathing trouble

LONG-TERM OUTLOOK
Variable, worse with aspiration, seizures or delayed care

Overview

Cedar leaf oil poisoning occurs when someone is harmed by exposure to concentrated oil made from the leaves and small branches of certain evergreen trees, especially Thuja occidentalis . This product may also be labeled thuja oil, white cedar oil, or arborvitae oil.

Cedar leaf oil contains chemicals called thujones. In sufficient amounts, thujones can interfere with normal activity in the brain and nervous system. They can cause confusion, agitation, muscle movements, or seizures. The oil can also irritate or injure the mouth, throat, digestive tract, skin, and eyes.

Cedar leaf oil is not necessarily the same as cedarwood oil. Products sold under similar names may come from different plants and contain different ingredients. Concentration and purity also vary. The product label and container are therefore important when an exposure is

assessed.

Swallowing the oil is the main cause of serious poisoning. Breathing concentrated vapor or getting the oil in the eyes or on the skin may also cause symptoms. Essential oils can enter the lungs if they are swallowed incorrectly or vomited, leading to lung inflammation called aspiration pneumonitis.

If cedar leaf oil may have been swallowed, contact a poison center promptly rather than waiting for symptoms. In the United States, call Poison Help at 1-800-222-1222. This service is available nationwide. Outside the United States, contact the local poison information service or emergency medical system.

Call emergency services immediately if the person has a seizure, collapses, cannot be awakened, has severe trouble breathing, or has blue or gray lips or skin.

Symptoms

Symptoms depend on the product, amount, route of exposure, and time since contact. A small skin exposure may cause only local irritation, while swallowing concentrated oil can affect several organ systems.

Early symptoms after swallowing may include burning or pain in the mouth and throat, nausea, vomiting, stomach pain, or diarrhea. Vomit or stool may contain blood if there is significant irritation or injury. Drooling, difficulty swallowing, or severe chest or throat pain can suggest injury to the throat or esophagus, the tube that carries food to the stomach.

Effects on the brain and nervous system may include dizziness, headache, restlessness, confusion, unusual behavior, tremors, or muscle twitching. More serious poisoning can cause seizures, loss of consciousness, or coma.

Coughing, choking, wheezing, rapid breathing, or shortness of breath can occur if vapor irritates the airways or if oil enters the lungs. Breathing symptoms may begin during the exposure or develop over the next several hours.

Skin contact may cause redness, burning, or a rash. Eye exposure can cause pain, tearing, redness, blurred vision, or injury to the surface of the eye.

Severe poisoning may also cause low blood pressure or abnormalities in heart rate. Liver or kidney injury is possible after substantial exposure and may not produce obvious symptoms at first.

Signs that require emergency care include:

- A seizure, collapse, severe confusion, or inability to wake the person

- Difficulty breathing, choking, or blue or gray lips or skin
- Repeated or bloody vomiting
- Severe mouth, throat, chest, or abdominal pain
- Inability to swallow or control saliva
- Rapidly worsening symptoms

Causes and risk factors

Poisoning most often happens when cedar leaf oil is swallowed accidentally or used internally. Concentrated essential oils should not be assumed safe to ingest because they are described as natural or plant-based.

Young children are at particular risk because a small volume may represent a larger exposure for their body size. Colorful containers, fragrance, and products left within reach can contribute to accidental swallowing.

Other exposure situations include transferring the oil into an unlabeled drink or food container, confusing it with another product, using more than intended, or taking it as an unproven home remedy. Occupational exposure may occur when concentrated oils are manufactured, mixed, or used without suitable ventilation and protective equipment.

Several factors can influence the seriousness of an exposure:

A history of seizures or another neurologic condition may be important to the treating team. However, serious symptoms can also occur in someone without previous health problems.

- The exact plant oil and its thujone concentration
- Whether the product contains solvents or other ingredients
- The amount involved and the route of exposure
- The person's age, body size, and medical history
- Whether vomiting allowed oil to enter the lungs
- How quickly poison-control or medical guidance was obtained

Diagnosis

There is no common home test for cedar leaf oil poisoning. Clinicians make the diagnosis from the exposure history, symptoms, physical examination, and information about the product.

A poison specialist or clinician may ask for the product name, ingredient list, concentration, amount involved, route of exposure, and time it occurred. They may also ask about coughing, vomiting, confusion, or seizures. Bring the original container to the hospital if it is safe to do so. Do not delay emergency care to search for it.

