

EARLY DETECTION ABCDE RULE

Early detection

The objective of early detection (secondary prevention) is to identify and treat skin cancer at an early stage. In the early stages, skin cancer can almost always be cured with surgery.

Unlike other organs, your skin is very suited to early detection of cancer, as it can be readily examined by yourself, a partner, or a specialist. On the following pages, you will read how you can effectively examine yourself and assess your skin changes, as well as when you should see a doctor.

Self-examination

You know your own skin or the skin of your partner or child better than anyone else. If you have an increased risk of skin cancer, we recommend regular and systematic self-examination. This should be done with a mirror so that you can also assess your back and buttocks as well as the soles of your feet. It is important to know that skin cancer can also occur on areas of the body that have not been exposed to the sun (e.g. the oral mucosa, a hair-covered head, the anal region, or the soles of the feet).

The following rules will help you to best assess your skin changes:

Focus your attention on anything that has appeared recently or has changed; of course, numerous benign changes (e.g. age spots and haemangioma) will occur over a lifetime. However, if a new spot has appeared or an existing mole has changed, we advise you to consult a dermatologist for further clarification. You should also focus on areas that look different from others, as these should be reported and removed where possible.

ABCDE rule:

The ABCDE rule will help you to determine whether a spot involves benign or malignant changes. The spot is evaluated according to five different criteria:

A – Asymmetry

B – Borders

C – Colour

D – Diameter

E – Evolution (new and having appeared within a short time)

Warning symptoms for lesions include asymmetric (smooth and/or irregular border), i.e. partially smooth and partially fringed in the outer periphery, and/or the existence of different shades, e.g. reddish, blackish, and brownish shades. Furthermore, lesions with a diameter of more than 5 mm are more vulnerable.

Many benign changes also meet these criteria. Do not panic: simply show your dermatologist the suspicious skin change.

Skin cancer screening using dermatoscopy

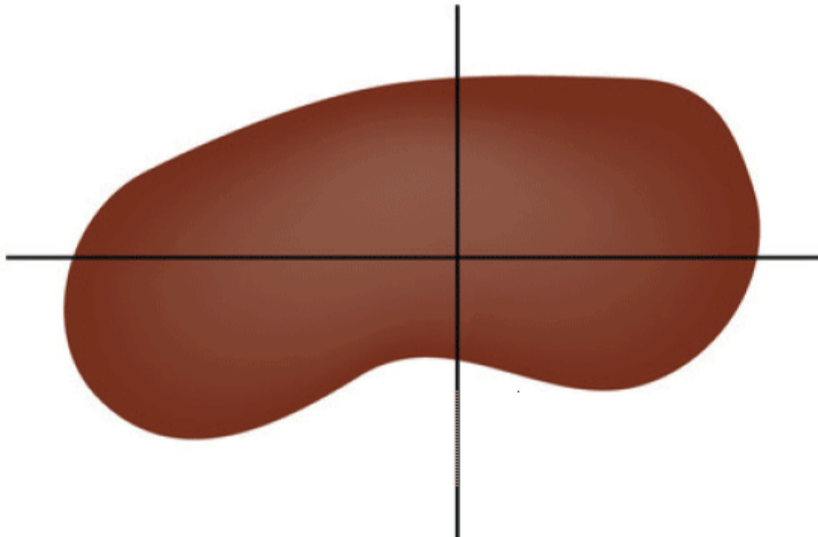
Dermatoscopy has become an indispensable component of diagnostics for dermatologists and general practitioners. The dermatoscope is also useful for assessing other skin diseases.

Dermatoscopy is a non-invasive, simple method that enables the examination of skin lesions. The lesion is observed through a microscope with the addition of fluid and light. Using various algorithms (dermatoscopic ABCD rule, the Menzies' score, seven-point list, Chaos & Clues), a trained examiner can make a reliable diagnosis: a benign or malignant skin tumour.

See the following for an example of a [structured approach for dermatoscopic examination](#) using the ABCD rule. Other examples are "[Other algorithms of melanocytic lesions - von Hon Assoc Prof Amanda Oakley](#)" and "[Chaos & Clues \(an Australian method\)](#)".

