CONDITION

Melanoma

Melanoma is a cancer of pigment-making cells that most often begins in the skin.

WHAT IT IS
Cancer of pigment-making cells

BODY SYSTEM
Skin, eyes, and moist body linings

MAIN SYMPTOMS
Changing mole, unusual new spot, itching, bleeding

WHAT CAUSES IT
DNA damage, often from ultraviolet radiation

HOW IT IS DIAGNOSED
Biopsy with laboratory examination

MAIN TREATMENT
Surgery, immunotherapy, and targeted therapy

CAN IT BE CURED?
Sometimes - early melanoma is often cured surgically

IS IT AN EMERGENCY?
No - suspicious skin changes need prompt assessment

LONG-TERM OUTLOOK
Often excellent early; advanced melanoma can be life-limiting

Overview

Melanoma is a cancer that begins in melanocytes, the cells that make the pigment melanin. Melanin gives skin, hair, and eyes much of their colour.

Most melanomas start in the skin. Less often, they begin in the eye or in a moist body lining, such as inside the nose, mouth, or genital area. This article mainly covers skin melanoma.

Melanoma is less common than several other skin cancers, but it is more likely to grow into nearby tissue or spread to other parts of the body. Finding and removing it early greatly improves the chance of successful treatment.

Melanoma can develop in an existing mole or appear as a new spot. It may be brown or black, but it can also be pink, red, skin-coloured, blue, or white. People of any skin tone can develop it.

A suspicious spot is not automatically melanoma. Many moles and skin growths are harmless.

A medical assessment and, when needed, a biopsy are required to know what it is.

Symptoms

The most common warning sign is a new or changing area of skin. Changes may involve a mole, freckle, patch, lump, or mark that looks different from your other spots.

The ABCDE guide can help you notice features that deserve assessment:

Another useful sign is the "ugly duckling": a mark that looks noticeably different from your other moles.

Melanoma may also itch, hurt, crust, ooze, or bleed. Some melanomas form a firm or fast-growing bump rather than a flat, dark mole.

On palms, soles, fingers, or toes, melanoma may look like an irregular dark patch. Under a nail, it may appear as a new brown or black band, especially if the colour spreads onto nearby skin. Nail injury and other conditions can cause similar changes, so examination is important.

Melanoma in the eye may cause blurred vision, flashes, floaters, a dark area on the iris, or changes in the shape of the pupil. It may also be found during a routine eye examination before symptoms develop.

- A - Asymmetry: one half does not match the other
- B - Border: the edge is irregular, blurred, or notched
- C - Colour: several colours or an uneven colour pattern
- D - Diameter: a larger spot may be concerning, although melanomas can be small
- E - Evolving: any change in size, shape, colour, height, or sensation

Causes and risk factors

Melanoma develops when DNA changes allow melanocytes to grow without normal control. Ultraviolet, or UV, radiation can damage this DNA. UV radiation comes from sunlight and artificial tanning devices.

Risk is linked to UV exposure over time and to intense exposure that causes sunburn, especially earlier in life. Melanoma can still develop on skin that receives little sun.

Other factors associated with a higher risk include:

Most people with these risk factors do not develop melanoma. Some people who develop it have no clear risk factor.

Melanoma is not contagious. Most cases are not directly inherited, although inherited changes can raise risk in some families.

- Fair skin that burns easily, although any skin tone can be affected
- Many moles or unusual-looking moles
- A previous melanoma or another skin cancer
- A close relative who has had melanoma
- A weakened immune system
- Certain rare inherited gene changes

Diagnosis

A clinician will examine the suspicious area and may check the rest of your skin. A dermatoscope may be used. This is a handheld magnifying device with a special light that shows structures beneath the skin surface.

Melanoma is confirmed by a biopsy. During a biopsy, the suspicious area is removed, or a tissue sample is taken, and examined under a microscope by a pathologist. A pathologist is a doctor who identifies conditions by studying cells and tissues.

When possible, the whole suspicious skin lesion is usually removed with a narrow margin for diagnosis. The pathology report describes whether melanoma is present and measures features that help predict its behaviour. One important measurement is Breslow thickness, which shows how deeply the melanoma has grown into the skin.

If melanoma is confirmed, further tests may help determine its stage. Staging describes how far it has grown or spread. Depending on the melanoma's features, tests may include:

Not everyone needs lymph node surgery or scans. Very thin melanomas can often be assessed and treated without extensive testing.

- Examination of nearby lymph nodes
- Sentinel lymph node biopsy, which checks the first node or nodes receiving drainage from the tumour
- CT, PET, or MRI scans
- Testing the tumour for gene changes, such as a BRAF change

Treatment and management

Treatment is based on the melanoma's location, thickness, stage, genetic features, and your general health and preferences. Care may involve dermatology, surgery, oncology, pathology, and other specialist teams.

For melanoma limited to the skin, the main treatment is surgery. The melanoma and a margin of normal-looking skin around it are removed. The margin helps reduce the chance that melanoma cells remain in the area.

Some people are offered a sentinel lymph node biopsy at the time of wider surgery. This is mainly a staging procedure. It can show whether small numbers of melanoma cells have reached nearby lymph nodes.

For melanoma with a higher risk of returning, treatment after surgery may be offered. This is called adjuvant treatment. Options can include immunotherapy, which helps the immune system recognise and attack cancer cells, or targeted therapy for melanomas with certain gene changes.

