



EUROPEAN  
ACADEMY OF  
DERMATOLOGY &  
VENEREOLOGY

Information Leaflet  
for Patients

## Skin cancers in organ transplant patients

### **The aim of this leaflet**

This leaflet has been written to help you understand more about rosacea in pregnancy. It will discuss what rosacea is, what causes it, and what can be done about it.

# Skin cancers in organ transplant patients

## How does organ transplantation affect my immune system?

Organ transplantation is a miracle of modern medicine, and it is the only therapeutic choice in many patients with end-stage organ failure. You may be one of the fortunate patients who had the possibility of receiving an organ transplant. Organ transplant recipients need to take immunosuppressive medications to prevent rejection of the transplanted organ. Because of these medications, your immune system is less capable of fighting off different problems, including certain skin conditions.

## When do I need to be concerned about my skin?

You are prone to developing various skin cancers and infections due to your suppressed (or blocked) immune system.

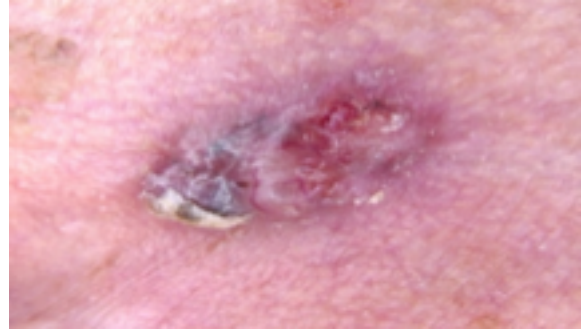
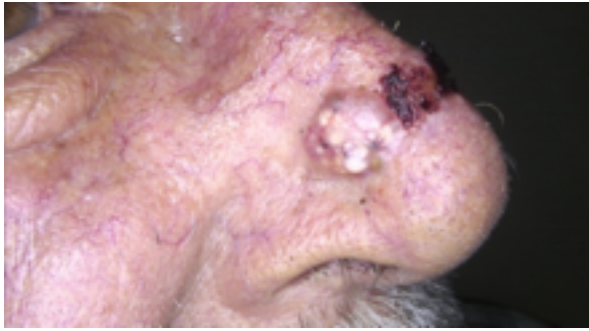
Skin cancer is the most common cancer in organ transplant recipients. The longer a person takes immunosuppressants, the greater the risk of skin cancer becomes. There are several types of skin cancer: the most common ones are *squamous cell carcinoma* (SCC) and *basal cell carcinoma* (BCC). You are more likely (up to 65 times more likely) to develop skin cancer compared to the general population. However, if diagnosed early, these skin cancers can usually be treated effectively. On the other hand, some skin cancers such as SCC and *melanoma* can be deadly, especially when diagnosed late. Transplant patients may also develop multiple skin cancers. The risk of developing *Kaposi sarcoma* (KS), *melanoma* and other skin cancers is much lower than for SCC and BCC. Repeat surgical treatments and scar-

ring due to removal of these cancers can be burdensome. Therefore, it is important for you to be aware of the risk factors and preventive measures for skin cancers.

## What are the risk factors for developing skin cancers?

All transplant recipients are at increased risk for skin cancer. Those with the following risk factors are even more prone to developing skin cancers:

- Older age (over 50 years old)
- Male gender
- Fair, easily-burned skin
- Red or blond hair
- Extensive freckling or naevi (moles)
- Blue, green, or hazel eye color
- Sunburn with blisters during childhood
- Personal or family history of skin cancers
- Outdoor occupation or prior history of extensive sun exposure
- Smoking.



Basal cell carcinoma

## What are the different types of potential skin cancers, and what do they look like?

### 1. Basal cell carcinoma (BCC)

- A pearly or transparent, often pink or red, dome-shaped growth with visible blood vessels. There is usually a crusted part in the center. The bump can also be tan, brown, or black.
- A bleeding, oozing, or crusting sore that repeatedly heals and returns.
- A shiny, reddish, or pinkish patch which frequently develops on the chest, back, shoulders, arms, or legs.
- A white, yellow, or waxy area with poorly defined borders that looks like a scar.

BCCs usually develop on the face, especially on the nose, cheeks, and forehead. BCC can also develop elsewhere on the body.

### How serious is BCC, and is treatment possible?

BCC rarely spreads to other parts of the body. Yes, treatment is possible. Furthermore, treatment is necessary as it can grow and spread to deeper tissues (i.e. nerves, vessels, and bones). Treatment is simple when the tumor is small and diagnosed early.