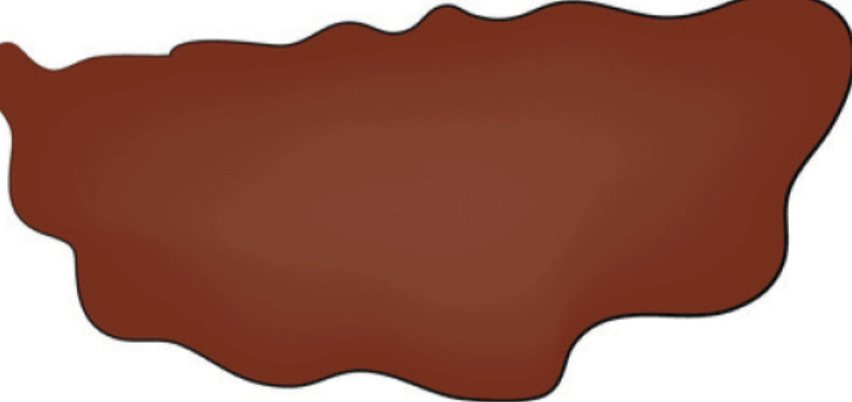
Fourth step: ABCD rule of dermatoscopy

A



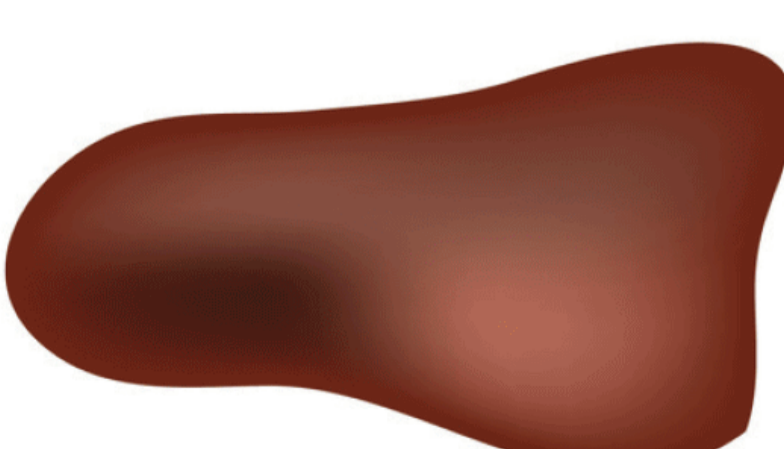
Asymmetry:
Asymmetric in one or two axis

