CONDITION

Leukoplakia

Leukoplakia is a persistent white patch in the mouth that cannot be explained by another condition and may sometimes develop abnormal cells.

WHAT IT IS
Persistent unexplained white patch inside the mouth

BODY SYSTEM
Mouth and throat

MAIN SYMPTOMS
White patch, rough surface, thickened area, red-speckled patch

WHAT CAUSES IT
Often unknown; tobacco is a major risk

HOW IT IS DIAGNOSED
Mouth examination and biopsy

MAIN TREATMENT
Risk reduction, monitoring, and sometimes surgical removal

CAN IT BE CURED?
Sometimes - removal works, but patches may recur

IS IT AN EMERGENCY?
No - persistent or changing patches need prompt assessment

LONG-TERM OUTLOOK
Often stable, but ongoing cancer monitoring is important

Overview

Leukoplakia is a white or mainly white patch inside the mouth. It cannot be rubbed or scraped away, and an examination does not identify another clear cause. The term describes how the area looks rather than one specific disease.

It may appear on the tongue, gums, inside of the cheeks, roof of the mouth, or floor of the mouth. Most patches are painless and are found during a dental examination or while you are looking inside your mouth.

Leukoplakia matters because some patches contain dysplasia , meaning that the cells are growing in an abnormal way. A smaller number may eventually develop into squamous cell carcinoma, the most common form of mouth cancer. Most people with leukoplakia do not have mouth cancer, but appearance alone cannot reliably show which patches are harmless.

Leukoplakia is considered an oral potentially malignant disorder . This means it carries an increased risk of cancer compared with normal mouth tissue. It does not mean that cancer is present or certain to develop.

"Hairy leukoplakia" is a different condition. It is linked to the Epstein-Barr virus and usually occurs when the immune system is weakened. Despite its name, it is not generally treated as the same potentially precancerous condition described in this article.

Symptoms

The usual sign is a white or grey-white area inside the mouth that does not wipe away. It may develop slowly and remain unnoticed for some time.

The patch may be:

An evenly white, smooth patch is called homogeneous leukoplakia . A patch with red, raised, lumpy, or irregular areas is called non-homogeneous leukoplakia . Non-homogeneous patches are generally more concerning and often need closer assessment.

Leukoplakia usually does not hurt. Some people notice sensitivity to spicy foods, heat, or touch. Pain, an ulcer, bleeding, numbness, or difficulty moving the tongue is not typical of a simple stable patch and should be assessed promptly.

A rare form called proliferative verrucous leukoplakia causes multiple thick or wart-like patches that can spread to different parts of the mouth. It often returns after treatment and carries a higher risk of cancer.

- Flat and evenly white
- Rough, thickened, cracked, or hardened
- Raised, folded, or wart-like
- Mixed with red areas
- A single patch or several separate patches

Causes and risk factors

The exact cause is often unknown. Leukoplakia can occur in people who have never smoked or used other tobacco products.

Tobacco exposure is an important avoidable risk factor. This includes cigarettes, cigars, pipes, chewing tobacco, snuff, and other smokeless tobacco products. Long-term heavy alcohol use

may add to the risk, particularly when combined with tobacco.

Repeated irritation from a sharp tooth, rough filling, or poorly fitting denture can produce a white patch. However, if there is a clear mechanical cause, the area may initially be described as a friction-related change rather than true leukoplakia. It should be checked again after the source of irritation has been corrected.

Other factors may include long-term inflammation and, in some cases, Candida yeast within the patch. Candida is the yeast that causes oral thrush, but ordinary thrush often wipes away and is not the same as leukoplakia.

Risk is influenced by the patch's location, size, surface, cell changes, and whether it has returned after treatment. Patches on the side or underside of the tongue and floor of the mouth may receive particular attention. Leukoplakia in someone who does not use tobacco can still contain abnormal cells.

Diagnosis

A dentist, oral medicine specialist, or other healthcare professional will examine the patch and the rest of your mouth. They may ask how long it has been present, whether it has changed, and whether you use tobacco or alcohol. They may also feel your jaw and neck for lumps.

Some white patches are caused by thrush, lichen planus, cheek biting, burns, medicines, or other mouth conditions. A wipe test may help identify thrush, but no simple visual test can reliably rule out abnormal cells.

If an obvious source of irritation is present, it may be corrected first. The area is then checked to see whether it heals. A patch that remains unexplained may be diagnosed as leukoplakia after other causes have been excluded.

A biopsy is the main test used to look for dysplasia or cancer. During a biopsy, a small piece of the patch is removed, usually after the area has been numbed with local anaesthetic. A small patch may sometimes be removed in full. A pathologist then examines the cells under a microscope.

The biopsy report may show no dysplasia or may describe mild, moderate, or severe dysplasia. These grades reflect how abnormal the cells look. They help guide management, but they cannot predict with certainty what one particular patch will do.

Special lights, dyes, or brush-based tests may help select an area for biopsy. They do not replace a tissue biopsy when cancer or significant dysplasia needs to be excluded.

Treatment and management

Treatment is based on the biopsy findings, the patch's appearance and location, your general health, and whether the area is changing.

Removing avoidable risks is important. This may include stopping tobacco, reducing alcohol exposure, and correcting a sharp tooth or poorly fitting dental appliance. Support is available for stopping tobacco, including counselling and approved stop-smoking treatments.

