CONDITION

Iodine poisoning

Iodine poisoning is illness caused by swallowing, inhaling, or absorbing a harmful amount of iodine.

WHAT IT IS
Harmful exposure to concentrated or excessive iodine

BODY SYSTEM
Digestive system, thyroid, kidneys, and airways

MAIN SYMPTOMS
Mouth burning, vomiting, abdominal pain, thyroid symptoms

WHAT CAUSES IT
Swallowed, inhaled, or absorbed excess iodine

HOW IT IS DIAGNOSED
Exposure history, examination, and targeted blood tests

MAIN TREATMENT
Decontamination, supportive care, and thyroid treatment

CAN IT BE CURED?
Sometimes - recovery depends on organ and thyroid injury

IS IT AN EMERGENCY?
Sometimes - breathing trouble, collapse, or significant ingestion

LONG-TERM OUTLOOK
Most limited exposures recover; severe injury may persist

Overview

Iodine poisoning happens when the body is exposed to a harmful amount of iodine. This may follow swallowing a concentrated iodine product, breathing iodine fumes, or absorbing iodine through damaged skin. Long-term use of high-dose supplements can also cause harm, especially to the thyroid.

Iodine is an essential nutrient. Your thyroid uses it to make hormones that control energy use, temperature, heart rate, and many other functions. The iodine naturally present in a balanced diet does not usually cause poisoning.

Concentrated products are different. Iodine tincture, Lugol's iodine, some antiseptics, laboratory chemicals, and certain supplements may contain much more iodine than food. Some forms can burn the mouth, throat, stomach, skin, or eyes.

A large exposure can cause immediate illness. Smaller repeated exposures are more likely to disturb thyroid function over days, weeks, or months. Both an underactive thyroid and an overactive thyroid are possible.

Reactions to medical contrast dye are not the same as iodine poisoning. Iodine itself is also not an allergen. People can react to other parts of contrast or antiseptic products, so it is still important to tell healthcare professionals about any previous reaction.

Symptoms

Symptoms depend on the iodine product, its concentration, how exposure happened, and how much entered the body.

After swallowing concentrated iodine, symptoms may begin quickly. They can include:

Vomiting and diarrhea can lead to dehydration. Severe poisoning may lower blood pressure, affect the kidneys, or disturb the body's balance of acids and salts. Swelling or chemical injury around the throat can make breathing difficult.

Breathing iodine vapor may irritate the eyes, nose, throat, and lungs. Possible symptoms include tearing, coughing, chest tightness, and shortness of breath.

Skin exposure can cause irritation or burns, particularly when a concentrated product remains on the skin or is applied repeatedly over a large area. Eye exposure may cause pain, redness, tearing, and damage to the eye's surface.

Long-term excess iodine may produce a group of symptoms sometimes called iodism . These can include a metallic taste, sore gums, mouth irritation, increased saliva, swelling of the salivary glands, headache, and an acne-like rash.

Too much iodine can also alter thyroid hormone production. An underactive thyroid may cause tiredness, feeling cold, constipation, dry skin, or weight gain. An overactive thyroid may cause a fast or irregular heartbeat, tremor, sweating, heat intolerance, anxiety, or weight loss.

- Burning pain in the mouth, throat, chest, or abdomen
- A metallic taste, increased saliva, nausea, vomiting, or diarrhea
- Coughing, choking, hoarseness, or difficulty swallowing
- Dizziness, weakness, confusion, or fainting

Causes and risk factors

Acute poisoning most often involves swallowing a concentrated iodine-containing product. Examples include iodine tincture, Lugol's solution, some veterinary or laboratory products, and antiseptics such as povidone-iodine. These products are not meant to be swallowed.

Other possible routes include inhaling fumes in an industrial or laboratory setting, getting concentrated iodine in the eyes, or allowing prolonged contact with damaged skin. Absorption through large wounds or burns can occasionally cause whole-body effects.