B



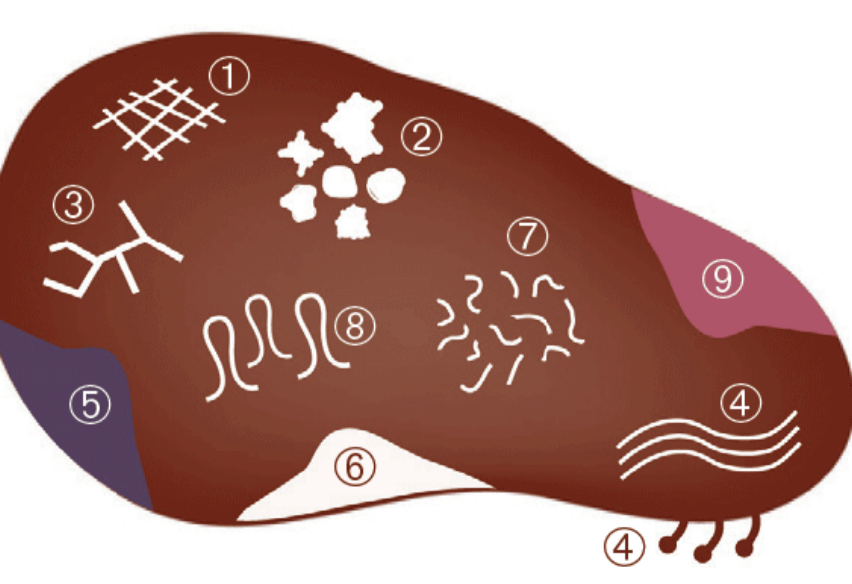
Border:
Irregular or blurred

C



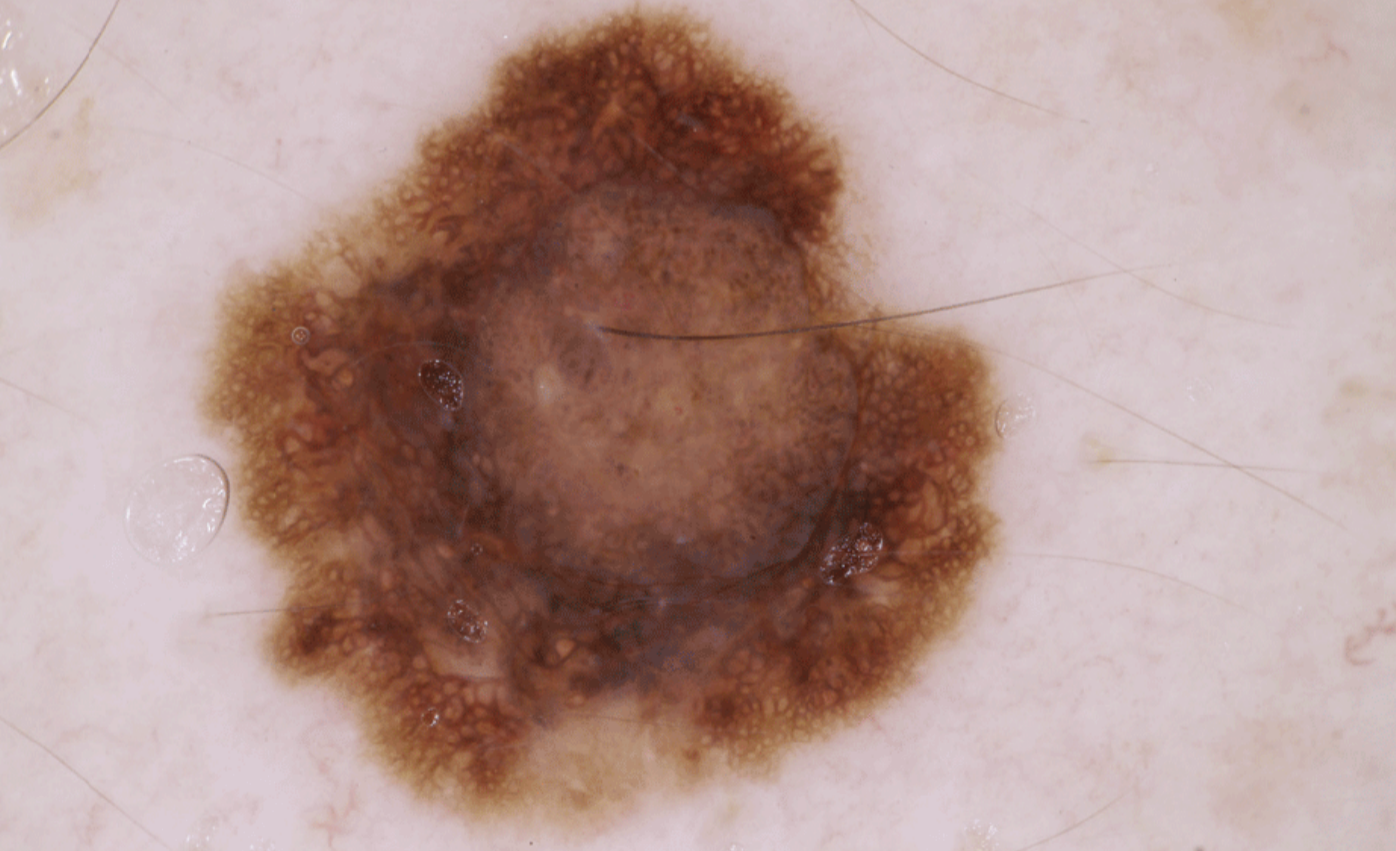
Colour:
Differently coloured pigmentation
Polychromatism (white, red, light brown, dark brown, black, and blue-grey)

