CONDITION

Mercuric chloride poisoning

Mercuric chloride poisoning is harmful exposure to a corrosive mercury salt that can damage the digestive tract, kidneys, and nervous system.

WHAT IT IS
Corrosive poisoning from an inorganic mercury salt

BODY SYSTEM
Digestive tract, kidneys, nervous system, lungs, and circulation

MAIN SYMPTOMS
Burning pain, vomiting, diarrhea, reduced urination

WHAT CAUSES IT
Swallowing, inhaling, or contacting mercuric chloride

HOW IT IS DIAGNOSED
Exposure history plus blood or urine mercury testing

MAIN TREATMENT
Decontamination, supportive hospital care, and specialist-guided chelation

CAN IT BE CURED?
Sometimes - early treatment can prevent lasting organ damage

IS IT AN EMERGENCY?
Yes - any suspected exposure needs immediate poison advice

LONG-TERM OUTLOOK
Full recovery possible; severe kidney or digestive damage may persist

Overview

Mercuric chloride is a highly toxic form of inorganic mercury. It may be found in some laboratories, industrial settings, chemical products, and older or illegally marketed remedies. Poisoning can happen after it is swallowed, inhaled as dust or mist, or placed on the skin or in the eyes.

This chemical is corrosive, meaning it can directly burn tissue. After swallowing, it may injure the mouth, throat, stomach, and intestines. Mercury can also enter the bloodstream and damage the kidneys, nervous system, and other organs.

Mercuric chloride is different from the silvery liquid mercury once used in some thermometers. Both can be harmful, but they enter the body differently and do not cause exactly the same effects.

A suspected acute exposure should be treated as an emergency. Symptoms and mercury test results do not always show how serious the injury will become, so treatment should not wait for symptoms to worsen.

Symptoms

Symptoms depend on how much mercury entered the body, the route of exposure, and whether the exposure was sudden or repeated.

Swallowing mercuric chloride can cause symptoms within minutes or hours. These may include:

Severe digestive injury can lead to bleeding, low blood pressure, or shock. Shock means the organs are not receiving enough blood and oxygen.

Kidney injury may become clear over the following hours or days. You may pass much less urine than usual or stop passing urine. Swelling, nausea, confusion, and shortness of breath can develop if the kidneys cannot remove waste and extra fluid.

Breathing in mercuric chloride dust, aerosol, or heated material may cause coughing, throat irritation, chest tightness, or difficulty breathing. Eye contact may cause pain, redness, tearing, or surface burns. Skin exposure may cause irritation or burns, especially when the skin is damaged.

Repeated exposure over weeks or months may produce less obvious symptoms. These can include tremor, sleep problems, irritability, difficulty concentrating, memory changes, inflamed gums, increased saliva, and kidney problems. Children can sometimes develop painful, pink hands and feet, sweating, irritability, and sensitivity to light.

These symptoms can have many causes. Mercury testing and an exposure assessment are needed rather than trying to identify poisoning from symptoms alone.

- Burning pain in the mouth, throat, chest, or abdomen
- Drooling or difficulty swallowing
- Nausea, vomiting, or diarrhea, sometimes with blood
- Weakness, dizziness, or signs of dehydration

Causes and risk factors

Poisoning occurs when mercuric chloride enters the body. Accidental swallowing is particularly

dangerous because the chemical can cause both corrosive burns and mercury toxicity.

Possible exposure settings include laboratories, chemical manufacturing, metal processing, waste handling, and sites containing older mercury compounds. Poisoning has also occurred through contaminated or unregulated skin products and traditional remedies.

Risk is higher when mercuric chloride is stored in an unlabelled container, handled without suitable protective equipment, or used in a poorly ventilated area. Heating, crushing, or spraying a product can increase the chance of inhaling it. Young children are at greater risk from chemicals left within reach.

Damaged skin may absorb more material than intact skin. Contaminated clothing can continue exposing the skin until it is removed.