When diagnosed and treated early, the prognosis is excellent. Your dermatologist needs a skin biopsy to confirm the diagnosis. The treatment method depends on the localisation and size of the tumour, your general health, and your personal preferences.

Treatment approaches include simple excision (surgically removing BCC and some surrounding normal skin, which is the treatment of choice) or *Mohs micrographic surgery* (a special surgery technique which spares the greatest amount of healthy tissue while removing the cancer cells), *electrodesiccation* and *curettage* (removing the cancer by scraping, and then heating the scraped area to destroy the remaining cancer cells), cryotherapy (freezing the tumour, causing the area to flake off), *radiotherapy* (treatment with radiation if surgery cannot be performed), *photodynamic therapy* (exposure to a special light after applying a chemical to the skin), *imiquimod* (medication that can be applied to your skin), and *hedgehog inhibitors* (pills that can be taken when BCC spreads to other body parts, or when it cannot be removed surgically or treated with radiation).

### 2. Actinic keratoses (AKs) and squamous cell carcinoma (SCC)

*Actinic keratoses* (AKs), also called *solar keratoses*, are skin growths that are common in organ transplant recipients. Fair-skinned patients are more prone to developing these skin growths. They are usually seen on areas exposed to more sunlight than other parts, such as the forehead, ears, scalp, lower lip, hands, arms, and lower legs (especially in women). If not treated, AKs may progress into SCC, which is the most common skin cancer in organ transplant recipients.

# Skin cancers in organ transplant patients

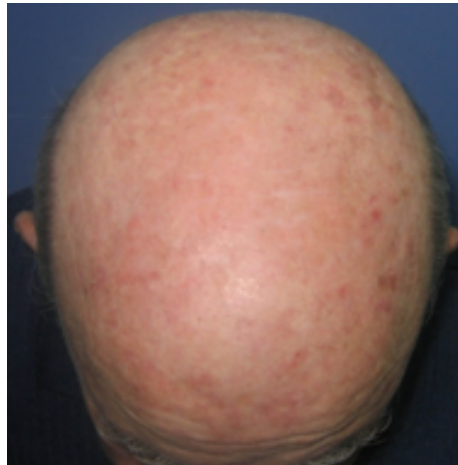
They are usually rough-textured, scaly growths. Some are skin-colored, and feel like sandpaper when touched. They can also be red, brown, or yellowish-black with crusts. The size varies from a pinhead to 2 cm. When AK develops on the lip (*actinic cheilitis*), the lip looks scaly, cracked, and white or gray.

## AKs? What are the treatment options?

Treatment of AKs is necessary, as untreated ones may transform into SCC.

Treatment options are cryotherapy, photodynamic therapy, 5-fluorouracil (a topical anti-cancer agent), imiquimod (treatments that help the immune system destroy AKs), diclofenac gel (a non-steroidal anti-inflammatory drug that destroys AKs), chemical peeling, laser therapy or even surgery. Your dermatologist may choose one or several approaches to treat AKs.

- SCC is the most common skin cancer in organ transplant recipients. When diagnosed and treated early, SCC can be cured.
- They appear in many shapes, such as the following examples: a wart-like growth that occasionally bleeds; an open sore that does not heal, and bleeds/crusts; a persistent, red, rough, flat patch with irregular borders that sometimes bleeds/crusts; or a rapidly-growing, dome-shaped bump with a lowered central area.



Actinic keratosis



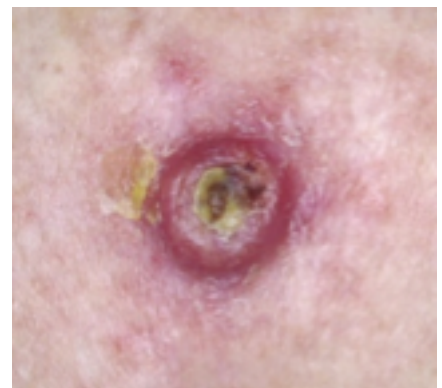
Actinic cheilitis

Most SCCs develop on the face, ears, lips, back of the hands, arms, and legs as those areas receive more sun exposure than other skin areas. However, SCCs also occur inside the mouth and on the genital area.

## Is treatment necessary for



Squamous cell carcinoma



Squamous cell carcinoma



### Is SCC curable? What are the treatment options?

If diagnosed early and removed, most SCCs can be cured. If caught late or left untreated, the cancer can spread to other body parts, making treatment difficult.