D

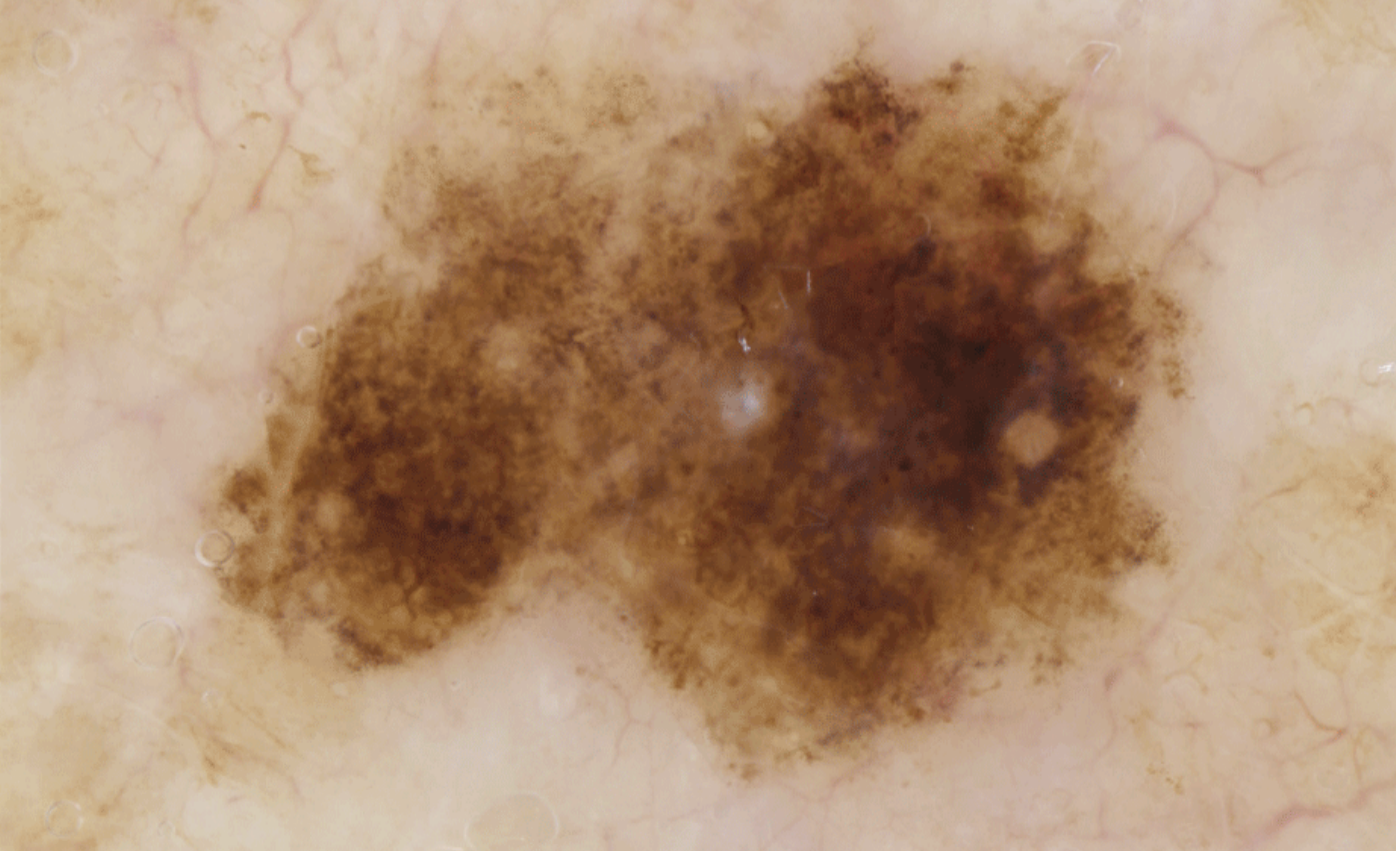


Dermatoscopic structure:
Pigment network: irregular mesh and/or pigmentation (1)
Clumps and globules: irregular size and distribution (2)
Branched strips: modified pigment network, abrupt discontinuation (3)
Strips: non-parallel, irregular strips (4)
Structureless areas: no recognisable structures (5), milky veil
Regression structures: whitish, scar-like depigmentation (6)
Atypical vascular patterns: irregular polymorphous vascular pattern (7)
hairpin vessels (8), milky red areas (9)

Examples:




Asymmetrical lesion with atypical network, stripes, and dots with brown, grey, and blue colours. Image without polarisation filter with immersion fluid and full lighting (4 LEDs).