If melanoma cannot be removed completely or has spread to distant organs, treatment may include:

Chemotherapy is now used less often because immunotherapy and targeted medicines are generally more useful for many advanced melanomas.

These treatments can have significant side effects. Immunotherapy can cause the immune system to inflame healthy organs, including the bowel, lungs, liver, thyroid, skin, or heart. Targeted therapy can cause fever, rash, tiredness, and other effects. Your treatment team should explain what to watch for and how side effects will be monitored.

- Immunotherapy: medicines that activate parts of the immune response
- Targeted therapy: medicines aimed at specific changes in melanoma cells, commonly BRAF-related pathways
- Surgery: removal of selected tumours when useful
- Radiotherapy: focused radiation to control melanoma in a particular area or relieve symptoms

Complications

Melanoma can return near the original site, in nearby lymph nodes, or elsewhere in the body. The chance of recurrence is influenced by its stage and other pathology findings.

When melanoma spreads, it may affect organs such as the lungs, liver, brain, bones, or

digestive tract. Symptoms depend on the area involved and can include persistent pain, cough, headaches, weakness, weight loss, or marked tiredness. These symptoms have many possible causes and do not by themselves mean melanoma has spread.

Surgery can cause scarring, altered sensation, infection, or swelling. Removal of lymph nodes may lead to lymphoedema, a lasting build-up of fluid that causes swelling.

Treatment can also affect emotional well-being. Fear of recurrence, distress about scars, and anxiety before follow-up visits are common concerns. Psychological support and melanoma support groups can help.

Prevention

Not every melanoma can be prevented. Some develop without a clear history of heavy UV exposure, and inherited risk cannot be removed.

You can reduce avoidable UV exposure by:

Sunscreen is one part of protection, not a reason to stay in strong sunlight longer.

If you have many unusual moles, a strong family history, or a previous melanoma, you may be offered planned skin checks. Becoming familiar with your skin can also help you notice change. Photographs may make comparison easier, but they do not replace professional assessment.

There is no proven way to prevent every eye or mucosal melanoma.

- Seeking shade when sunlight is strong
- Wearing covering clothing, a broad-brimmed hat, and sunglasses
- Using broad-spectrum sunscreen on exposed skin and reapplying it as directed
- Avoiding deliberate tanning and indoor tanning devices
- Protecting children from sunburn

Living with it and what to expect

The course of melanoma differs greatly by stage. Many early melanomas are removed completely with surgery and require no further cancer treatment. Advanced melanoma can be harder to control, but modern treatments can shrink or stabilise it for some people, sometimes for long periods.

Follow-up usually focuses on the skin, the surgical area, and nearby lymph nodes. The schedule is based on the melanoma's stage, treatment, and local guidance. Follow-up may become less

frequent over time, but some risk of another melanoma remains.

You may be advised to check your skin regularly. Look at less visible areas such as your scalp, back, soles, between the toes, and around the nails. A partner, mirror, or photographs may help. Report a new or changing spot rather than waiting for the next routine appointment.

After treatment, many people return to work, exercise, travel, and usual relationships. Recovery time depends on the surgery and whether ongoing treatment is needed. Some people have lasting scars, swelling, fatigue, or treatment effects that need continued care.

Living with advanced melanoma often involves repeated scans and clinic visits. Treatment may continue while it is helping and side effects remain manageable. Palliative care can be provided alongside cancer treatment to relieve symptoms and support quality of life; it is not limited to the final stage of illness.

When to get medical help

Arrange a prompt, routine medical appointment if you notice:

These changes are usually not an emergency, but they should not be left until a distant routine check.

If you are being treated for melanoma, contact your treatment team urgently about new or worsening symptoms. This is especially important with immunotherapy because inflammation of healthy organs can become serious if treatment is delayed.

Seek emergency care for severe difficulty breathing, chest pain, confusion, fainting, uncontrolled bleeding, sudden weakness, or other rapidly worsening symptoms. Follow any emergency instructions provided by your cancer team.

- A new skin mark that looks unusual
- A mole or spot changing in size, shape, colour, or sensation
- A sore that does not heal
- Repeated crusting, oozing, or bleeding from a skin lesion
- A new dark band beneath a nail without a clear explanation

Common questions

Is melanoma always a dark mole?

No. Melanoma may be black or brown, but it can also be pink, red, blue, white, or skin-coloured.

Some melanomas look like a patch or firm bump rather than a typical mole.

Does a biopsy make melanoma spread?

There is no evidence that a properly performed skin biopsy causes melanoma to spread. A biopsy is the reliable way to confirm the diagnosis and guide treatment.

Is early melanoma curable?

Early melanoma can often be cured by complete surgical removal. No treatment can guarantee that melanoma will never return, so recommended follow-up remains important.

How quickly does melanoma spread?

There is no single timetable. Some melanomas grow slowly, while others grow and spread more quickly. Appearance alone cannot show how fast a melanoma will behave. Pathology findings and stage give more useful information.

Can melanoma come back after removal?

Yes. It can return at the original area, nearby, or elsewhere in the body. The risk is lower for thin, early melanoma and higher for more advanced stages. A person who has had melanoma also has an increased risk of developing a separate new melanoma.

Can people with darker skin get melanoma?

Yes. Melanoma affects people of every skin tone. In darker skin, it is more likely to be overlooked and may occur on the palms, soles, or beneath nails. Any changing or unusual spot deserves assessment.

Sources

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