

# CANCER EDUCATION DAY

## Principles of Treatment

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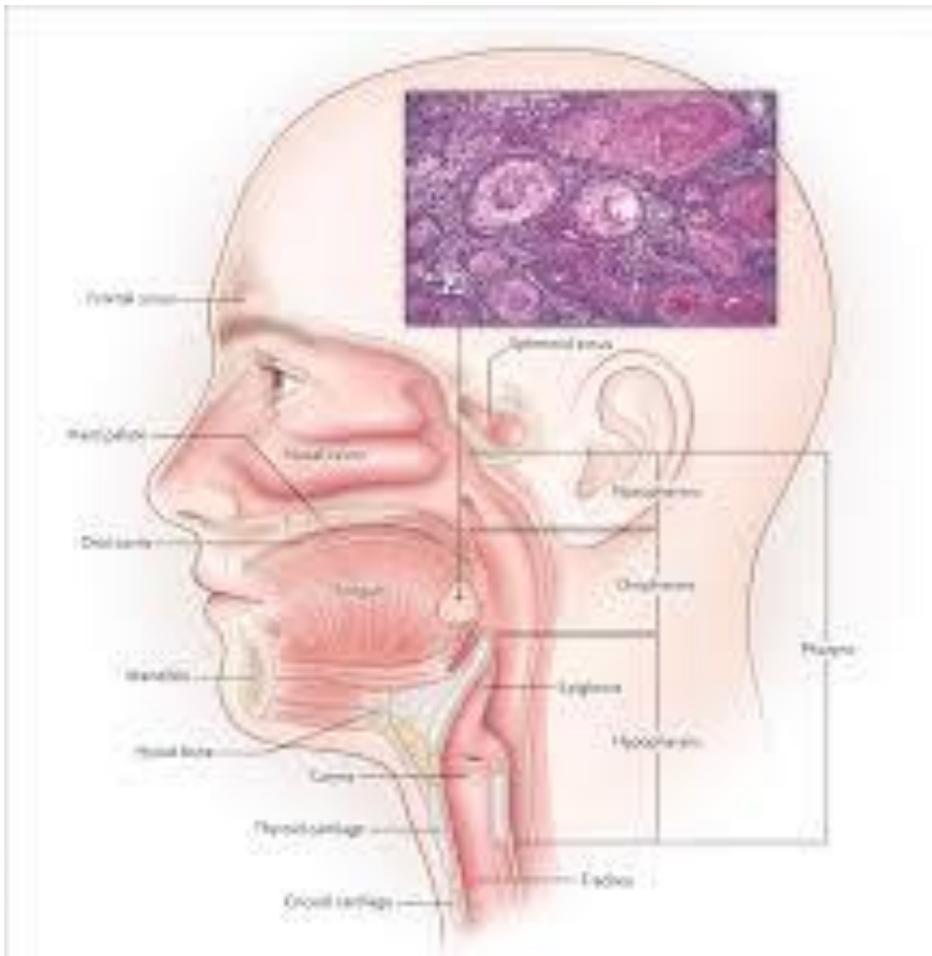
February 13, 2026

# Presenter Disclosure

- Relationships with financial sponsors:
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  - Advisory Boards: N/A
- **No Disclosures**

# Opening Comments

- Scope and General Principles



# Guiding Principles

- Head and Neck mucosal- based cancers are less common than the incidence of Lung, Prostate, Breast and GI cancers- but can have proportionately greater impact on post treatment function and QoL
- Commonly require multidisciplinary management- to achieve curative or palliative intent while minimizing toxicities and achieving good functional outcomes
- Patients best served with MCC consensus opinions where 1) high quality evidence exists 2) guidance from clinical experience within multidisciplinary teams

# Head and Neck Cancers- working definition

- Mucosal malignancies
- typically also include salivary, locally advanced skin, thyroid and soft tissue sarcomas ( within the realm of Head and Neck surgical expertise)
- Exclusions- rare anatomic locations or organ specific (orbital, skull base with various pathologies, primary bone malignancies)
- Lymphomas ( Hodgkin vs Non-Hodgkin)
- Dr Pan's presentation- incidence and prevalence

# Symptom Presentation

## Head & Neck Cancer Symptoms

- 1) Persistent sore throat or hoarseness
- 2) Difficulty swallowing or pain swallowing
- 3) Lump or swelling in the neck
- 4) Persistent ear pain
- 5) Changes in voice or speech
- 6) Consistent mouth sores or ulcers
- 7) Chronic nasal congestion or sinus infections