Asymmetrical lesion with clumps, points, and a network of an invasive melanoma (< 0.5 mm tumour thickness) with brown and grey colours. Image with polarisation filter with immersion fluid and full lighting (4 LEDs).

If one or more of these criteria correspond to a pigment spot, a suspicious or malignant lesion may be involved.



www.heine.com 12/16

PREVENTION

Determination of skin type

Fair skin with a high sensitivity to the sun is the most important risk factor for the development of skin cancer. The **Fitzpatrick scale of skin type** is divided into the following categories:

Characteristics	Skin type 1	Skin type 2	Skin type 3	Skin type 4	Skin type 5
Skin	Very light-skinned	Light-skinned	Light/dark brown	Dark brown, olive	Dark brown, black
Hair	Red, blond	Blonde, light brown	Light brown, brown	Dark brown, black	Black
Eyes	Blue	Blue, green, grey	Grey, brown	Brown, dark brown	Dark brown
Sunburn	Always intensive, painful	Often intensive, painful	Rarely, moderate	Marginal	Marginal
Tanning in the sun	None	Marginal	Good	Quickly and deeply	Quickly and deeply
Self-protection time of the skin	5–10 min	10-20 min	20-30 min	40 min	60-90 min
Protection by a fabric with UPF 20	100–200 min, approx. 1–3 h	200–400 min, approx. 3–6 h	400–600 min, approx. 6–10 h	900 min, approx. 15 h	1200–1800 min, approx. 20–30 h



Additional risk factors

For malignant melanoma, the number of moles is a major risk factor. If there are more than 50 or 100 moles, there is a particularly high risk. This increases even more if there are moles greater than 5 mm in diameter. If both occur together, this is referred to as atypical nevus syndrome.

Immunosuppression is also becoming increasingly important. After an organ transplant or in the case of an autoimmune disease, immunosuppressants must often be taken over a lifetime. These people have a greatly increased risk of developing carcinoma!

Excessive exposure to the sun, outdoor sports, the increased use of tanning beds, and insufficient sun protection all contribute to the risk.

Sun protection

The most important measures for protecting against UV rays are avoiding the sun during the hours of peak intensity and wearing appropriate protective clothing.

Sunscreen is also important.

What does SPF mean?

The skin provides a certain degree of self-protection against the sun before it reddens and sunburn occurs. On average, this is 20 minutes for untanned skin. The sun protection factor indicates how much longer you can stay in the sun with sunscreen without getting burnt.

The most important protection against sunburn is the UVB filter. In Europe, the UVB protection factor has been specified in accordance with the standard of the Confederation of the European Cosmetics Industry COLIPA since 1997. The European SPF system uses the fair skin of a Northern European as the basis for measurement. The UVA protection factor must be at least one-third of the SPF.

Sunscreen with an SPF of 30 should therefore have a UVA protection factor (UPF) of at least 10. To test the UVA protection factor, a recommendation has been issued by COLIPA. Compliance with the required UVA protection is indicated by a special icon on the package. This consists of a circle containing the letters "UVA".

It is important to determine one's self-protection time correctly. Wearing sunscreen with SPF 20, a very fair-skinned person with skin type I and a self-protection time of 3 minutes can only stay in the sun for 60 minutes without getting burnt.

To roughly determine how long you can stay in the sun, a simple **SPF formula** helps: Self-protection time × sun protection factor = the maximum possible time that can be spent in the sun per day without getting burnt. With a self-protection time of 15 minutes and an SPF of 20, you can spend 300 minutes (15 × 20) per day in the sun without getting burnt.

The prerequisite here is the right application of sunscreen. Other factors, such as sweating, contact with water, and reflections (e.g. 90% in water or in the snow and in sand) as well as a higher UV index (e.g. in the tropics, the Mediterranean, or high mountains) also play a role. Experts therefore recommend reducing the calculated protection time.

Types of sunscreen

Chemical sunscreens have conjugated double bonds that absorb UV radiation. In addition to protecting the skin, organic filters also protect the product itself (i.e. against UV-induced decomposition and fading). They are soluble, penetrate the top layer of the skin, and can trigger allergies and skin irritations.

Titanium oxide is often used as a **physical (inorganic) sunscreen**. It is insoluble and leads to whitening of the skin. It does not penetrate into the living skin and does not trigger allergic reactions. Zinc oxide is another inorganic filter.

