CONDITION

Merbromin poisoning

Merbromin poisoning is harmful exposure to a mercury-containing antiseptic, usually through swallowing it or absorbing it through damaged skin.

WHAT IT IS
Toxic exposure to a mercury-containing antiseptic

BODY SYSTEM
Digestive system, kidneys, nervous system, skin, and eyes

MAIN SYMPTOMS
Nausea, abdominal pain, mouth irritation, reduced urination

WHAT CAUSES IT
Swallowing or absorbing merbromin

HOW IT IS DIAGNOSED
Exposure history, mercury testing, and kidney function tests

MAIN TREATMENT
Decontamination, supportive care, and sometimes mercury chelation

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

IS IT AN EMERGENCY?
Sometimes - swallowing or serious symptoms need urgent assessment

LONG-TERM OUTLOOK
Often good, but severe organ injury may persist

Overview

Merbromin is a mercury-containing antiseptic and dye. It was widely sold under names such as Mercurochrome and was applied to cuts and scrapes because its bright red color made treated areas easy to see. It is no longer marketed as an over-the-counter first-aid antiseptic in some countries, including the United States, but older bottles and products from other countries may still be found.

Merbromin poisoning means that enough of the chemical has entered the body to cause harmful effects. This may happen after it is swallowed, put into the eyes, or repeatedly applied to burns, large wounds, or other damaged skin. Healthy, unbroken skin generally limits absorption, but it does not remove all risk.

Merbromin contains mercury bound within a chemical compound. Mercury can injure the

digestive tract and kidneys and, after sufficient exposure, may affect the nervous system. The risk depends on the product's concentration, the amount and route of exposure, how long exposure continued, and whether the skin was damaged.

There is no simple amount that can be assumed safe after swallowing a merbromin product. Different products may also contain alcohol or other ingredients. A poison information service can assess the exact product and circumstances.

Brief contact does not automatically mean poisoning. The expected red stain on the skin is caused by the dye and is not, by itself, evidence that mercury has entered the body.

Symptoms

Symptoms can begin soon after a substantial exposure, but some effects may take hours or longer to become clear. Repeated smaller exposures can produce a less obvious pattern.

After swallowing merbromin, early symptoms may include:

Kidney injury may lead to reduced urination, swelling around the legs or face, or unusual tiredness. Blood or protein may be found in the urine even when there are few outward symptoms.

Significant mercury exposure can affect the nervous system. Possible symptoms include tremor, tingling, poor coordination, irritability, difficulty concentrating, or unusual sleepiness. These effects are more concerning when they develop after repeated or substantial exposure.

Skin exposure may cause redness, itching, a rash, or inflammation. Some people become allergic to mercury-containing compounds and react after later contact. Applying merbromin to large burns or open wounds may allow more absorption than applying it to a small area of intact skin.

Eye exposure can cause pain, redness, tearing, blurred vision, or injury to the eye's surface. The product's strong color can make the eye look dramatic, but pain or altered vision matters more than staining alone.

Severe poisoning may cause extensive digestive injury, serious kidney failure, confusion, seizures, breathing difficulty, or collapse. These effects are uncommon but require emergency care.

- Burning or irritation of the mouth and throat
- Nausea, vomiting, abdominal pain, or diarrhea
- A metallic taste or increased saliva

- Weakness or dizziness

Causes and risk factors

Swallowing a merbromin solution is the clearest route to poisoning. This can happen when an old medicine bottle is mistaken for another product or when a child reaches an improperly stored bottle.

Absorption through skin is more likely when merbromin is used repeatedly or over a large area. Burns, ulcers, surgical wounds, and severely inflamed skin provide less of a barrier than healthy skin. Exposure may also occur through the moist tissues lining the mouth or other body openings.

Factors that can increase concern include:

A product's age does not make it safe. Old containers may also lack readable concentration information or may have been transferred into an unlabelled bottle.

- Swallowing any amount, especially when the amount is unknown
- Repeated application over days or weeks
- Use on burns, deep wounds, or large areas of damaged skin
- Eye exposure
- Existing kidney disease
- Exposure in a young child
- Symptoms developing after contact

Diagnosis

Diagnosis starts with identifying the product and reconstructing the exposure. Useful details include the product name, concentration if shown, approximate amount, time of exposure, where it contacted the body, and whether it was used repeatedly. Bringing the container or a clear photograph of its label can help.

A medical assessment may include examination of the mouth, skin, eyes, nervous system, and hydration. Blood tests can check kidney function, salts in the blood, and signs of tissue injury. Urine testing may look for protein, blood, or changes in kidney function.

Mercury can be measured in blood or urine. The most useful test depends on the type and timing of exposure. A result must be interpreted alongside symptoms and exposure history; a

number alone does not prove how much injury has occurred. Testing hair is generally not the main way to assess a recent merbromin exposure.

Doctors may repeat kidney and mercury tests because an early result can be reassuring even though the body has not yet fully processed the exposure. Eye examination is important if the product entered the eye or vision changed.

Treatment and management

The first step is to stop further exposure. Remove contaminated clothing and wash exposed skin with soap and running water. Do not scrub hard enough to damage the skin.

If merbromin enters an eye, remove contact lenses if they come out easily and rinse the eye continuously with clean, lukewarm water. Urgent assessment is needed if pain, redness, or blurred vision continues.

If someone swallows merbromin, do not make them vomit and do not try to neutralize the product with another chemical. Rinse the mouth gently, then contact a poison information service promptly. In the United States, Poison Help is available at 1-800-222-1222. Elsewhere, use the local poison center or emergency advice service.