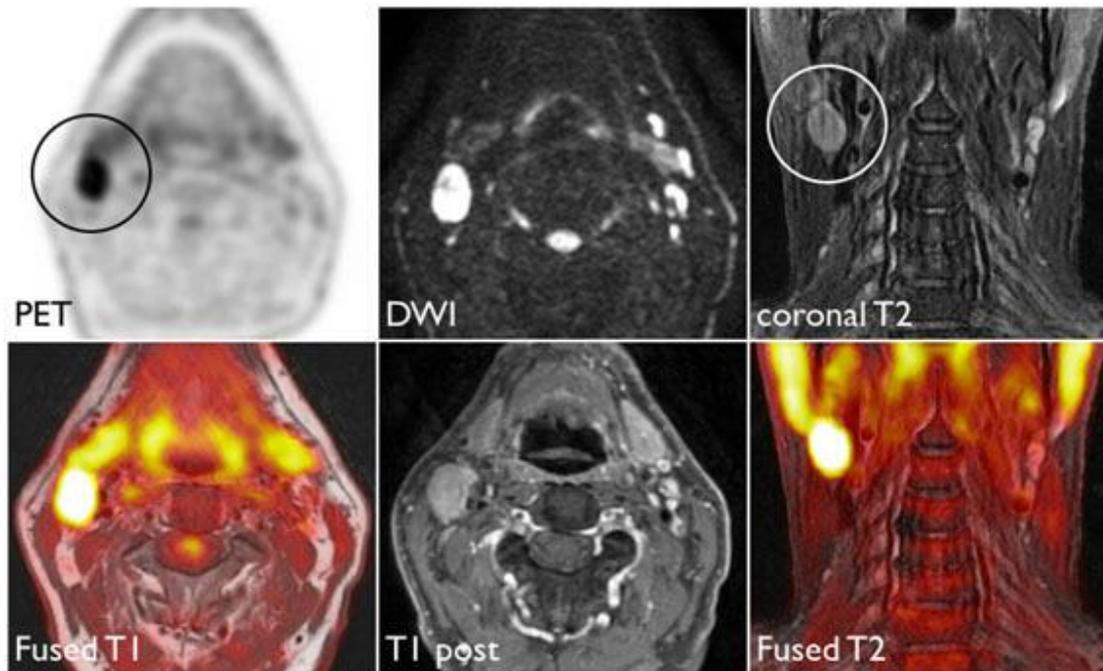
# The role of the community Health Care Provider- *a vital role !*

- Common symptoms and distinguishing benign vs potentially malignant conditions
- Broad spectrum of presenting symptoms- correlating with 1) anatomic site 2) pathologic nature of lesion 3) natural history of aggressive vs indolent cancers

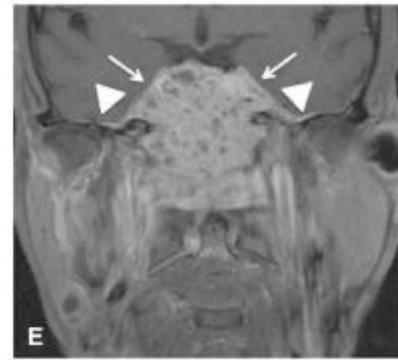
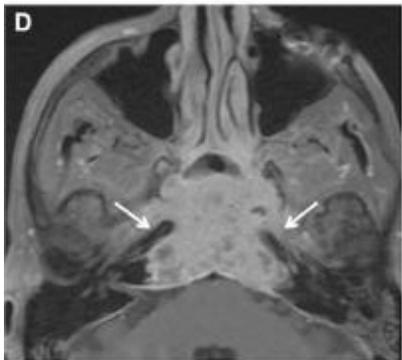
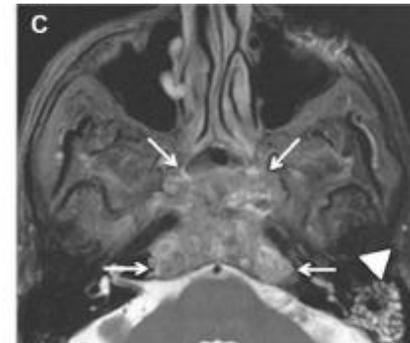
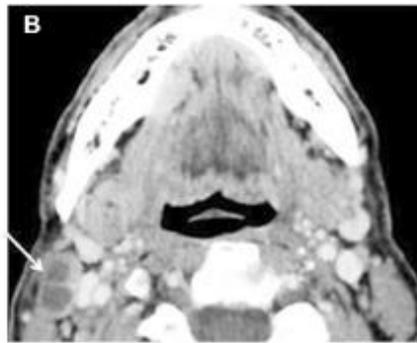
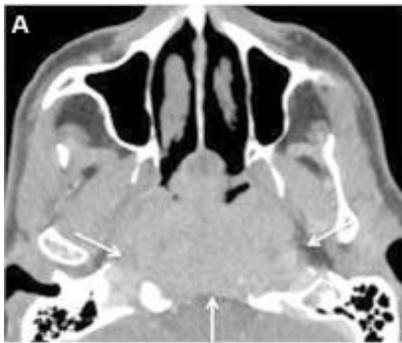
# Clinical presentation

- Nuances of the head and neck clinical assessment an examination
- ENT and oral surgical expertise as fundamental in the assessment and pathologic diagnosis....and ongoing re-evaluation post-treatment
- Management of acute presentation of 1) airway obstruction 2) hemorrhage 3) aspiration /risk