To best cover the spectrum of UV rays and thereby provide the best possible sun protection, several sunscreens must be combined. Furthermore, photo-unstable filters can be protected by other filters. However, there can also be interactions between filters. Additives used include tocopherol (vitamin E), ascorbic acid (vitamin C), and flavonoids. They inhibit the formation of UVB-induced erythema and light-induced DNA damage

Adverse effects of sunscreen

Disturbance of vitamin D metabolism

Sun protection is very important, but so is sunlight. Sunrays activate the production of vital vitamin D in our skin. However, this can be inhibited by sunscreens. Many current studies suggest that low vitamin D levels can increase the risk of some cancers, cardiovascular diseases, metabolic diseases, and autoimmune diseases as well as susceptibility to infections.

To ensure sufficient vitamin D synthesis in the spring and summer, experts suggest exposing 20 per cent of the body surface (e.g. face and arms) to the sun three times per week, for half of the required to cause reddening of the skin, but not enough to cause sunburn. Vitamin D supplementation is only warranted in specific cases. These include the prevention of rickets in infants as well as patients with osteoporosis, chronic renal failure, and hypo-parathyroidism.

How do I protect myself properly?

Sunscreen must be applied liberally to the skin about 30 minutes before sun exposure. To achieve the specified protection, 2 mg/cm² of sunscreen must be applied. For an adult, this corresponds to three tablespoons. After swimming, the same amount of sunscreen should be reapplied, even when using waterproof sunscreen.

For textiles, there is also a value similar to the SPF in creams: The Ultraviolet Protection Factor (UPF). This indicates how much the garment shields against the sun. The value is always based on dry, normal fitting clothing; if the garment is wet or stretched, the value is reduced considerably.

A white T-shirt, for example, has a UPF of 10: this means that the garment only allows one-tenth of the solar radiation to pass through.

The UPF is not derived from the transparency of the garment.



WHITE AND BLACK SKIN CANCER

Carcinoma

Basal cell carcinoma

Basal cell carcinoma typically occurs in elderly men; however, women and younger individuals can also be affected. The typical localisation is the bridge of the nose and other areas of the face. One particular form, superficial basal cell carcinoma, is often found on the torso.

Basal cell carcinoma spreads slowly and is infiltrative and destructive. It involves skin-coloured, shiny nodes that are frequently surrounded by dilated vessels (telangiectasia) and nodules arranged like strings of pearls. There is also a depression in the centre, which can also bleed.

Basal cell carcinomas are destructive but do not metastasise. They can therefore not cause metastases in other organs. Basal cell carcinoma is usually treated with surgical removal. Because basal cell carcinoma often forms invisible strands of tumours, the histological preparation should be examined for residual tumours along all the edges (3D histology). In some cases, follow-up surgery is required. Several surgical steps are often planned from the beginning.



