CONDITION

Melanoma skin cancer

Melanoma is a skin cancer that begins in pigment-making cells and can spread.

WHAT IT IS
Cancer of the skin's pigment-making cells

BODY SYSTEM
Skin

MAIN SYMPTOMS
Changing mole, uneven colour, irregular border, new unusual spot

WHAT CAUSES IT
DNA damage, often linked to ultraviolet radiation

HOW IT IS DIAGNOSED
Skin examination and biopsy examined under a microscope

MAIN TREATMENT
Surgery, immunotherapy, targeted therapy, or radiotherapy

CAN IT BE CURED?
Sometimes - early melanoma is often removed completely

IS IT AN EMERGENCY?
No, but suspicious changes need prompt assessment

LONG-TERM OUTLOOK
Often excellent when early; poorer after distant spread

Overview

Melanoma is a type of skin cancer. It begins in melanocytes, the cells that make melanin, the pigment that gives skin and many moles their colour.

Melanoma is less common than some other skin cancers, but it is more likely to grow into deeper tissue or spread to other parts of the body. Finding and removing it before it has grown deeply offers the best chance of successful treatment.

Most melanomas develop on the skin. They may appear within an existing mole or as a new mark. They can occur anywhere, including areas that receive little sun. Less commonly, melanoma begins in the eye or in moist internal tissues such as the mouth. Those forms are managed differently from skin melanoma.

Anyone can develop melanoma. People with brown or black skin have a lower overall risk than

people with lighter skin, but melanoma can still occur. On darker skin, it may be more likely to appear on the palms, soles, or under a nail.

Symptoms

Melanoma often appears as a new or changing patch, spot, or mole. It may not cause pain or other physical symptoms.

The ABCDE guide can help you notice changes:

Another useful sign is the "ugly duckling": a spot that looks different from your other moles. A melanoma may also become raised, firm, itchy, crusted, sore, or prone to bleeding.

Some melanomas do not follow the ABCDE pattern. Nodular melanoma may look like a firm, growing bump with a smooth surface. It may be black, brown, pink, red, or similar to your skin colour.

Melanoma under a nail can look like a dark stripe that widens or changes. Pigment may spread onto the nearby skin. A dark nail stripe has several possible causes and is not always cancer, but a new or changing stripe should be assessed.

- A - Asymmetry: one half does not match the other
- B - Border: the edge is irregular, blurred, or notched
- C - Colour: the spot contains several colours or has uneven colour
- D - Diameter: it is getting larger, although melanoma can be small
- E - Evolving: its size, shape, colour, height, or symptoms are changing

Causes and risk factors

Melanoma develops when DNA changes cause melanocytes to grow without normal control. These DNA changes are usually acquired during life rather than inherited directly.

Ultraviolet, or UV, radiation can damage DNA in skin cells. UV comes from sunlight and artificial tanning devices. Intense sun exposure and episodes of sunburn, especially earlier in life, can add to melanoma risk. However, melanoma can develop without an obvious history of sunburn.

Factors linked to a higher risk include:

Having a risk factor does not mean that you will develop melanoma. Some people diagnosed with melanoma have few known risk factors.

- Light skin that freckles or burns easily
- Many moles or unusual-looking moles
- A personal or close family history of melanoma
- Previous skin cancer
- A weakened immune system
- Heavy or intermittent UV exposure
- Use of tanning beds or sunlamps
- Certain rare inherited gene changes

Diagnosis

A healthcare professional will examine the suspicious area and may check the rest of your skin. A dermatoscope, which is a magnifying device with a special light, can show structures that are not easily seen with the naked eye.

Melanoma can only be confirmed by a biopsy. This means removing tissue so that a pathologist can examine the cells under a microscope. When practical, the whole suspicious spot is removed with a narrow rim of normal-looking skin. A partial biopsy may be used when the area is large or in a difficult location.

If melanoma is found, the pathology report usually describes its thickness. This is called the Breslow thickness and is measured from the skin surface to the deepest cancer cell. The report may also mention ulceration, meaning that the surface skin over the melanoma has broken down, and whether melanoma reaches the biopsy edges.

These details help determine the stage. Staging describes how far the cancer has grown or spread. Depending on the melanoma's features, further tests may include:

Many thin, early melanomas do not require body scans. Your care team can explain what the biopsy shows and why any further test is being considered.

- A sentinel lymph node biopsy to check the first nearby lymph node
- Testing the melanoma for gene changes, such as a BRAF change
- CT, MRI, or PET scans when there is a meaningful risk of spread

Treatment and management

Treatment is based on the melanoma's stage, location, genetic features, and your general health. Decisions should also take account of your priorities and the possible benefits and side effects.

Surgery is the main treatment for melanoma that has not spread to distant organs. After the diagnostic biopsy, a wider area of skin is usually removed around the site. This is called a wide local excision. The amount removed is based mainly on the melanoma's thickness.

A sentinel lymph node biopsy may be offered for melanomas with features that raise the chance of lymph node spread. It is mainly a staging procedure. It can provide information about outlook and help guide further treatment.

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

If melanoma cannot be removed completely or has spread, treatments may include:

Targeted therapy only works when the melanoma has a suitable gene change. Chemotherapy is now used less often because other treatments are generally more effective for many people with advanced melanoma.