# Diagnostic Imaging: -diagnosis



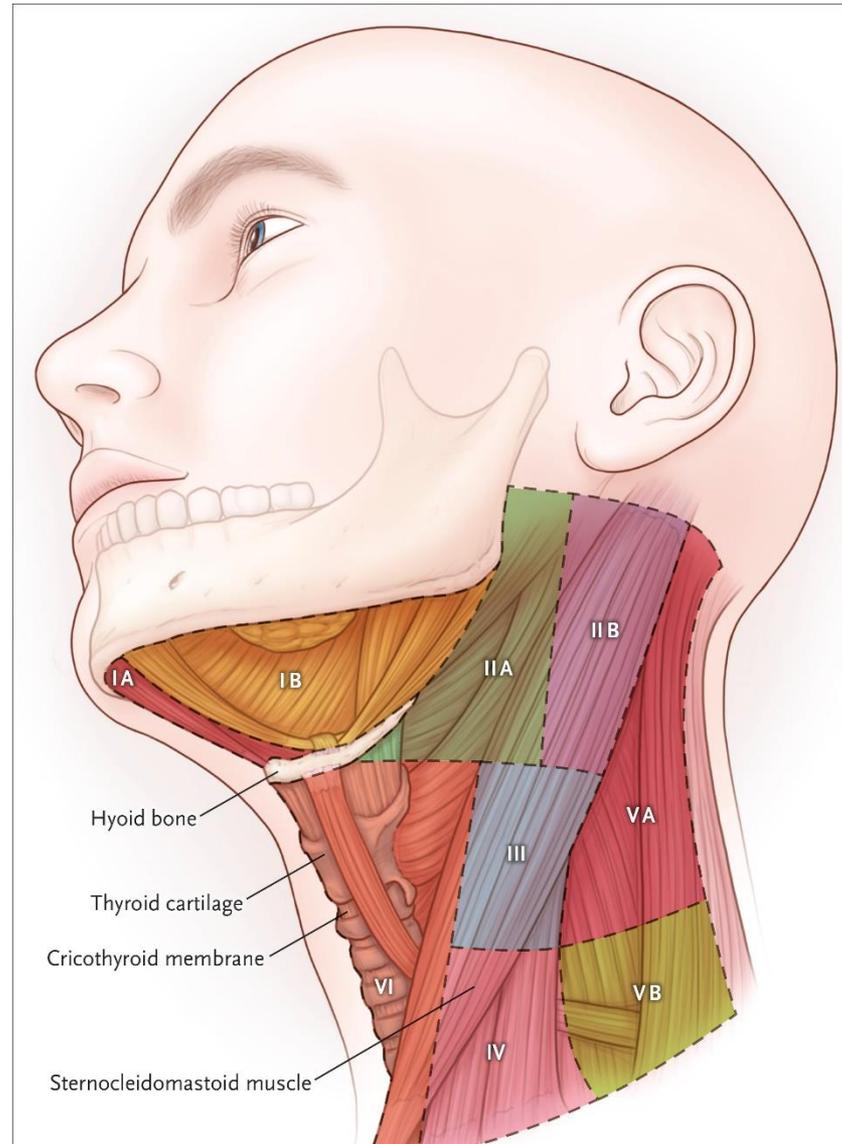
# Diagnostic Imaging: -diagnosis



# The radiologist's role in radiotherapy

- In the era of highly conformal radiotherapy planning and treatment delivery
- The responding tumor, re-imaging and radiation replanning

# Staging

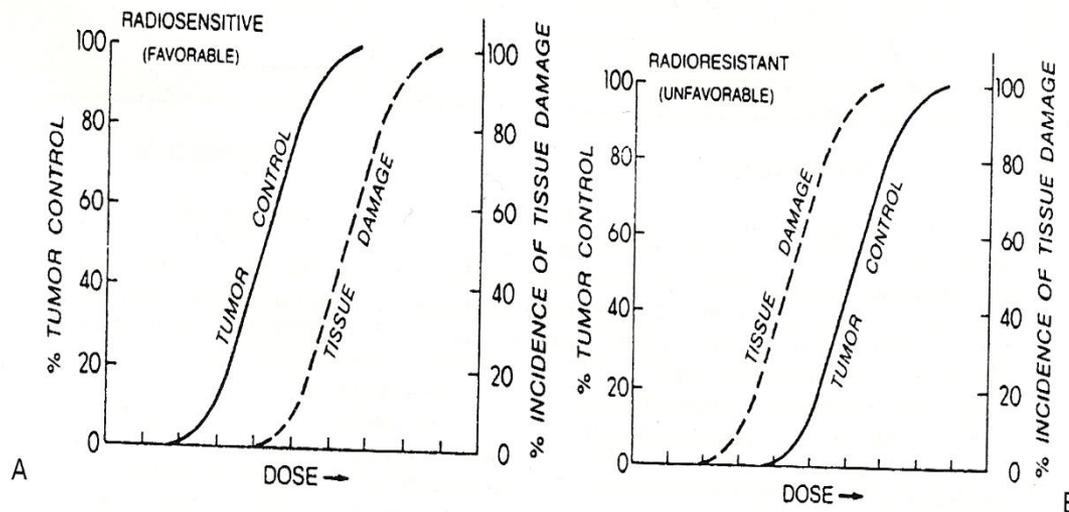


# Treatment Concepts

- Specific Treatment Interventions
  - surgical
  - non-surgical
    - radiotherapy
    - combined chemo-radiation
    - chemotherapy alone
    - immunotherapy
    - best supportive care

# Fundamental Principle in Medicine 'Do No Harm'

- Application in cancer medicine and treatment of head and neck malignancies- as a clear example
- The concept of 'therapeutic ratio'



**FIGURE 1.12.** Different therapeutic ratios exist in different clinical circumstances depending on the radiosensitivity (dose-response curves) for the tumor versus critical normal tissue in the treatment field. A. Favorable. B. Unfavorable. (From Rubin P. *Clinical oncology: a multidisciplinary approach for physicians and students*, ed 7. Philadelphia: WB Saunders, 1993, with permission.)