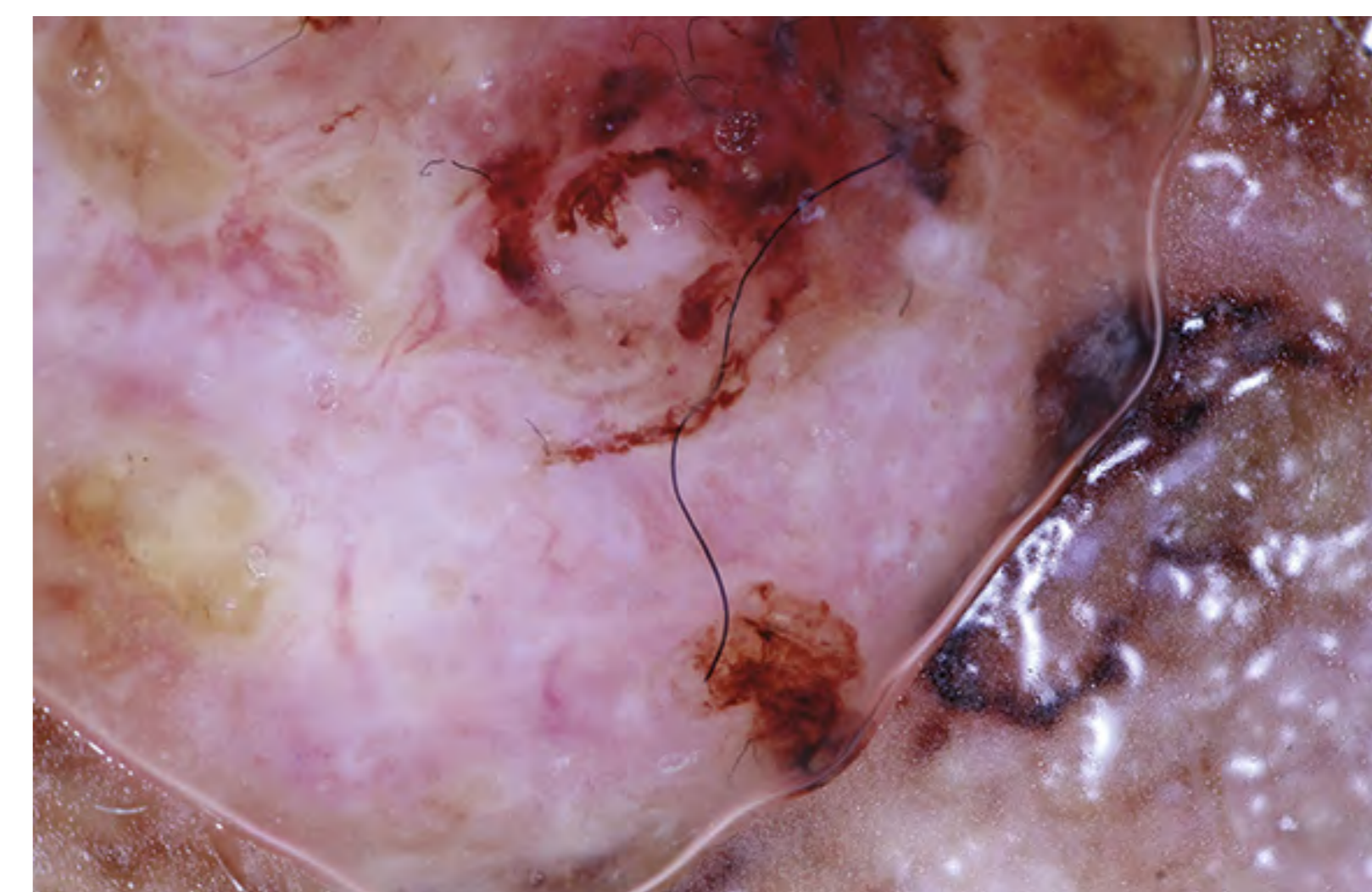
Basal cell carcinoma

Squamous cell carcinoma

Squamous cell carcinoma also tends to affect the elderly. It primarily affects the face and results from many years of exposure to sunlight. Other affected areas include the outer ears, the lower eyelids, the bridge of the nose and the lower lip. Squamous cell carcinoma often develops from actinic keratosis, also known as sun warts. These are flat, reddish, and slightly scaling changes that cause slight discomfort. Occasionally, sensitivity to the touch or mild itching is reported.

In the transition to squamous cell carcinoma, an increased horn formation, a nodular growth, and a bleeding disorder may develop. The treatment of choice is surgical removal, followed by the histological examination of all edges (3D histology). If the histological examination reveals a particularly aggressive growth, or if the tumour exceeds a certain thickness (penetration depth), a sentinel lymph node biopsy is recommended for squamous cell carcinoma, as is the case for melanoma. In this way, a possible metastasis of tumour cells in the associated lymph nodes stations can be detected.

Unlike basal cell carcinoma, in squamous cell carcinoma, malignant cells can metastasise in the associated lymph nodes (and remote organs in rare cases). However, in most cases, this type of skin cancer can be detected and treated with surgery.