Mercuric chloride poisoning is not inherited and does not spread between people. However, contaminated clothing or surfaces may expose others until they are cleaned safely.

Diagnosis

Diagnosis starts with finding out what substance was involved, how the exposure happened, when it occurred, and approximately how much contact there may have been. A product label, safety data sheet, or photograph of the container can help. Do not bring a leaking or contaminated container into an enclosed space.

Blood and urine mercury tests can support the diagnosis. Blood testing may be useful soon after a recent exposure. Urine testing is often useful for inorganic mercury because the kidneys remove some of it from the body.

A mercury level must be interpreted alongside symptoms and the timing of exposure. The number does not always predict the amount of tissue damage. Emergency care should not be delayed while waiting for a test result.

Other tests assess how the exposure is affecting the body. They may include:

After swallowing, specialists may consider a camera examination of the food pipe and stomach to assess corrosive injury. This is called an upper endoscopy. Whether it is appropriate depends on your condition and the details of the exposure.

- Kidney function, electrolytes, blood count, and liver tests
- Urine testing for blood, protein, and reduced kidney function
- An electrocardiogram to check heart rhythm
- Imaging or breathing tests after significant inhalation

Treatment and management

Immediate advice from a poison centre and emergency assessment are central to treatment. Management is usually coordinated with a medical toxicologist, who specialises in poisoning.

Do not make yourself vomit. Vomiting can expose the throat and mouth to the corrosive chemical again. Do not try to neutralise it with another chemical or take home remedies. Food, drinks, activated charcoal, or other treatments should only be used if a poison specialist recommends them.

For skin exposure, contaminated clothing is removed carefully and the skin is washed with plenty of water. The eyes require prompt, prolonged rinsing with clean lukewarm water. People helping should avoid direct contact with the chemical.

Hospital treatment may include intravenous fluids, pain relief, medicines for vomiting, and close monitoring of breathing, blood pressure, heart rhythm, urine output, and blood chemistry. Digestive bleeding or corrosive injuries may require care from digestive or surgical specialists.

Chelation may be considered after significant systemic exposure. Chelating medicines attach to mercury so that more of it can leave the body, mainly through urine. The choice and timing depend on the type of mercury, kidney function, symptoms, and test results. Chelation can cause side effects and is not a substitute for supportive care, so it requires specialist supervision.

Severe kidney failure may require dialysis to control fluid levels, electrolytes, and waste products. Dialysis supports the body while the kidneys recover, but it does not reliably remove all mercury by itself.

People with serious poisoning may need treatment in an intensive care unit. Follow-up testing can continue after discharge because kidney or digestive complications may appear later.

Complications

The kidneys are especially vulnerable to inorganic mercury. Injury can range from temporary changes in urine tests to severe kidney failure. Some people recover kidney function, while others need prolonged or permanent dialysis.

Corrosive injury can cause bleeding or, less commonly, a hole in the stomach or intestine. As injured tissue heals, scarring may narrow the food pipe or another part of the digestive tract. This can later cause difficulty swallowing, vomiting, or poor food intake.

Other possible complications include major fluid and electrolyte losses, low blood pressure, abnormal heart rhythms, lung injury after inhalation, and lasting tremor or problems with

concentration and mood.

Severe poisoning can be fatal, particularly after a large swallowed dose or when shock and organ failure develop. Prompt treatment improves the chance of limiting injury but cannot guarantee full recovery.

Prevention

Mercuric chloride poisoning can often be prevented by controlling exposure. It is not an inherited condition.

Keep mercury compounds in their original, clearly labelled containers. Never transfer them into food or drink containers. Store them in a locked area away from children, food, medicines, and household products.

At work or in a laboratory, follow the product safety data sheet and local chemical-handling procedures. Use the recommended ventilation, gloves, eye protection, and protective clothing. Spills need a hazardous-material response rather than ordinary household cleaning.

Do not use unregulated skin-lightening products, remedies, or disinfectants that may contain mercury. Check official safety alerts if a product's ingredients are unclear.