Long-term excess may come from high-dose iodine or kelp supplements. The iodine content of seaweed products can be very high and inconsistent. Some medicines, including amiodarone, also contain substantial iodine and can affect the thyroid.

Iodinated contrast used for some scans delivers an iodine load and may trigger thyroid problems in susceptible people. This is different from corrosive iodine poisoning. Contrast is often medically useful, and a history of shellfish allergy alone does not mean you are allergic to contrast.

People may be more sensitive to excess iodine if they already have thyroid disease, including thyroid nodules, Graves' disease, or Hashimoto's disease. Newborns, older adults, and people with reduced kidney function may also have more difficulty responding to a large iodine load.

Diagnosis

Acute iodine poisoning is usually diagnosed from the exposure history and your symptoms. There is no single rapid iodine test that replaces urgent assessment.

Healthcare professionals will want to know the product name, concentration, amount involved, time of exposure, and whether it was swallowed, inhaled, or placed on the skin. Bringing the container or a photograph of its label can help, provided this can be done safely.

The examination focuses on breathing, circulation, alertness, mouth or skin burns, and signs of dehydration. Tests may include blood counts, kidney and liver tests, electrolytes, and measurements of the body's acid-base balance. An electrocardiogram, or ECG, may be used to check the heart's rhythm.

Thyroid-stimulating hormone, called TSH, and thyroid hormone levels may be checked when exposure has been repeated or there are symptoms of thyroid dysfunction. These tests may need follow-up because thyroid effects do not always appear immediately.

Blood or urine iodine measurements are not routinely needed in an emergency. A urine iodine result can show recent iodine exposure, but one result does not reliably prove that iodine caused a person's symptoms.

If concentrated iodine may have burned the swallowing tube or stomach, specialists may consider a camera examination called an endoscopy. This decision is based on the product and symptoms.

Treatment and management

If iodine was swallowed, do not make yourself vomit. Vomiting can expose the throat to the chemical again and may allow it to enter the lungs. Do not try to neutralize iodine with household substances or take a home antidote.

Contact a poison information service promptly for instructions specific to the product. In the United States, Poison Control can be reached at 1-800-222-1222. Elsewhere, use your local poison center or emergency service.

For iodine on the skin, remove contaminated clothing and rinse the area with plenty of running water. Eye exposure also requires immediate rinsing with clean, lukewarm water. Urgent assessment is needed if pain, redness, or vision changes continue.

Hospital care is mainly supportive, meaning it protects breathing and circulation while the body clears the iodine and injured tissues heal. Treatment may include airway support, fluids, correction of electrolyte problems, symptom control, and monitoring of the heart and kidneys.

Chemical burns to the mouth, throat, or digestive tract may require care from toxicology, digestive-system, airway, or surgical specialists. Rarely, severe kidney failure or an exceptionally large absorbed dose may lead clinicians to consider dialysis.

Thyroid problems are treated according to whether the thyroid is underactive or overactive and how severe the symptoms are. The iodine source is usually stopped when safe. Do not stop a prescribed medicine such as amiodarone on your own; sudden withdrawal may be dangerous for some heart conditions.

Complications

Concentrated iodine can cause chemical burns. Swelling of the throat, inhalation of vomit, or direct lung irritation may interfere with breathing.

Major fluid loss can cause low blood pressure and reduced blood flow to the kidneys. Severe exposures may lead to kidney injury, abnormal body acidity, heart rhythm problems, confusion, shock, or, rarely, death.

Deep injury to the swallowing tube can heal with scar tissue. This may narrow the passage,

known as an esophageal stricture, and cause swallowing problems weeks or months later.

Thyroid complications include temporary or persistent underactivity or overactivity. An overactive thyroid can place extra strain on the heart, while an underactive thyroid can affect energy, thinking, temperature control, and growth in infants.

Prevention

Most accidental iodine poisonings can be prevented.

