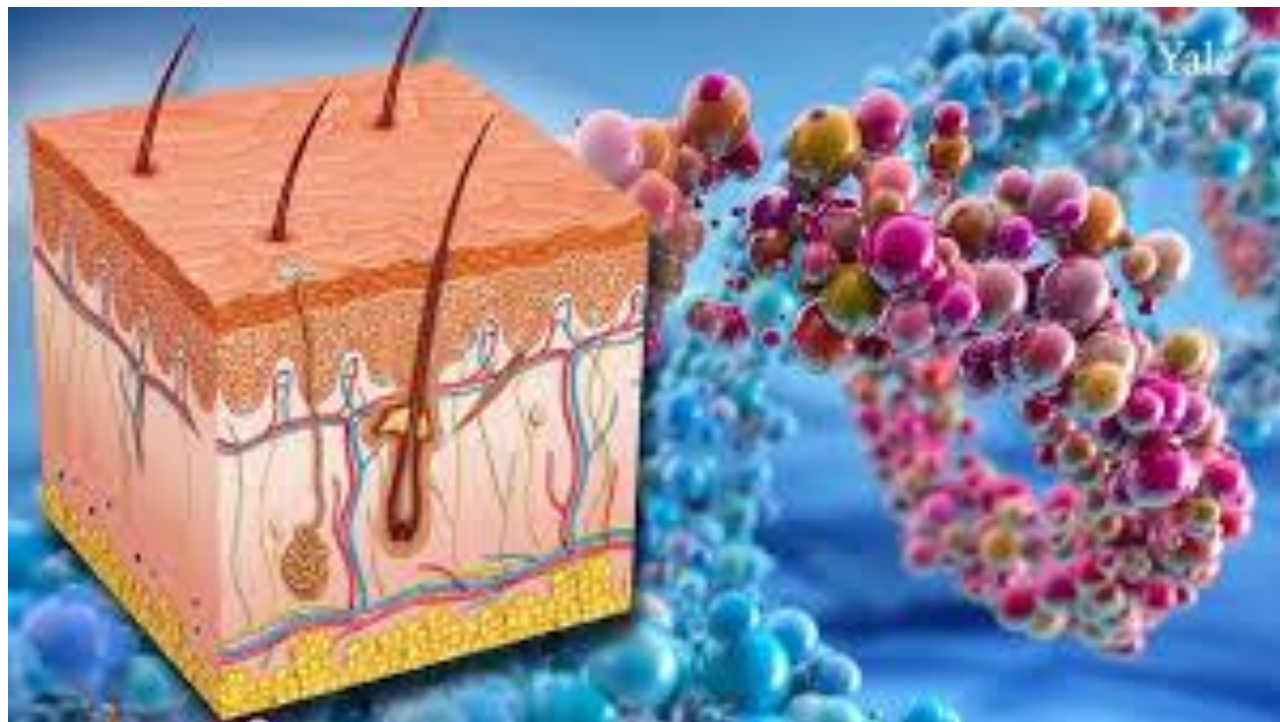


# Radiation related skin reactions



# Discussion points

- Terminology
- Combined chemotherapy and radiation and skin reaction
- Radiation Recall
- Can we prevent or reduce skin reactions
- Myths / sacred cows
- Questions

# Terminology

- Neo-adjuvant
- Adjuvant
- Radical treatment
- Palliative treatment
- Lines of treatment

# RADIATION THERAPY

- Can treat most cancer types
- Can be curative, adjuvant, palliative
- Delivered by external beam radiation, stereotactic or superficial
- Works by ionising water in cells to form free radicals which damage cell DNA

# SKIN REACTIONS

- Extrinsic factors include dose, fractionation, energy type of beam IMRT/SXR and certain chemotherapy agents
- Intrinsic factors include skin folds in treatment area, high BMI, malnourishment, smoking, wound infection, clothing choices

# SKIN REACTIONS

- Erythema
- Dry desquamation
- Moist desquamation
- Necrosis









# MANAGEMENT

- Because of the ongoing effects of radiation, on the treated area, after the last dose is completed, management is dictated by the presentation of the wound
- It is complicated by issues such as hair in the treatment field and because many people are treated as outpatients, and are trying to normalise their situation as much as they can

# DRESSINGS

- Must allow the individual to perform ADLs and be acceptable visually if patients have treatment to normally exposed areas
- Should not move too much
- Tape is the enemy!!!

# WHAT DO WE USE

- Adaptic and gauze for protection/comfort
- Adaptic and Zetuvit Plus over heavy exudate
- Tubinet fashioned into singlets and beanies
- Mepitel
- Hydrocortisone 1% cream for itchy intact skin
- Flamazine for broken skin
- Dimethicone 5% cream as barrier
- Cetomacrogol as moisturising cream

# Combined chemo/radiation

- Radical treatment
- Increase overall survival
- Increase organ preservation
- High cure rate in some cancers – scc anal
- Toxicity higher than single agent treatment

Lawrence, et al, April, 2014. JCO

# Key management points

- Toxic not allergy, expected toxicity as part of the treatment
  - Grade directly related to treatment plan
  - IMRT (Intensity-modulated radiation therapy)
  - Skin type
  - Skin color
  - Use an accredited tool to assess grade

**RTOG/EORTC Radiation Induced Skin Reaction Assessment Scale**

# Key management points

- Manage plan reflect current evidence
- Severe skin reactions
  - Review topical preparations
  - Reduce or stop chemotherapy
  - Review radiation plan
- Chemotherapy related side effects
  - Manage to allow radiation to continue
  - No chemo; radical treatment may be palliative
- Realistic discharge plan on completion of treatment

# Radiation recall

## ➤ Definition:

Radiation recall is an inflammatory reaction that sometimes occurs when an individual receives chemotherapy following radiation therapy.