Mercury-containing waste should go through an approved hazardous-waste service. Do not burn it, pour it down a drain, or place it in ordinary rubbish where local rules prohibit this.

Living with it and what to expect

Recovery is shaped by the amount absorbed and the degree of kidney, digestive, or nervous system injury. People treated after a limited exposure may recover without lasting problems. More serious poisoning can require weeks or months of medical care.

Kidney function may improve gradually, including after a period of dialysis. Severe damage can be permanent. Follow-up commonly focuses on kidney blood tests, urine tests, blood pressure, mercury levels when useful, and any ongoing digestive or neurological symptoms.

Corrosive digestive injuries may seem to improve before scar tissue causes swallowing or eating problems. New difficulty swallowing, repeated vomiting, or unintended weight loss during recovery needs prompt assessment.

Tremor, mood changes, sleep problems, or difficulty concentrating may take time to improve after exposure has stopped. Rehabilitation, mental health support, or occupational adjustments may help when symptoms affect daily life.

Routine follow-up is different from emergency care. Scheduled appointments are used to track recovery and look for delayed complications. Sudden breathing difficulty, collapse, severe bleeding, or sharply reduced urine output requires immediate care rather than waiting for the next appointment.

When to get medical help

Get immediate poison-centre or emergency advice after any suspected swallowing of mercuric chloride. Do not wait for symptoms or mercury test results. Significant inhalation, eye exposure, widespread skin contamination, or exposure through damaged skin also needs urgent assessment.

Call emergency services now if there is:

Move away from airborne contamination if you can do so safely. Avoid touching contaminated clothing with bare hands. If the eyes or skin were exposed, begin rinsing with water while emergency or poison-centre advice is being arranged.

In the United States, Poison Control can be reached at 1-800-222-1222. Elsewhere, contact your local poison information centre or emergency service.

Arrange prompt, non-emergency medical review if a possible past or repeated exposure is linked with tremor, gum irritation, mood or memory changes, or changes in urination. Routine follow-up is also important after hospital treatment, even when you feel better.

- Trouble breathing, severe chest tightness, or blue-grey lips
- Collapse, confusion, a seizure, or extreme drowsiness
- Vomiting blood, bloody diarrhea, or severe abdominal pain
- Very little or no urine
- Fainting, cold clammy skin, or signs of shock

Common questions

Is mercuric chloride the same as liquid mercury?

No. Mercuric chloride is a solid inorganic mercury compound, while elemental mercury is the silvery liquid found in some older devices. Mercuric chloride is corrosive and can be readily absorbed after swallowing. Elemental mercury is mainly dangerous when its vapour is inhaled.

Can you survive mercuric chloride poisoning?

Yes. Recovery is possible, especially when the exposure is recognised and treated promptly. The outlook is less predictable after a large exposure or when severe kidney failure, shock, or digestive injury has developed.

Can mercury be removed from the body?

The body removes some inorganic mercury through the kidneys. Specialist-supervised chelation can increase removal in selected cases. Chelation does not reverse corrosive burns immediately and may not prevent lasting damage once an organ has been severely injured.

How long does mercuric chloride stay in the body?

There is no single timeframe. It is influenced by the amount absorbed, kidney function, the timing of treatment, and whether exposure continues. Mercury may remain detectable after the first symptoms improve, so repeat testing is sometimes needed.

Will a home mercury test confirm poisoning?

Home tests are not a safe basis for diagnosis or treatment. Blood or urine results need to be matched to the type and timing of exposure. Hair testing is generally less useful for assessing recent inorganic mercury poisoning and may be affected by external contamination.

Can touching mercuric chloride poison you?

Skin contact can cause irritation or burns, and some mercury may be absorbed. Risk is greater with prolonged contact, large contaminated areas, or broken skin. Remove contaminated clothing, rinse the skin thoroughly, and obtain poison-centre advice.

Sources

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