Keep iodine solutions, antiseptics, supplements, and laboratory products in their original labeled containers. Store them away from children and do not transfer them into food or drink bottles.

Use antiseptics only as directed. Products intended for the skin should not be swallowed. In workplaces, follow ventilation, protective equipment, and spill procedures for iodine chemicals.

Avoid taking high-dose iodine, kelp, or seaweed supplements unless there is a clear medical reason. More iodine does not make the thyroid work better. Check whether several supplements contain iodine, since amounts can add up.

Potassium iodide tablets should be used during a radiation emergency only when public health officials advise it. They protect the thyroid from one type of radioactive iodine; they do not protect the whole body from radiation.

You still need normal dietary iodine. Prevention does not mean removing all iodine-containing foods from your diet.

Living with it and what to expect

A small, brief exposure that causes no burns or organ problems may settle over hours or days. More concentrated exposures can require hospital monitoring and a longer recovery.

Mouth, throat, or stomach injuries may temporarily affect eating and drinking. Deeper burns can take weeks to heal, and later scarring may cause continuing swallowing difficulty. New pain with swallowing, food sticking, or repeated vomiting needs follow-up.

Thyroid changes may begin after the immediate illness has passed. Some return to normal after the excess iodine is removed. Others need treatment for months or longer, particularly when iodine exposure reveals an underlying thyroid condition.

Follow-up may include kidney tests, thyroid blood tests, or assessment of swallowing. The timing is based on the type and severity of exposure rather than a single schedule for

everyone.

Most people with limited exposure recover without lasting effects. Severe burns, major organ injury, or persistent thyroid disease can affect health for longer and may require ongoing specialist care.

When to get medical help

Call emergency services now if an iodine exposure is followed by:

Contact a poison center immediately after a significant or uncertain ingestion of concentrated iodine, even if there are no symptoms yet. Do not wait for routine office hours.

Prompt medical advice is also appropriate after eye exposure, inhalation of fumes, a large skin exposure, or any exposure involving a young child.

Arrange routine follow-up if you later develop a racing or irregular heartbeat, unusual tiredness, heat or cold intolerance, unexplained weight change, neck swelling, or continuing swallowing problems. These may indicate a thyroid change or a delayed effect of tissue injury.

- Difficulty breathing, noisy breathing, or swelling of the mouth or throat
- Collapse, fainting, a seizure, severe confusion, or inability to stay awake
- Severe chest or abdominal pain
- Repeated vomiting, vomiting blood, or signs of shock

Common questions

How much iodine causes poisoning?

There is no single amount that predicts poisoning in every situation. Risk depends on the chemical form, concentration, route of exposure, and the person's kidney and thyroid health. A concentrated liquid may cause burns even before enough iodine is absorbed to produce whole-body toxicity.

Can iodine poisoning come from food?

Normal servings of iodine-containing foods rarely cause acute poisoning. Repeated large amounts of some seaweeds or kelp supplements can provide much more iodine than expected and may disturb thyroid function.

Am I allergic to iodine?

Iodine itself does not cause an allergy because it is a normal part of the human body.

Allergic-like reactions can occur to other ingredients in povidone-iodine products or to iodinated contrast. A shellfish allergy is caused by proteins in shellfish, not iodine.

Should I make myself vomit after swallowing iodine?

No. Vomiting can worsen chemical burns and may draw the substance into the lungs. Contact a poison center for product-specific instructions instead of using a home remedy.

Can iodine poisoning permanently damage the thyroid?

It can, but many iodine-related thyroid changes improve after the exposure ends. Persistent problems are more likely when there was underlying thyroid disease or a prolonged exposure. Blood tests can show whether thyroid function has returned to normal.

How long does iodine poisoning last?

Immediate irritation and digestive symptoms may last hours to days. Chemical burns can take longer to heal. Thyroid effects may appear later and continue for weeks or months; some become long-term conditions requiring treatment.

Sources

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