The diagnosis needs to be confirmed by a skin biopsy and microscopic examination of the skin sample. The treatment approach takes several factors into account, such as the localisation of the tumour, whether it has spread to any other parts of your body, and your general health.

One or several treatment options can be applied, such as simple surgical excision or Mohs micrographic surgery, electrodesiccation and curettage, photodynamic therapy, laser treatment, and radiotherapy (terms defined earlier in the BCC section). Transplant patients may sometimes develop many SCCs; in that case, you may need to take an oral medicine (acitretin or nicotinamide) to reduce the risk of developing new SCCs. Your transplant physician might change or reduce the dose of your immunosuppressive medications if you have multiple or newly developing SCCs.

### 3. Melanoma

*Melanoma* is a cancer of the *melanocytes* (pigment-producing cells in the skin). It starts on the skin surface, and it is possible to cure *melanoma* when diagnosed and treated early. When it grows deep into the skin, it might spread (metastasize) to other body parts via blood and *lymphatic* vessels (which usually carry *lymph fluid*), and can be fatal.

Other than the risk factors for developing other skin cancers (mentioned above), you are at higher risk for *melanoma* if you have more than 50 moles, or moles that are unusual and irregular-looking (called “dysplastic” or “atypical” moles). If you have close relatives who have *melanoma*, the risk is also increased.

*Melanoma* can develop anywhere on the skin. It can sometimes occur under the nails, inside the mouth, and on the genitals. However, it is mostly observed on the backs of men and legs of women. The color of *melanoma* is usually brown or black, but rarely, it may be skin-colored, red, blue, or white. It usually develops on normal skin, but sometimes originates from a pre-existing mole.

#### What should I look for?

In order to catch a *melanoma*, it is useful for you to remember the “ABCD rules”:

#### **A (for asymmetry):**

*Melanomas* are mostly asymmetric, meaning that one-half of it is unlike the other half.

#### **B (for border):**

The edge or border of a *melanoma* is usually irregular, poorly-defined, notched, curved, or blurred.

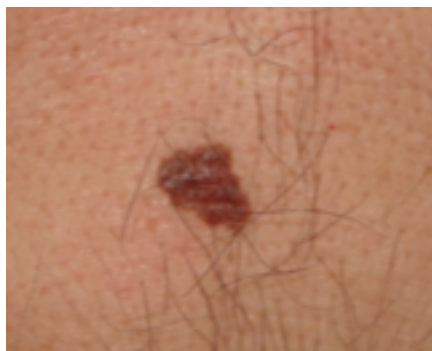
#### **C (for color):**

A mole can be any color, but it has mostly only one color. *Melanomas*, however, usually have different colors varied from one area to another, such as tan, brown, or black. They can sometimes be white, red, or blue.

#### **D (for diameter):**

At the time of diagnosis, most *melanomas* are larger than 6 millimeters in diameter (the diameter of a pencil eraser). However, they can sometimes have a smaller size. Also, if any of your moles is different than the others, has changes in color or border, or enlarges, you should see your dermatologist. If your mole itches, becomes raised, or bleeds, these are also warning signs for you to seek medical advice.

Melanoma



# Skin cancers in organ transplant patients

## Can *melanoma* be cured? What are the treatment alternatives?

If *melanoma* is diagnosed early, it can be cured. So, the best treatment is early detection! Biopsy by complete (sometimes partial) removal of the tumour and microscopic examination is needed to confirm the diagnosis. The thickness of *melanoma* guides the treatment modality (or modalities) that your dermatologist chooses.

Treatment includes surgical removal of the *melanoma* along with some normal-looking skin surrounding the *melanoma*. This simple surgical approach is usually adequate for treatment of early stage (thin) *melanoma*.

If you have a deeper (thick) *melanoma*, there is a possibility that it may spread to other body parts. *Melanoma* usually goes to local lymph nodes first before it spreads to different body parts. For this reason, your doctor may need to perform a procedure known as *sentinel lymph* node biopsy to determine if *melanoma* cells are present in the local lymph nodes nearest to the tumour. If so, imaging techniques such as x-ray, ultrasound, computed tomography (CT), magnetic resonance imaging (MRI), etc. may also be needed. If you have *melanoma* in the lymph nodes and other organs, then other treatment modalities are needed which may include chemotherapy, targeted therapy, *immunotherapy*, or radiation therapy.

If you have *melanoma*, you also need a full body skin examination to detect a possible second *melanoma*. Your dermatologist should see you at regular intervals after the treatment; the frequency of your follow-up visits depends on the thickness of your *melanoma*.