# Multi-disciplinary Team concept

## The MDT

- Spectrum of physicians representing:
- Surgical, radiation and medical oncology disciplines
- The critical importance is to comprehensively evaluate the patient to provide required assessment to guide treatment recommendations
- Two models

# Multidisciplinary Case Conference

## The MCC

- Spectrum of clinical and diagnostic expertise
- Comprehensive review of patient's pathologic diagnosis, staging/ completion of staging
- Consensus recommendation for treatment taking into consideration  
1) levels of evidence 2) clinical experience of physicians

# Levels of Evidence in Clinical Medicine



## Levels of Evidence

Level of Evidence	Type of Study
1a	Systematic reviews of randomized clinical trials (RCTs)
1b	Individual RCTs
2a	Systematic reviews of cohort studies
2b	Individual cohort studies and low-quality RCTs
3a	Systematic reviews of case-controlled studies
3b	Individual case-controlled studies
4	Case series and poor-quality cohort and case-control studies
5	Expert opinion based on clinical experience

Adapted from: Sackett DL et al. *Evidence-Based Medicine: How to Practice and Teach EBM*. 2nd ed. Churchill

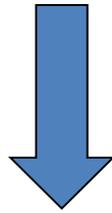
# OH-CCO Program in Evidence-based Care PEBC

Purpose: to assist clinicians based on current levels of evidence in cancer management

Iterative process: updating recommendations based on newly reported clinical studies impacting on improved outcomes or improved therapeutic ratios (benefit vs toxicities)

# Radical Radiotherapy

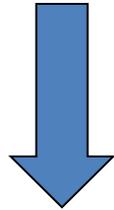
- High Dose Treatment



Curative Intent

# Selective clinical scenarios

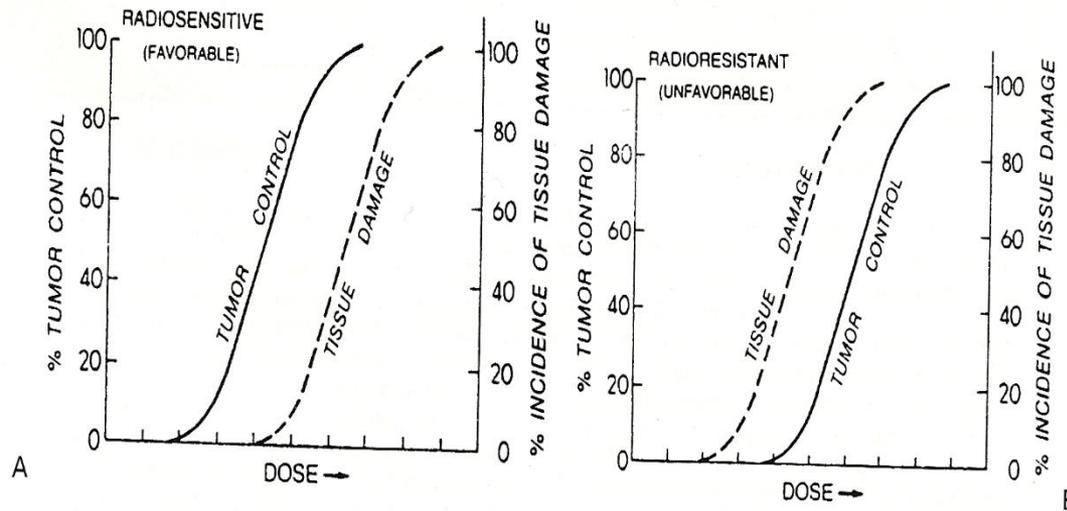
- Radical Radiotherapy



Palliation

- uncontrolled loco-regional malignancy has significant morbidity

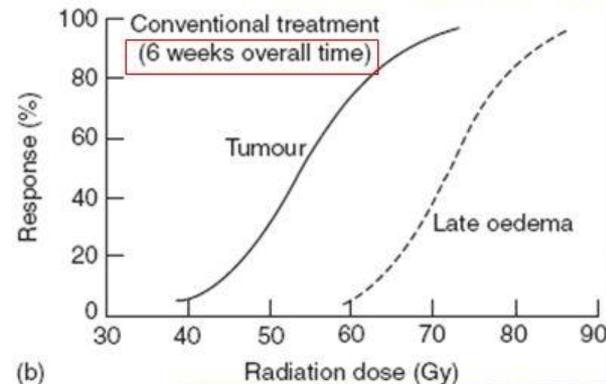
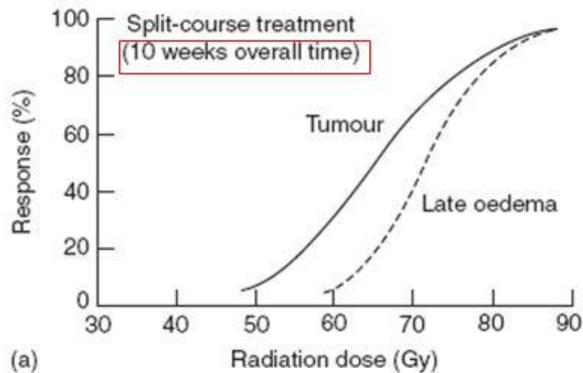
# Therapeutic Ratio