In a medical setting, clinicians check breathing, oxygen level, heart rate, blood pressure, temperature, and alertness. They may examine the mouth, throat, skin, and eyes for irritation or burns.

Testing depends on the circumstances. Blood tests may be used to check blood sugar, electrolytes, acid-base balance, kidney function, and liver function. An electrocardiogram, or ECG, may be performed to evaluate heart rhythm. A chest X-ray may be needed if there was choking, persistent coughing, low oxygen, or concern that oil entered the lungs.

Routine hospital laboratories generally do not provide a rapid thujone test. Treatment should not be delayed while trying to confirm the chemical with a specialized test.

Treatment and management

Immediate advice should come from a poison center or emergency clinician. Do not make the person vomit. Vomiting increases the chance that oil will enter the lungs. Do not give food, drinks, activated charcoal, or home remedies unless a poison specialist or clinician specifically recommends them.

If the person inhaled vapor, move them to fresh air if this can be done without entering an unsafe area. If oil is on the skin, remove contaminated clothing and rinse the skin with running water. For eye exposure, remove contact lenses if they come out easily and rinse the eye gently with lukewarm running water. A poison specialist can advise how long rinsing should continue and whether an examination is needed.

Do not put anything in the mouth of a person who is having a seizure. Move nearby objects away, protect the head from injury, and turn the person onto their side if possible. Do not restrain their movements. Call emergency services.

Hospital treatment is supportive, meaning it focuses on protecting vital functions while the body clears the toxin. Care may include oxygen, intravenous fluids, repeated neurologic checks, heart monitoring, and treatment of abnormal blood sugar or electrolytes.

Clinicians may use a sedating anti-seizure medicine, often from the benzodiazepine like diazepam or lorazepam group, if seizures or severe agitation occur. The choice and amount depend on the patient's condition and are determined in a monitored medical setting.

A person who cannot protect their airway may need a breathing tube and mechanical

ventilation. If oil has entered the lungs, treatment may include oxygen and respiratory support. Antibiotics like amoxicillin or doxycycline are not automatically helpful for chemical lung inflammation, although clinicians may use them if there is evidence of a bacterial infection.

Activated charcoal is not routinely given after essential-oil ingestion because vomiting, reduced alertness, and seizures can increase the risk of charcoal or oil entering the lungs. A medical toxicologist may consider digestive decontamination only in selected circumstances.

Severe pain, drooling, bleeding, or difficulty swallowing may require evaluation for injury to the esophagus or stomach. An eye specialist may be consulted if pain, blurred vision, or surface injury continues after rinsing.

Complications

Many complications are related to the nervous system, lungs, or direct tissue irritation. A prolonged seizure can reduce oxygen delivery and cause additional injury. Repeated seizures without recovery between them are known as status epilepticus and require emergency treatment.

Oil that enters the lungs may cause aspiration pneumonitis. Symptoms can include coughing, breathing difficulty, low oxygen, and fever. These effects may worsen after the initial exposure, which is why observation may be recommended even when early symptoms seem mild.

Other possible complications include dehydration from vomiting, abnormal electrolytes, low blood pressure, injury to the mouth or digestive tract, and liver or kidney injury. Severe eye exposure may damage the cornea, the clear front surface of the eye.

The outlook depends on the amount and formulation, whether aspiration or seizures occurred, and how quickly supportive care began. A poison center or treating clinician can give a more useful assessment based on the specific exposure.

Follow up

Follow-up instructions are based on the route and severity of exposure. Someone evaluated after a minor skin or eye exposure may need only continued symptom monitoring. Persistent redness, pain, rash, tearing, light sensitivity, or blurred vision should be reviewed by a clinician.

After swallowing cedar leaf oil, follow the poison center's or emergency department's observation instructions. Seek urgent reassessment if coughing, fever, shortness of breath, repeated vomiting, worsening abdominal pain, confusion, unusual movements, or difficulty swallowing develops after going home.

People treated for seizures, breathing problems, digestive-tract injury, or abnormal liver or kidney tests may need repeat examinations or laboratory testing. Keep all arranged follow-up visits even if symptoms have improved.

Routine follow-up may also include reviewing how the exposure occurred. Store cedar leaf oil and other essential oils in their original, child-resistant containers, locked away from children and pets. Do not transfer them into beverage, medicine, or food containers. Follow label directions for ventilation and protective equipment.

Sources

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