Treatment in a healthcare setting is based on the route of exposure, symptoms, examination, and test results. It may include fluids, medicines for nausea or pain, correction of blood-salt disturbances, and monitoring of urine output and kidney function. Serious kidney failure may require dialysis to support the body while the kidneys recover, although dialysis alone does not reliably remove all mercury.

Chelation is a treatment in which a medicine binds certain metals so they can leave the body more easily. It may be considered for clinically important mercury poisoning, particularly when there are symptoms or clearly concerning mercury levels. Chelation can cause side effects and does not reverse damage that has already occurred. The decision is usually made with a medical toxicologist or poison center rather than from a mercury result alone.

There is no single treatment plan for every merbromin exposure. Someone with brief contact on intact skin may need washing and observation, while someone who swallowed the product or developed kidney or nervous-system symptoms may need hospital care.

Complications

The kidneys are an important concern because mercury compounds can damage the small structures that filter blood and form urine. Injury may range from temporary changes on

testing to acute kidney failure. Recovery is possible, but severe damage can take months to improve and may occasionally remain.

Vomiting and diarrhea can cause dehydration and changes in body salts. Direct irritation may injure the mouth, throat, stomach, or intestines after a substantial ingestion.

Nervous-system complications may include tremor, altered sensation, problems with coordination, memory or concentration difficulties, and mood changes. The likelihood of lasting effects rises with greater or prolonged exposure, but an individual outcome cannot be predicted from the product name alone.

Skin complications include persistent inflammation, allergic contact dermatitis, and worsening of an existing wound. Eye exposure may injure the clear surface at the front of the eye, called the cornea.

Prevention

Merbromin poisoning is usually preventable by avoiding use of old or unapproved mercury-containing antiseptics. Safer first-aid products are available, although the right wound care depends on the type of injury.

Keep all antiseptics in their original, clearly labelled containers. Store them away from food, drinks, cosmetics, and children. Do not transfer a brightly colored solution into a drinking bottle or unlabelled jar.

Do not use an old bottle if its ingredients or concentration cannot be identified. A pharmacist or local hazardous-waste service can explain how to dispose of mercury-containing products. Do not pour them into a drain unless local disposal guidance specifically permits it.

If merbromin must be handled before disposal, avoid contact with the eyes, mouth, open wounds, and large areas of skin. Wash your hands afterward.

Prevention cannot undo an exposure that has already occurred. Prompt washing, eye irrigation, and poison-center advice can reduce further exposure and help identify whether medical monitoring is needed.

Living with it and what to expect

Many brief skin exposures cause only staining or local irritation and do not lead to lasting illness. The red color may remain until the outer skin cells naturally wear away. Trying to remove it with harsh chemicals can irritate the skin further.

After a more significant exposure, follow-up may continue for days or weeks. This often includes repeat kidney tests, urine tests, and sometimes mercury measurements. Follow-up is routine rather than an emergency when you feel well and the purpose is to confirm that results are returning toward normal.

Digestive symptoms may improve over several days once exposure stops and hydration is restored. Kidney recovery can take longer. If dialysis is required, it may be temporary, but this cannot be guaranteed early in the illness.

Nervous-system symptoms may improve slowly over weeks or months. Some people with severe exposure have persistent problems, especially after delayed recognition or repeated exposure. Rehabilitation, occupational therapy, or support for concentration and mood may help when symptoms interfere with daily life.

Avoid further contact with mercury-containing antiseptics. If the reaction involved a mercury allergy, tell healthcare and dental professionals about it because some other products may also contain mercury compounds.

When to get medical help

Contact a poison information service promptly after any swallowed merbromin exposure, even if there are no symptoms. Also seek advice after repeated use on burns, open wounds, or large areas of skin. Do not wait for a mercury test before asking for help.

Arrange routine follow-up if a clinician has advised repeat kidney, urine, or mercury testing. New mild tremor, tingling, rash, reduced appetite, or ongoing digestive symptoms should be reported rather than left until the next planned appointment.

Get urgent medical assessment for:

Call emergency services for difficulty breathing, a seizure, collapse, severe confusion, inability to wake normally, or no urine with marked illness. These are emergency symptoms rather than reasons to wait for routine follow-up.

- Persistent vomiting or significant abdominal pain
- Reduced urination or new swelling
- Eye pain, ongoing redness, or blurred vision
- Increasing weakness, tremor, confusion, or poor coordination
- Symptoms after a child has swallowed or may have swallowed the product

Common questions

Is Mercurochrome the same as merbromin?

Mercurochrome was a widely used brand name for antiseptic products containing merbromin. Formulations can differ by country and time period, so the label remains important. Some products described informally as "red antiseptic" may contain a different chemical.

What should I do if I swallowed Mercurochrome?

Do not make yourself vomit. Rinse your mouth and contact a poison information service immediately with the bottle or label available. Emergency care is needed if vomiting, severe pain, confusion, breathing difficulty, a seizure, or reduced urination develops.

Can merbromin poison me through my skin?

Absorption through healthy skin is usually lower than absorption after swallowing, but it can occur. Risk is greater when the product is applied repeatedly, over a large area, or to burns and open wounds.

Does a red stain mean I have mercury poisoning?

No. Red staining is an expected effect of the dye and does not diagnose poisoning. The exposure route, amount, symptoms, and medical tests are more useful. Do not use solvents or bleach to remove the color.

How long does merbromin stay in the body?

There is no single timetable. It depends on how much entered the body, how it was absorbed, and how well the kidneys are working. Mercury measurements may remain abnormal after symptoms improve, so repeat testing is sometimes needed.

Is there an antidote for merbromin poisoning?

There is no simple antidote that immediately cancels the exposure. Chelating medicines can increase mercury removal in selected cases, but they are not needed for every exposure and can have important side effects.

Sources

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