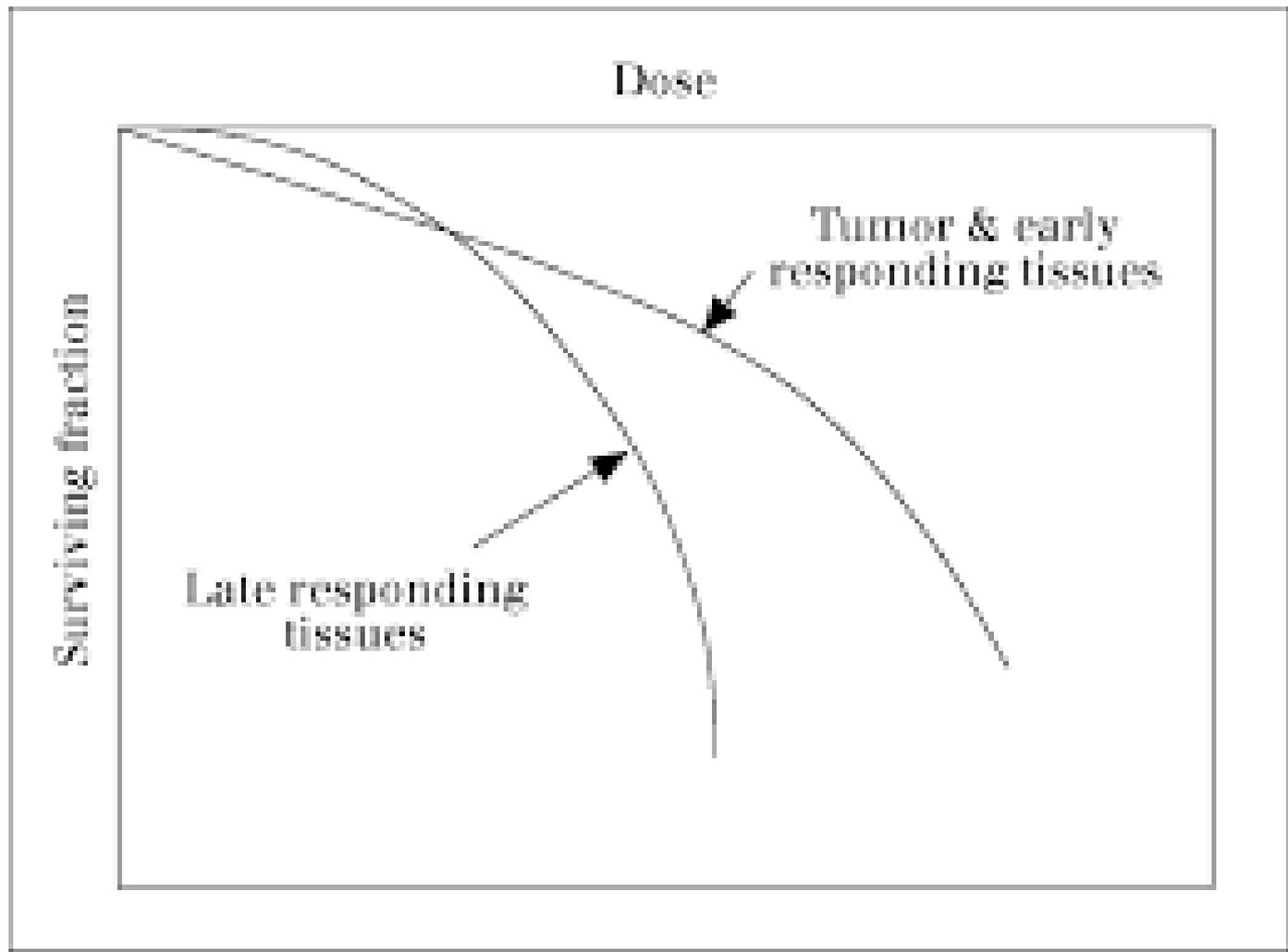
**FIGURE 1.12.** Different therapeutic ratios exist in different clinical circumstances depending on the radiosensitivity (dose-response curves) for the tumor versus critical normal tissue in the treatment field. **A.** Favorable. **B.** Unfavorable. (From Rubin P. *Clinical oncology: a multidisciplinary approach for physicians and students*, ed 7. Philadelphia: WB Saunders, 1993, with permission.)