- Symptoms can occur just a few days after radiation therapy is completed, or years later.
- Cause: Unknown
- **Symptoms** of radiation recall are due to inflammation in a region that was previously treated with radiation.



# Radiation recall

- Radiation recall dermatitis -
  - a skin rash involving redness, swelling, and/or blistering of the skin.
  - painful and can have the appearance of severe sunburn.
  - peeling followed by discoloration of the skin after healing.
  - The length of time the rash lasts can vary from only a few hours to several days.
  - Can affect mucosa
  
- Radiation recall pneumonitis (lung inflammation)
  - Radiation recall can also affect the lungs. radiation pneumonitis unrelated to recall may occur in some people after radiation therapy, complicating identification and diagnosis.
  
- Chemotherapy should be interrupted

# EXAMPLES RADIATION RECALL



# Radiation recall targeted therapies



# Myths / Sacred cows

- Radiation “burns”
  
- Topical creams
  - Metal containing
  - Water based, soap not cream

# Skin reactions versus burns <sup>21</sup>

	<b><i>Radiotherapy Skin Reaction</i></b>	<b><i>Burn Injury</i></b>
Cause	Absorption of energy from ionising radiation affecting the process of regeneration	Trauma - e.g. re, hot liquids, hot objects, freezing objects, corrosive chemicals, electric current, UV light, etc.
Time to Reaction	Delayed - days	Immediate - minutes
Skin Layers Affected	Epidermal layers only	Potentially all layers from epidermis down to muscle / tendon / bone. (Superficial - full thickness depths)
Sequence of Damage	Damaged basal cells migrate <i>upwards</i> to the surface of the skin	Damage occurs <i>downwards</i> through skin layers in relation to degree of burn

# Myths / Sacred cows

- Topical creams
- Relation to skin reaction severity
  - Home remedies
  - Traditional medicines
- Metal containing creams (ZINC)
- Aqueous cream







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## Clinical Oncology

journal homepage: [www.clinicaloncologyonline.net](http://www.clinicaloncologyonline.net)

## Letters

## Why Aqueous Cream Should not be Used in Radiotherapy-induced Skin Reactions

Sir — A 2011 survey illustrated that aqueous cream BP is a popular choice for treating radiation-induced skin reactions nationally [1]. We wish to highlight that aqueous cream BP is not meant to be used as a leave-on emollient and has been reported to be an irritant in some patients [2]. Applying it routinely during radiotherapy may, therefore, be doing more harm than good.

Aqueous cream was originally designed to be used as an emollient wash product (i.e. a soap substitute), but not as a leave-on emollient. It contains 1% sodium lauryl sulphate (SLS) and cetostearyl alcohol. SLS is a harsh anionic synthetic detergent and surfactant. SLS is added to soaps, bubble baths and toothpastes for its thickening effect and its ability to create lather. It is a cheap, highly effective cleansing and foaming agent. The foaming effect does not improve its ability to clean, but is added for visual reasons (Morelli and Weston 1987). SLS is known to be an irritant and it impairs skin barrier function [2,3]. Cetostearyl alcohol is a fatty alcohol present in creams. It is a potential cause of allergic contact dermatitis. In 2007, the National Institute for Health and Clinical Excellence (NICE) published guidelines stating that aqueous cream should not be used as a leave-on emollient, especially where skin barrier function was impaired [4]. A study by Danby *et al.* [2] showed that in patients with atopic dermatitis, trans-epidermal water loss increased and a reduction in stratum corneum integrity was seen, suggesting that aqueous cream is detrimental to the skin, aiding penetration of irritants [2].

Emollients may have a function as a barrier cream during an acute radiotherapy skin reaction, but radiotherapy departments should consider discontinuing the use of aqueous cream. We suggest using any of the emollients listed in the 'proprietary emollient preparations' section of the British National Formulary.

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<http://dx.doi.org/10.1016/j.clon.2012.11.011>

## Does Consolidation Radiotherapy Provide a Better Disease Control in Patients with Diffuse Large B-cell Lymphoma of Waldeyer's Ring?

Sir — We read with interest the review article by M.J. Beasley [1] focused on the management of primary lymphomas of the head and neck. The author concluded that the standard of care for localised diffuse large B-cell lymphoma of Waldeyer's ring (WR-DLBCL) has been deduced

from localised-stage nodal DLBCL [2,3], and that only one randomised phase II trial comparing directly chemotherapy alone (CHT) versus a combination of CHT and radiotherapy is available in WR-DLBCL [4]. However, interpretation of the results of that trial is troublesome due to some important

