

Popular Article

Epidemic Dropsy

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Argemone mexicana

What is epidemic dropsy?

Consuming edible oils contaminated with the seeds of the Argemone mexicana plant, often known as Mexican poppy, results in the illness known as epidemic dropsy. This illness is acute in character and is brought on by a toxin rather than an infection.

Cause of disease

Consumption of edible oils contaminated with seeds from the Mexican poppy plant (*Argemone mexicana*) results in the condition known as epidemic dropsy. Due of the seeds' widespread availability and low price, adulteration is practised. The oil content of the plant's seeds, which is about 35%, is high. However, the etiological factor causing epidemic dropsy has been identified as the toxic alkaloid sanguinarine, which is present in this oil. The range of sanguinarine content in the oil is 0.44% to 0.50%.

Because of its perfect miscibility with mustard oil and use as a replacement for other oils despite being hazardous, the oil from Argemone seeds attracts the attention of dishonest oil sellers. Consuming such contaminated oils can cause dropsy, a condition marked by swelling of the limbs, fluid buildup in the tissues, and harm to key organs, in its acute and severe forms.

Prevalence

The first case of epidemic dropsy in India was reported in 1877 in Calcutta, West Bengal. After which a major epidemic was reported in Delhi in 1998. Dantiwada taluka in Banaskantha districts of Gujarat have previously reported epidemic dropsy disease cases. Cases of epidemic dropsy are seen between May and November.

In addition to India, epidemic dropsy has also been observed in Mauritius, the Fiji Islands, South Africa, Madagascar, and Nepal. With the exception of the outbreak in South Africa, which was brought on by tainted wheat flour, the outbreaks were primarily brought on by the ingestion of mustard oil that had been infected with Argemone mexicana oil. Due to their striking resemblance, mustard and argemone mexicana seeds frequently get mixed up by accident. However, it cannot be ruled out that mustard oil was intentionally tainted with Argemone mexicana seed oil. Food adulteration is still a widespread practise in India even though the Prevention of Food Adulteration Act (PFA) is in place.

Argemone mexicana, a plant species that is frequently consumed for medicinal and culinary purposes, is what causes the medical illness known as epidemic dropsy, which is characterised by the swelling of limbs. Consuming culinary oils that have been contaminated with Argemone Mexicana seed oil causes this disease. The syndrome is brought on by the poisonous alkaloids sanguinarine and dihydrosanguinarine that are present in argemone oil. These alkaloids cause considerable capillary dilation, proliferation, and enhanced capillary permeability.



Food adulteration diseases

Food	Adulterants	Diseases Caused
Black pepper	Dried papaya seeds	Stomach irritation, liver damage, cancer
Chilly powder	Brick powder, artificial color	Liver damage, stomach irritation
Arhar dal	Metanil yellow, khesari dal	Paralysis
Mustard	Argemone	Epidemic dropsy

Pathophysiology

A disorder known as edoema is characterised by the buildup of fluid in the gaps between tissues. This happens as a result of protein-rich plasma components leaking into the extracellular space. The poisonous alkaloids of argemone oil can cause edoema by increasing vascular permeability and dilating capillaries. These hemodynamic alterations may result in a relative hypovolemic condition, which prompts the kidney to preserve salt and water. Abdominal pain, nausea, and diarrhoea are frequently the first symptoms to manifest clinically in epidemic dropsy. Erythema and skin pigmentation, particularly in the extremities, follow. As the illness worsens, respiratory symptoms such coughing, dyspnea, and orthopnea can appear. If the condition is severe, right-sided congestive cardiac failure may occur

Symptoms

Argemone oil includes poisonous alkaloids such sanguinarine and dihydrosanguinarine that can greatly enlarge capillaries, promote their growth, and enhance capillary permeability, all of which can result in edoema. When tampered with with mustard oil, the resulting mixture can result in proteinuria, especially albumin loss, which can induce nephrotic syndrome. High levels of protein in the urine, low levels of protein in the blood, elevated cholesterol levels, and swelling of the body as a result of fluid retention are all symptoms of nephrotic syndrome.

1. Swelling on both limbs.
2. Diarrhea.
3. Shortness of breath
4. Heart trouble.

Argemone oil adulteration is the source of epidemic dropsy, which has a variety of clinical symptoms. Mild to moderate renal azotemia (high amounts of nitrogen-containing substances in the blood), hypoproteinemia (low levels of protein in the blood), and mild to moderate anaemia are frequent. Glaucoma and retinal haemorrhage, both of which cause eye bleeding, are also recognised. Other typical symptoms include erythema (redness of the skin), headache, nausea, and loose stools.

Diagnosis

Two tests—the nitric acid test and the paper chromatography test—can be used to identify argemone oil. The paper chromatography test is thought to be the most sensitive of them.

Treatment and management

Epidemic dropsy is currently not specifically treated. However, antioxidants, vitamins (including vitamins C, E, thiamine, and B), and calcium supplements are frequently given. Corticosteroids and antihistamines like promethazine have been recommended by some researchers, however it is unknown whether they are beneficial. If there are no symptoms of severe congestive heart failure or edoema brought on by capillary permeability, diuretics should not be administered to reduce intravascular volume. Rest, salt restriction, digitalis, and diuretics are all used in the treatment of congestive heart failure. Antibiotics are used to treat pneumonia, and dialysis may be needed if renal impairment is present. Medical management of glaucoma may be effective, although occasionally surgery may be required. It is possible to fully recover from the sickness.

Prevention

Argemone plants can be eliminated using de-weeding techniques to prevent unintentional contamination. In ord to stop the disease from spreading, the tainted oil must be removed. This is thought to be the most important first step in preventing and managing the condition.