## 5.6 THE THERAPEUTIC WINDOW

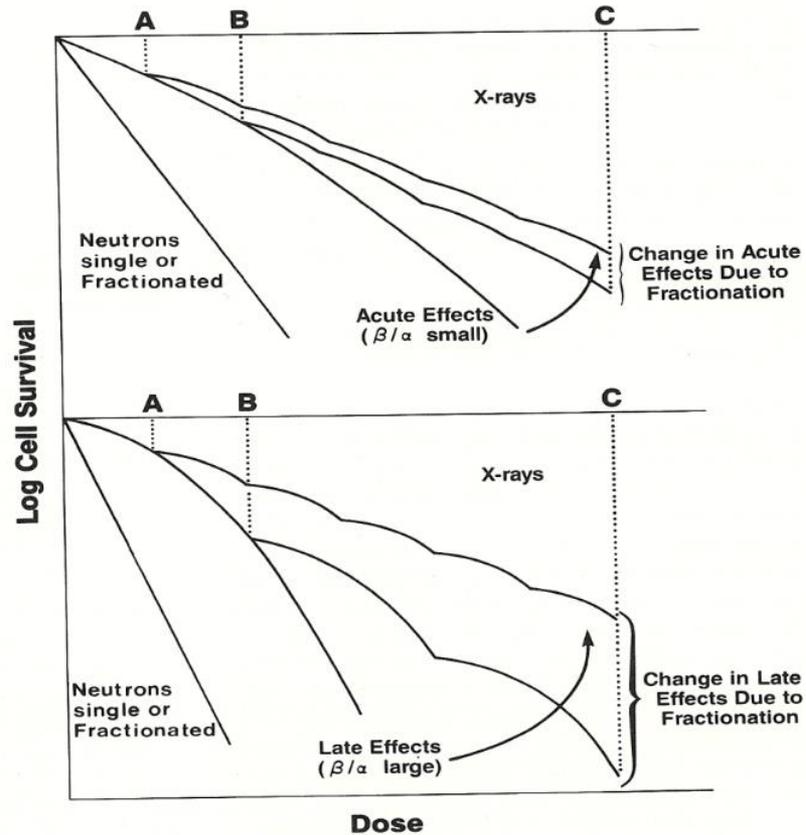
- ▶ radiotherapy must represent a balance between risks and benefits.



Several parameters are found in the literature for **quantifying the effect of treatment modifications on the therapeutic window**. specify the tumour control probability at isotoxicity with respect to a specific end-point

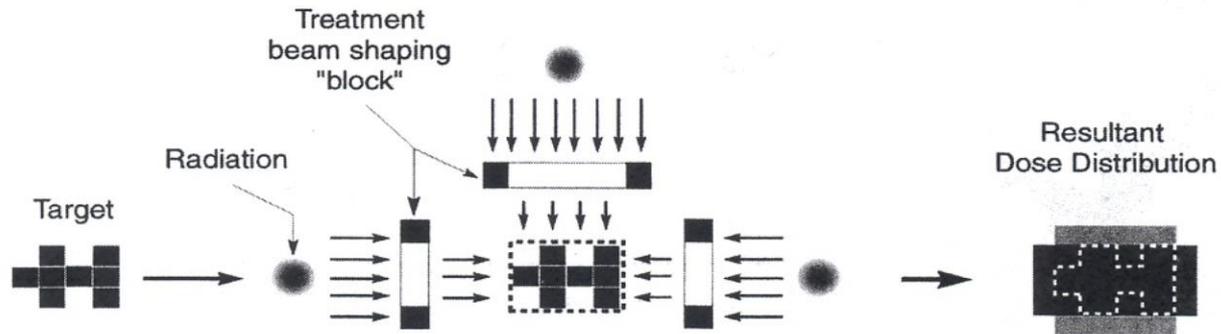


# The Dose – Fractionation Effect





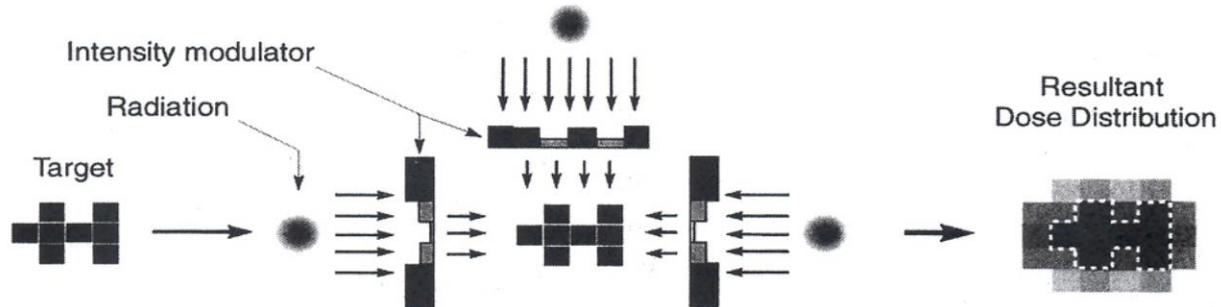
### How Treatments are Normally Delivered



A small number of large beams of radiation are shaped in order to "block" dose from areas outside target "envelope"

Target receives dose but so does normal tissue in "nooks and crannies"