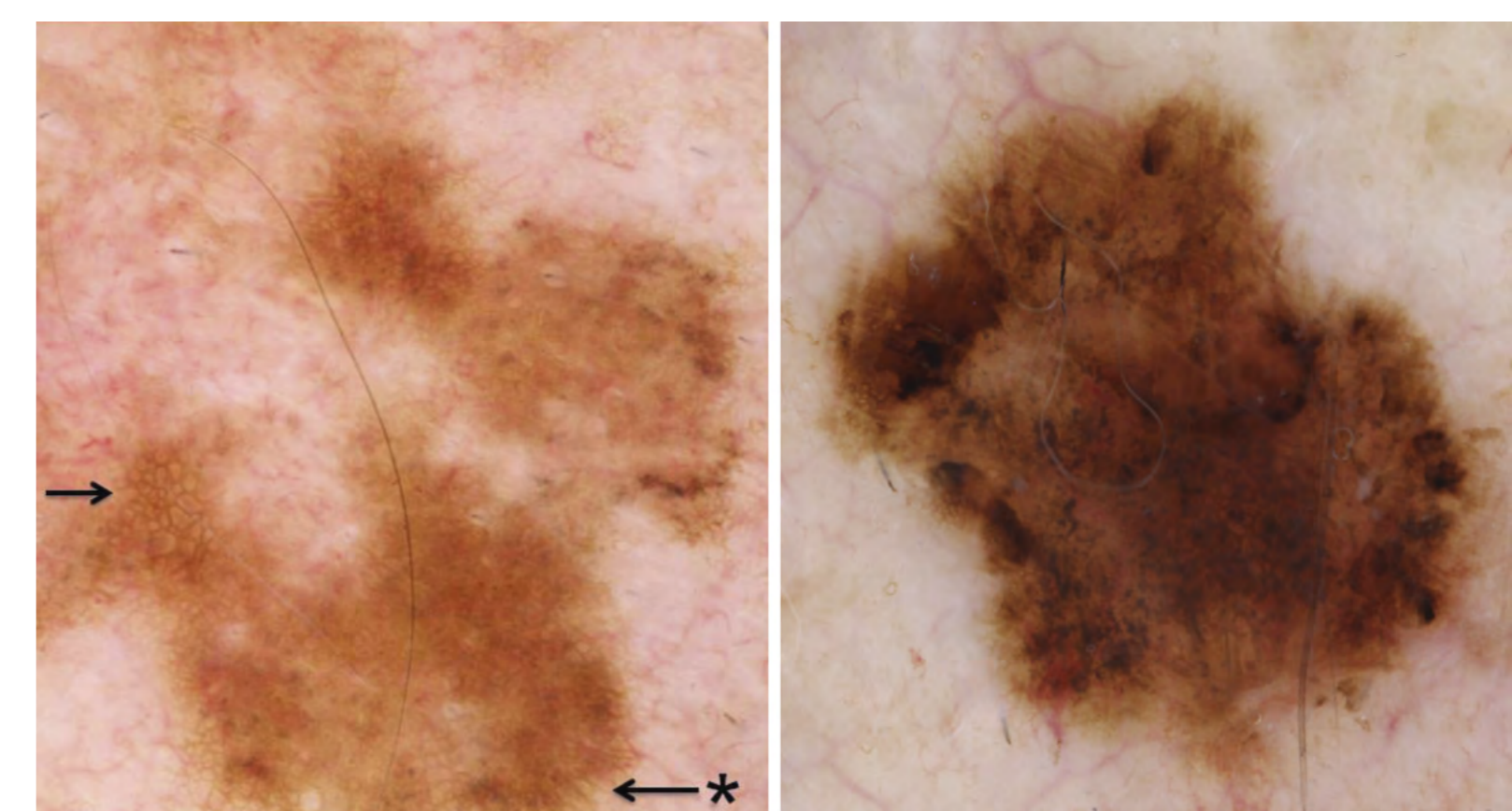
Squamous cell carcinoma

Melanoma

Malignant melanoma arises from the pigment cells of the skin. The colour is usually black, but there are also bright variants (amelanotic melanomas), which are particularly difficult to detect.

Most melanomas develop on the trunk and extremities, sometimes from pre-existing moles and sometimes from new ones. Other sites include the face (especially in the elderly), nails, the soles of the feet, mucous membranes, and the eyes (uveal melanoma). Men and women are equally affected, often between the ages of 50 and 60. However, malignant melanoma also occurs in young people.

The danger of malignant melanoma increases with tumour thickness: in the case of thin melanomas (< 1 mm), the risk of metastasis later on is low; in the case of thick melanomas (> 4 mm), there is a higher risk. Fortunately, thin melanomas can be detected early and removed with a safety margin.



Melanoma in-situ