A patch without dysplasia may be monitored rather than removed immediately. Monitoring usually involves regular mouth examinations and sometimes photographs or repeat biopsies. The timing is chosen according to the individual patch rather than one schedule for everyone.

Removal may be recommended when a patch contains dysplasia, looks concerning, causes symptoms, or changes over time. Methods include surgical removal with a scalpel or removal using a laser. The tissue may be sent for further examination.

Removing a patch does not remove all future risk. Leukoplakia can return at the same site, and abnormal changes can develop elsewhere in the mouth. Follow-up remains important after treatment.

Medicines, vitamins, and antioxidant supplements have been studied, but none has been shown to reliably prevent mouth cancer in people with leukoplakia. Some treatments may shrink a patch only for it to return after treatment stops. Supplements can also have unwanted effects, so they should not replace assessment and monitoring.

Complications

The main concern is progression to mouth cancer. This does not happen to every patch, and it may never happen, but there is no way to promise that a particular leukoplakia will remain harmless.

Features linked with greater concern include:

A patch can also return after apparently complete removal. This may happen at the edge of the treated area or in another part of the mouth.

Treatment can cause short-term soreness, swelling, or difficulty eating, depending on the site and size of the area removed. Larger procedures may leave scarring or affect tongue movement, although this is not expected after every treatment.

- Dysplasia in the biopsy

- Red, lumpy, ulcerated, or wart-like areas
- A large or enlarging patch
- Patches on the tongue or floor of the mouth
- Multiple or repeatedly recurring patches
- Proliferative verrucous leukoplakia

Prevention

Leukoplakia cannot always be prevented because its cause is often unknown. It can occur without any recognised exposure or avoidable risk.

Not using tobacco can lower the chance of tobacco-related mouth changes. If you already have leukoplakia, stopping tobacco may help some patches improve and reduces other oral and general health risks. Avoiding heavy alcohol use may also reduce added risk, especially if you use tobacco.

Keeping dentures, fillings, and teeth in good condition can prevent ongoing mechanical irritation. Regular dental examinations do not prevent unexplained leukoplakia, but they can help find changes when they are small.

There is no supplement, mouthwash, or special diet proven to prevent leukoplakia or guarantee that it will not progress.

Living with it and what to expect

Over months or years, leukoplakia may remain unchanged, become smaller, disappear after an irritant is removed, grow, or return after treatment. The course cannot be predicted from appearance alone.

Many people continue their usual work, meals, and activities. A painless patch may have little effect on everyday life. If treatment makes eating uncomfortable for a short time, softer foods may help while the area heals.

Long-term follow-up is often recommended, including after surgical removal. At these visits, the treated site and the rest of the mouth can be examined. A repeat biopsy may be considered if the patch enlarges, develops red or ulcerated areas, or otherwise changes.

Keep track of where the patch is and how it normally looks. A dated photograph may help you notice a change, but it cannot replace a professional examination.

The uncertainty can be stressful. It may help to remember that monitoring is intended to find important changes early, not because cancer is assumed to be present. If worry is affecting sleep or daily life, discuss this during a routine appointment.

When to get medical help

Arrange a prompt, non-emergency appointment with a dentist or healthcare professional if you notice a white mouth patch that does not wipe off, especially if it remains for about two weeks. Do not wait for pain, because leukoplakia and early mouth cancer can both be painless.

Seek an urgent assessment if a patch:

These symptoms can have causes other than cancer, but they should not wait for a routine check-up.

Go to emergency care for difficulty breathing, inability to swallow saliva, rapidly increasing mouth or neck swelling, or bleeding that will not stop. Leukoplakia itself rarely causes an emergency, so these signs may indicate another urgent problem.

- Is growing or changing quickly
- Develops a red, dark, lumpy, bleeding, or ulcerated area
- Occurs with a new neck lump
- Causes persistent pain, numbness, or trouble swallowing
- Is accompanied by unexplained weight loss or ongoing hoarseness

Common questions

Is leukoplakia cancer?

No. Leukoplakia is not automatically cancer. It is a white patch with a higher-than-normal chance of containing abnormal cells or developing cancer later. A biopsy is needed to check the cells.

Can leukoplakia go away on its own?

Some patches improve after tobacco is stopped or a source of irritation is removed. Others persist despite these changes. Even if a patch disappears, follow-up may still be appropriate if it previously contained dysplasia.

Can I scrape leukoplakia off?

Leukoplakia does not normally wipe or scrape away. A white coating that does wipe off may be

caused by thrush or another condition. Do not repeatedly scrape a patch, because this can injure the tissue and does not establish the cause.

Does leukoplakia hurt?

Most patches are painless. Tenderness or sensitivity can occur, especially in mixed red-and-white areas. New pain, bleeding, ulceration, or numbness needs prompt assessment.

Is leukoplakia contagious?

No. Ordinary oral leukoplakia cannot be passed to another person through kissing, sharing food, or close contact. Hairy leukoplakia is a separate condition associated with Epstein-Barr virus and a weakened immune system.

Will leukoplakia come back after removal?

It can. Removal treats the visible patch but does not guarantee that it will not recur or appear elsewhere. This is why ongoing mouth examinations remain important after treatment.

Sources

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