### How Intensity Modulation Allows a Target to be Treated

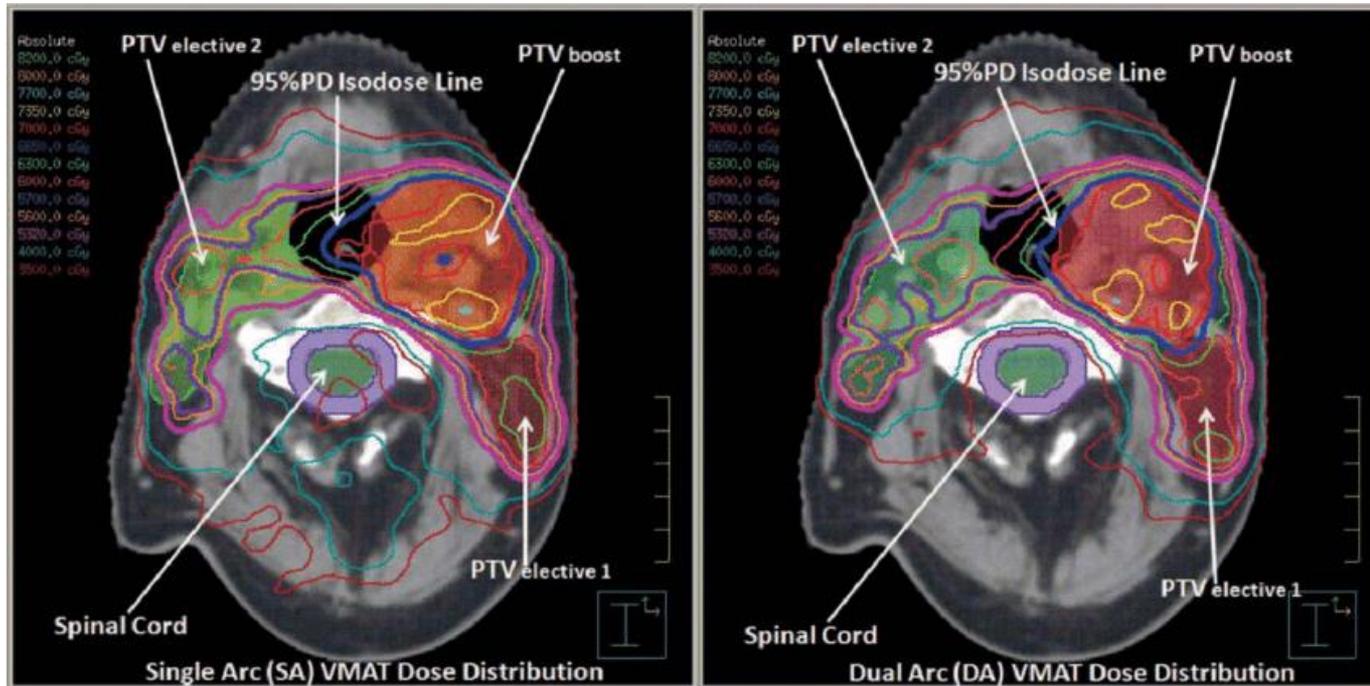


A plan is created where the intensity of radiation is varied across the beam depending on the shape of the target and the presence of sensitive structures within its envelope

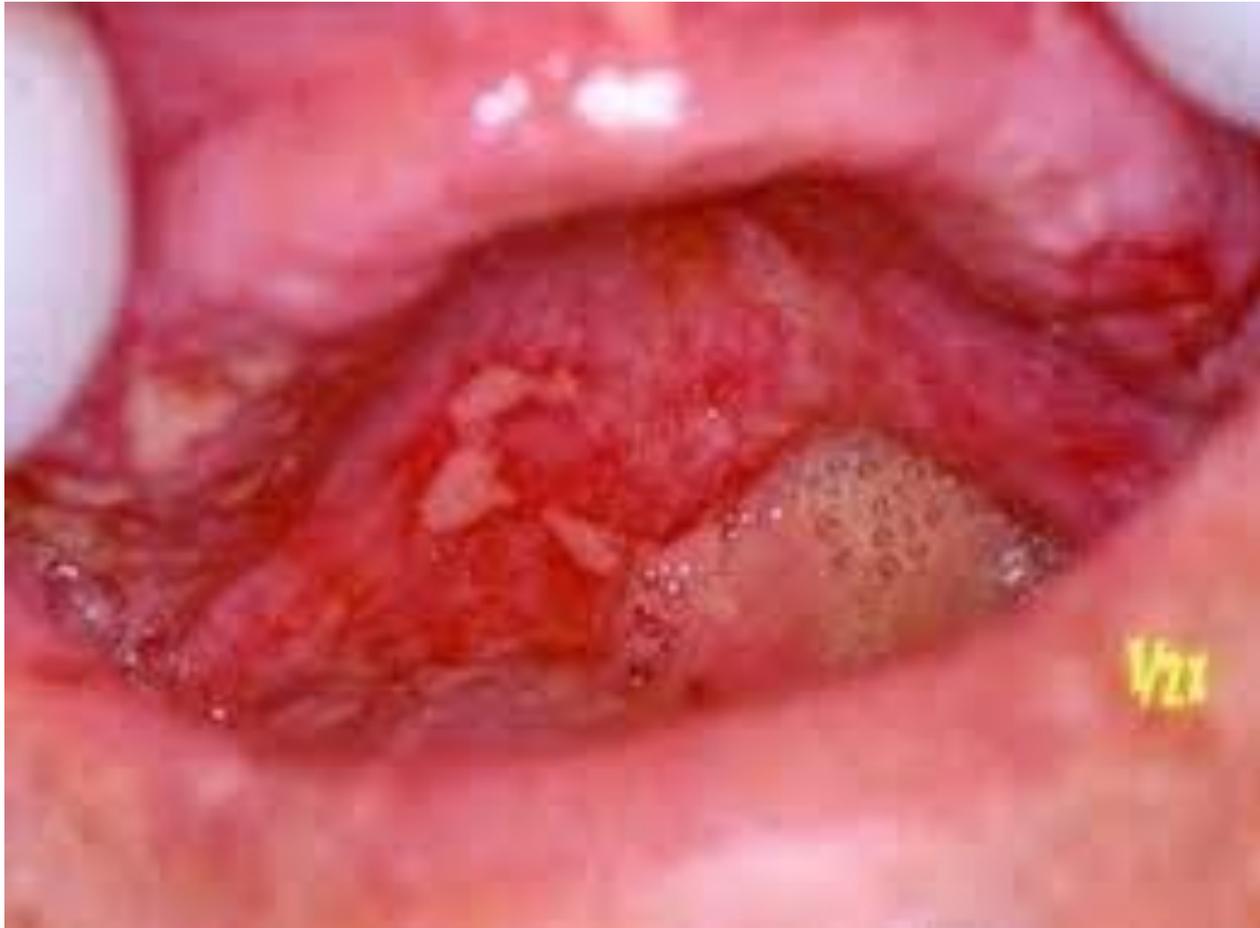
Dose distribution "mimics" contour of target, reducing dose in "nooks and crannies"

