



EUROPEAN
ACADEMY OF
DERMATOLOGY &
VENEREOLOGY

Information Leaflet
for Patients

Radiation Dermatitis



The aim of this leaflet

This leaflet aims to inform you about radiation dermatitis you may experience during or after your radiation therapy for cancer (also called radiotherapy). We will explain what the radiation dermatitis is, why and how it occurs, and which the best way to prevent and treat it.

Radiation Dermatitis

What is Radiation Dermatitis?

Radiation dermatitis (or radiodermatitis) represents cutaneous changes induced by radiation therapy and is one of the most common side effects of radiotherapy (RT) for cancer, affecting up to 90 percent of patients. Skin side effects of radiation therapy can be divided into early reactions (or acute radiation dermatitis), occurring within 90 days of initiating treatment, and late effects, which often become apparent months to years after radiation treatment has been completed (or chronic radiation dermatitis). These skin changes result from a combination of factors, including mainly the type of irradiation used (see below) and certain predisposing factors presented by the patient. Radiation dermatitis can manifest as redness and dry or moist desquamation, or as chronic effects including skin atrophy (thinner skin), telangiectasias (apparent vessels on the skin), and fibrosis. This condition can affect patient's quality of life both during and after treatment.

Who is affected by acute Radiation Dermatitis?

Radiation dermatitis may occur to anyone undergoing radiation therapy, but it is more likely to happen in patients with certain risk factors such as high Body Mass Index, Diabetes Mellitus, smoking habits, sun exposure, the healing ability of skin (which decreases with age), and a poor nutritional status (which affects 50% of patients with cancer).

In addition, the type of radiation therapy used can encourage the development of radiation dermatitis (high dose of radiation, prolonged periods of treatment, bolus, specific irradiated areas including breast/skin/head and neck, and the presence of radiosensitizing concurrent chemotherapy or targeted therapies such as EGFR inhibitors, etc.).

What are the signs and symptoms of acute Radiation Dermatitis?

Skin changes usually occur after 2 to 3 weeks of radiation therapy. The signs and symptoms of acute radiation dermatitis may vary according to its severity. Therefore, radiation dermatitis is divided in 4 grades, depending on the dose, length, and site of the treatment:

I: Mild redness, which can be painful and/or itchy and may

cause dry desquamation or peeling skin;

II: More intense redness. Localized moist skin detachment/desquamation may appear, especially in the folds, with superficial skin necrosis, progressive exposure of the deeper skin (dermis) and edema;

III: Increase in skin detachment/desquamation and ulceration beyond the folds, with bleeding in the event of minor trauma;

IV: Skin necrosis and ulceration of the entire dermis, with spontaneous bleeding.

Secondary bacterial superinfections may also appear.

Both the onset and healing of lesions can be observed at least four weeks after stopping radiotherapy. Temporary or persistent radiation dermatitis may be also associated with hair loss on the treated area. Finally skin treated with radiation becomes more fragile and sensitive to trauma and infections, for several months or years following radiotherapy. An extended follow-up must be set up after radiotherapy, to detect any chronic radiation dermatitis-type complications.

How to prevent or reduce acute Radiation Dermatitis?

Strategies to prevent or alleviate acute radiation dermatitis are aimed at improving comfort during radiotherapy, reducing the degree of inflammation, and promoting healing of skin areas with more severe dermatitis.

Preventive measures to reduce the risk of radiation dermatitis are:

- Cleansing every day by using delicate detergents, and preferably oily or products formulated in milk, with low or no surfactant content (skin cleansers must be alcohol-free);
- In case of scalp involvement, apply gentle shampoos for frequent use;
- Deep and constant moisturizing should be started as soon as possible to avoid the appearance of skin dryness preferring products that are rich in vegetable fats (shea, argan, olive) and avoiding those derived from minerals (paraffin, petroleum, PEG);

General management of radiodermatitis begins with the patient's skin care: soft cotton clothing should be selected for the patient to prevent large friction to patients' skin. In mild forms, the application of a non-oily skin moisturizer is useful to improve and protect the skin. It is recommended to bathe in cool or warm water and apply emollient skin moisturizer immediately after the bath. It is best to avoid over-the-counter products. Applying all kinds of irritating drugs or cosmetics is strictly prohibited. The body should not be scrubbed with soap, iodine, etc (only mild soap and deodorant are considered acceptable).

Topical products should be ideally applied at least 4 hours before or after radiation therapy session.

How to manage acute Radiation Dermatitis?

Your doctor will choose the therapy that best suits your condition to allow you to continue your anticancer therapy. In severe cases, always contact your dermatologist or radiotherapy nurse to keep him/her informed of your condition. It is recommended to visit the dermatologist for evaluation before self-medication.

Topical corticosteroids have anti-inflammatory effects. They are commonly employed to treat radiation dermatitis because of its ability to prohibit radiation-induced inflammation and to limit more severe complications.

The routine use of topical aloe vera or calendula is not recommended for management of skin reactions from radiation therapy.

How to manage chronic Radiation Dermatitis?

An annual dermatological follow-up after irradiation is recommended in order to detect possible late complications, including chronic radiation dermatitis. Particular attention must be paid to the potential higher risk of skin cancer in the irradiated skin area.

For patients with persistent radiation-induced telangiectasia (visible vessels on the skin) and fibrosis (skin thickness), the use of specific lasers for cosmesis and the use of pentoxifylline (oral drug) for the reduction of fibrosis can be considered.

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.