Treatment can cause important side effects. Immunotherapy may make the immune system inflame healthy organs, while targeted therapy can affect the skin, heart, eyes, liver, or other tissues. Report new symptoms promptly rather than waiting for the next scheduled visit.

- Immunotherapy: medicines that release natural brakes on immune cells
- Targeted therapy: medicines aimed at specific cancer changes, such as BRAF and MEK pathways
- Surgery: removal of selected tumours or affected lymph nodes
- Radiotherapy: focused radiation for certain sites or symptoms

Complications

Melanoma can grow deeper into the skin and spread through lymph vessels or the bloodstream. Common sites of distant spread include the lungs, liver, brain, bones, and skin elsewhere on the body.

Possible complications include:

Scars, changes in body image, and worry about recurrence can also affect daily life. Psychological support, rehabilitation, and symptom treatment are valid parts of melanoma care.

- Melanoma returning near the original site
- Spread to nearby lymph nodes
- Swelling caused by lymph fluid buildup after lymph node treatment
- Pain or reduced organ function from distant spread
- Lasting effects from surgery or other treatment
- Immune-related or other medication side effects

Prevention

Not every melanoma can be prevented. Some develop in skin that has had little UV exposure, and inherited susceptibility cannot be changed.

Reducing UV exposure can lower avoidable risk:

Sunscreen should support, rather than replace, shade and protective clothing. There is no need to avoid all outdoor activity.

Checking your skin does not prevent melanoma, but it may help you notice a change sooner. Become familiar with your usual moles and marks, including areas such as your scalp, back, soles, and nails. Photographs can sometimes make changes easier to recognise.

If several close relatives have had melanoma, especially at young ages, genetic counselling may be considered. Most families affected by melanoma do not have an identifiable inherited mutation.

- Avoid tanning beds and sunlamps
- Seek shade when sunlight is strong
- Wear tightly woven clothing, a broad-brimmed hat, and sunglasses
- Use broad-spectrum, water-resistant sunscreen with SPF 30 or higher
- Reapply sunscreen as directed, especially after swimming or sweating
- Protect children from sunburn

Living with it and what to expect

What happens over months and years is strongly influenced by the stage at diagnosis. A thin melanoma that is completely removed often needs no treatment beyond surgery and follow-up. Melanoma involving lymph nodes or distant organs usually needs longer-term

specialist care.

Follow-up may include skin examinations, checks of nearby lymph nodes, and discussion of new symptoms. Imaging is used for some higher-stage melanomas but is not needed for everyone. The timing and length of follow-up are based on the melanoma's stage, treatment, and local guidance.

A previous melanoma increases the chance of another melanoma or another type of skin cancer. Continue protecting your skin and checking for new or changing spots. Routine follow-up is also a chance to discuss scars, swelling, treatment effects, sleep, mood, or returning to work.

Modern treatments can control advanced melanoma for long periods in some people, but responses differ. Some melanomas shrink and remain controlled, while others stop responding or return after treatment. Your specialist team can explain what the stage and treatment response mean in your situation without making guarantees.

When to get medical help

Arrange a prompt, non-emergency appointment if you notice:

Do not wait for a routine skin check if a spot is changing. Most examined skin marks are not melanoma, but assessment is the only way to know whether testing is needed.

If you have already been treated, report a new lump, persistent unexplained symptom, or possible treatment side effect to your care team. Follow the urgent-contact instructions given with systemic cancer treatment.

Seek emergency care for severe trouble breathing, chest pain, fainting, confusion, uncontrolled bleeding, or another rapidly worsening symptom. These are not typical early signs of a skin melanoma, but they can signal a serious general problem or treatment reaction.

- A new spot or mole that looks unusual
- A mole changing in size, shape, colour, or texture
- A spot that repeatedly crusts, bleeds, itches, or does not heal
- A changing dark mark under a nail
- A mark that looks different from all your others

Common questions

Can melanoma be cured?

Sometimes. Early melanoma can often be removed completely with surgery. Cure is less certain after melanoma has reached lymph nodes or distant organs, although treatment may still control it for a long time.

Is melanoma always black or brown?

No. Melanoma may be black, brown, blue, red, pink, pale, or similar to your normal skin colour. Change and difference from your other spots can be more useful clues than colour alone.

How quickly does melanoma spread?

There is no single timetable. Some melanomas grow slowly, while others become deeper over weeks or months. A suspicious change should be assessed promptly rather than watched for a set period.

Can a biopsy make melanoma spread?

There is no good evidence that a properly performed skin biopsy causes melanoma to spread. Biopsy is necessary to confirm the diagnosis and measure features that guide treatment.

Can melanoma come back after surgery?

Yes, although many early melanomas do not return. The chance is influenced by thickness, ulceration, lymph node involvement, and stage. Follow-up is intended to check for recurrence and new skin cancers.

Can melanoma grow under a fingernail or toenail?

Yes. Nail melanoma can appear as a new or widening dark stripe, nail damage, or pigment spreading onto nearby skin. Injuries and harmless pigment can look similar, so a changing nail mark needs assessment.

Sources

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