## What should I do after *melanoma* treatment?

It is not unusual for patients with *melanoma* to develop another *melanoma*.

You need to remember that sun protection is important (please see below), as ultraviolet radiation is one of the contributing factors in developing *melanoma*.

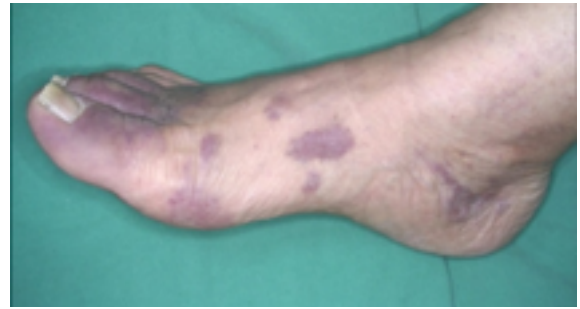
Because early detection of *melanoma* is the key to the best treatment, you need to perform self-skin examinations monthly. Use the “ABCD rules” of *melanoma* and look for irregular lesions or moles that are growing and changing! Look at all skin surfaces including the scalp, lips, inside the mouth, nails, and the region of the genitals and anus in a well-lit room. You can use full-length and hand mirrors, and also a blow-dryer for your scalp to better examine suspicious lesions. One of your family members may help you to examine your skin. Other than the “ABCD rules,” you need to look for persistent red areas, areas that bleed easily or continue to have sandpaper-like scales, and persistent sores that do not heal in order to detect other skin cancers early (such as SCC and BCC).

## 4. Kaposi sarcoma

*Kaposi sarcoma* is caused by *human herpesvirus 8 (HHV-8)*. Patients from Mediterranean countries, the Middle East, and Africa, where this virus is very common, have a high risk of developing this cancer. The virus is usually acquired during childhood, by sexual contact, or transmitted via the transplanted organ. If you are infected with HHV-8, you may develop *Kaposi sarcoma* after your immune system is weakened by drugs given after transplantation.

It often affects only the skin, but lymph nodes and other organs can also be involved. Dark brown or purple spots or lumps usually occur on the legs and feet, but they can appear anywhere on the skin.

Contrary to other skin tumors, *Kaposi sarcoma* usually appears early after transplantation.



Kaposi sarcoma

### What are the treatment methods for *Kaposi sarcoma*?

Treatment methods include a decrease or change in your immunosuppressive drugs, and sometimes additional treatments such as *cryotherapy*, surgical removal, *radiotherapy*, or chemotherapy.

Can I reduce my risk of developing skin cancer? If so, what is practical advice for what I can do?

Yes, you can. The key to protection or lower risk of skin cancer is you!

- You need to know that sun protection is important to prevent most skin cancers. You should use effective sun protection methods.
- Regular use of sunscreens may prevent the development of pre-cancers (*actinic keratosis*), SCC, and, to a lesser degree, BCC in transplant patients. Here are some tips for you to avoid dangerous sun exposure and use sunscreens effectively:
  1. Seek shade, especially when your shadow is shorter than you are. Sunlight is dangerous for your skin between 10 a.m. and 4 p.m.
  2. Apply broad-spectrum sunscreen (UVA and UVB) with a SPF (sun protection factor) of at least 30 on all exposed skin 30 minutes before going out in the sun.
  3. Apply sunscreen generously.
  4. Apply sunscreen even on cloudy days.

5. Use sun protective lip-balm (at least SPF 30) to protect your lips.
  6. Applying sunscreen should be part of your morning routine (everyday!).
  7. Reapply sunscreen every two hours when spending time outdoors, especially when swimming or after sweating.
  8. Use a sufficient amount of sunscreen to achieve the SPF indicated on the product (i.e. two tablespoons of sunscreen to the exposed areas of the face and body; spray should be applied until an even sheen appears on the skin).
  9. Do not forget to apply sunscreen to your neck, temples, and ears.
  10. Avoid tanning beds.
- Protective clothing is also important:
    1. Contrary to popular belief, white t-shirts do not protect you. Dark-colored or bright outfits are preferable.
    2. Long-sleeved shirts and long pants are preferable.
    3. Tight-weave fabric protects you better.
    4. Wrap-around sunglasses labelled 100%UV protection are preferable.
    5. Wearing a broad-brimmed hat (brims at least 10 cm wide) also adds protection.

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While every effort has been made to ensure that the information given in this leaflet is accurate, not every treatment will be suitable or effective for every person. Your own clinician will be able to advise in greater detail.