Figure 9.1. Conventional therapy versus IMRT.

# Volumetric Modulated Arc Therapy VMAT



# Acute radiation mucositis



# Acute (grade 3) radiation dermatitis

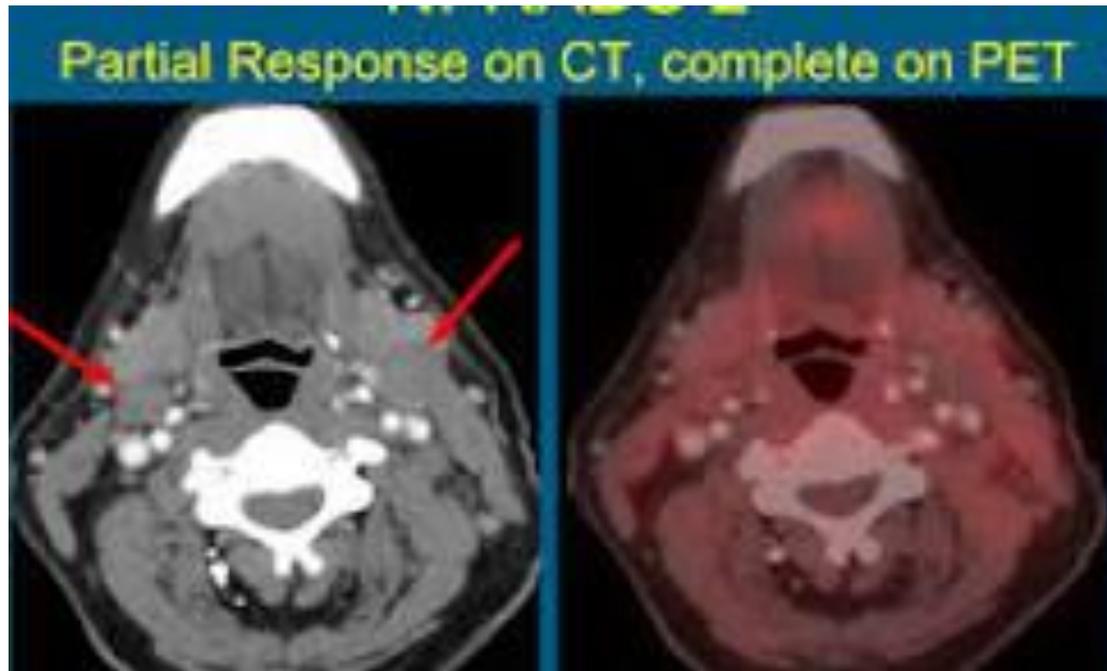


**FIGURE 1** Acute grade 3 radiation dermatitis after 5 weeks of initiating radiation therapy.

# Response to Treatment

- Post-treatment side effect resolution
- Timing to evaluate response
- Clinical examination
- Post-treatment imaging
- On-going patient communication and education in the post –treatment period
- Supportive Therapies with expertise of SLP, Dietician, physiotherapy with dedicated expertise in head and neck cancer

# Assessing Response to Treatment



# Summary

- Complex multidisciplinary approach is crucial to best patient outcomes
- Ongoing management of treatment toxicities is essential to optimize, as best possible,- QoL
- Continued clinical assessments to assess for continued remission and potential for cure
- Palliative medicine expertise for management of incurable disease with complex disease related symptoms

# Question & Answer