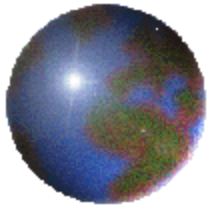


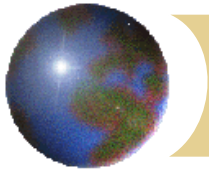


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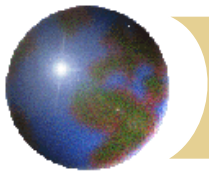
RADIATION DERMATITIS

Лектор: доц. д-р В. Данчева, дм



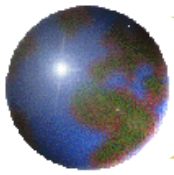
✿ The radiation responses of skin are referred to as **radiation dermatitis**. The intensity of radiation dermatitis varies, depending upon the radiation factors used **as:**

- ✿ **total dose**
- ✿ **dose rate**
- ✿ **fractionation of the dose**
- ✿ **different qualities** of radiation
- ✿ **biological factors (anatomical location, sex, age)**
etc.



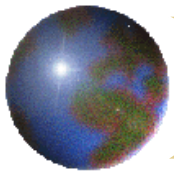
✚ The skin response **during** and **after** radiation therapy and in case of radiation accidents can be divided into the **following stages (periods):**

- 1. Acute clinical period**
- 2. Subacute clinical period**
- 3. Chronical clinical period**
- 4. Late clinical period**



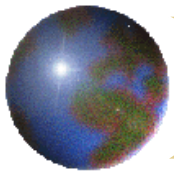
1. The acute clinical period includes:

- a) **Initial erythema.** It is generally seen within a **few hours** to a **few days** and lasts **only a day or so.**
 - ❏ this type of skin reaction is largely due to capillary dilation caused by the release of **histamine - like substances.**
- b) **Dry desquamation.** This condition gradually develops after initial erythema.
 - ❏ The dry desquamation is characterized by **atrophy of epidermal papillae, epidermal hypoplasia,** and **vascular changes.**
 - ❏ If the radiation dose is very high, dry desquamation is generally accompanied by **temporary epilation.**



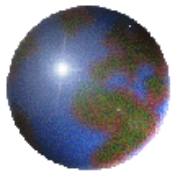
1. The acute clinical period includes:

- c) **Erythema proper.** The erythema proper generally develops in the **third** or **fourth week**.
- ❑ The skin becomes **red, warm, edematous, and tender**, and it exhibits a **burning sensation**.
 - ❑ the erythema proper appears to be associated with **obstructive changes** in **arterioles**.
- d) **Moist desquamation (Exudative Radiation Dermatitis).** Some of the pathological changes include the following:
- ❑ **Blister formation** in the epidermis
 - ❑ Permanent **epilation**
 - ❑ **Edema**
 - ❑ **Inflammatory cell infiltration**
 - ❑ Damage of **vascular and connective tissue**
 - ❑ **Dermal hypoplasia**



1. The acute clinical period includes:

- e) **Recovery of skin.** The recovery of skin depends upon two factors: **absorbed dose** and **severity** of the skin **damage**.
- f) **Development of necrosis.** Necrosis of the skin after irradiation seldom occurs, however **infection** may cause also **necrosis** of the irradiated area.
- g) **Hyperpigmentation.** Following erythema proper, an **increase in pigmentation**, which is primarily due to an **increase** in the **synthesis of melanin** **may occurs**. The degree of pigmentation **varies** from one region of the skin to another in the same individual, and from one individual to another.



2. Subacute clinical period (1 month to 1 year)

- ✦ Signs of **atrophy** may appear. Pigmentation may fade and **vitiligo** may become established.
 - ✦ ulcerations may appear in an area of reepithelialization

3. Chronic clinical period (1 to 5 years)

- ✦ During this period, **atrophy**, **ulceration**, and **deep fibrosis** may be observed.
 - ✦ the skin after **chronic exposure** may show signs of **epidermal hyperplasia** and **hyperkeratosis**.

4. Late clinical period (> 5 years)

- ✦ **Chronic radiation dermatitis** may appear and is associated with an **increase** in the **incidence** of **skin neoplasms**, primarily **squamous cell carcinoma**.