


The Use of Radiation Therapy for Advanced T2-T4 Non-Melanoma Skin Carcinoma

Presentation by Christina Forest

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Introduction

- Most common of all cancers (1,000,000+ new cases in U.S. per year)
 - 2500 deaths/year
- 80% BCC
- Head and neck most common site (80%)
- Usually present as T1 or T2, but **advanced tumors are on the rise**
- Treatment options:
 - Resection
 - Cryotherapy
 - Electrocautery
 - Moh's surgery
 - Radiation

 All have 90-95% cure rate

TNM Staging

- Primary tumor (T)
 - TX: cannot be assessed
 - T0: no evidence of primary tumor
 - Tis: CIS
 - T1: ≤ 2 cm with less than 2 high-risk features
 - T2: >2 cm OR any size with 2+ high-risk features
 - T3: Invasion of maxilla, mandible, orbit, or temporal bone
 - T4: Invasion of skeleton (axial or appendicular) or perineural invasion of skull base
- **High-risk features: >2 mm thickness, Clark level ≥ 4 , perineural invasion, primary site ear or hair-bearing lip, poorly- or un-differentiated**

TNM Staging, cont.

- Regional lymph nodes (N)
 - NX: cannot be assessed
 - N0: no regional lymph node metastases
 - N1: metastasis in a single ipsilateral lymph node, ≤ 3 cm
 - N2: metastasis in a single ipsilateral node > 3 cm but ≤ 6 cm, or in multiple ipsi, bilateral, or contra nodes, none > 6 cm
 - N2a: single ipsi between 3-6 cm
 - N2b: multiple ipsi, not > 6 cm
 - N2c: multiple contra or bilateral, not > 6 cm
 - N3: node > 6 cm

Anatomic Stage/Prognostic Group

- Stage 0: TisN0M0
- Stage I: T1N0M0
- Stage II: T2N0M0
- Stage III: T3N0M0 or T1-T3 with N1
- Stage IV: any T with N2, N3, or M1, and any T4

Shortcomings of AJCC 7th Ed. Staging System

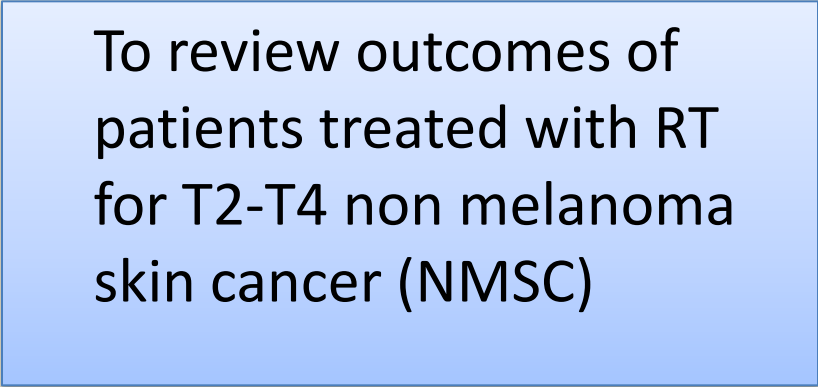
- Excludes other well-documented high-risk sites
- Does not address SCC that develops in scars or sites of chronic inflammation
- Groups SCC of vermilion lip with oral cavity, although most are caused by sun exposure.
- Potential overgrading of verrucous carcinomas
- More explicit discussion of histologic grading needed
- Modification with 'I' for immunosuppression not mandatory
- Some criteria not practical or economically feasible



My Research: The role of radiotherapy for locally advanced non-melanoma skin cancer



Purpose



To review outcomes of patients treated with RT for T2-T4 non melanoma skin cancer (NMSC)

Materials & Methods

- **Retrospective**
- **70 patients**
 - 42 (60%) treated definitively
 - 17 (24.3%) for recurrence
 - 11 (15.7%) post-op
- **Measured efficacy, treatment, & morbidity**
- **Lesion characteristics:**
 - 21 (30%) T4, 19 (27%) T3, 30 (43%) T2
 - 39 (56%) SCC, 29 (41%) BCC, 2 (3%) both
 - Bony erosion: 11
 - Nodal disease: 11
- **RT techniques:**
 - IMRT: 22 (31%)
 - 3D conformal: 9 (13%)
 - Electron: 37 (53%)
 - Electrons & IMRT: 1
 - 3D conformal & electrons: 1
- **Mean follow-up: 15.3 mos**
- **Prior treatment**
 - 4 (6%) pre-radiation or concurrent chemo
 - 28 (40%) prior surgery
 - Half complete resections
 - 8 received RT as adjuvant, and 20 due to failure of surgery
- **Number of courses of RT:**
 - One: 63 (90%)
 - Two: 5 (7%)
 - Three: 2 (3%)
- **Acute Complications:**
 - Local erythema: 100%
 - Dry desquamation: 33%
 - Moist desquamation: 20%
 - Conjunctivitis: 14%
 - Mucositis/esophagitis: 14%
 - Altered pigmentation: 4%
 - Tumor necrosis: 3%
 - Ear pain: 3%
 - Ulceration: 3%
 - Xerostomia: 3%
 - Dysphagia: 3%
 - Narrowed auditory canal: 1%

- Long-term complications:
 - Poor wound healing: 6%
 - Local fibrosis: 4%
 - Hearing loss: one
 - Scarring/contraction: one
 - Fistula formation: one
- Salvage methods for failed RT:
 - Surgery: 7 (44%)
 - Chemo: 2 (13%)
 - Surgery + RT: one
 - Chemo + RT: one
 - 6 attempts at salvage were successful (55%)



Figura 5. Fístula cutánea presente en este paciente.
Figure 5. Skin fistula present in this patient.

Results

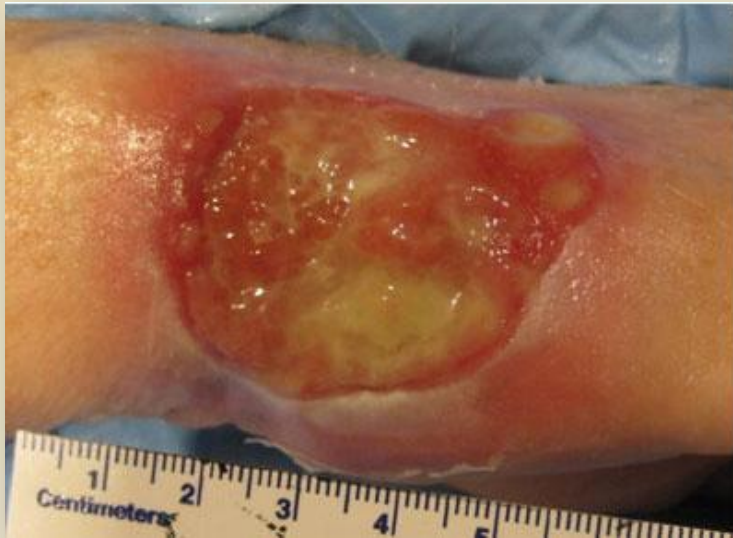
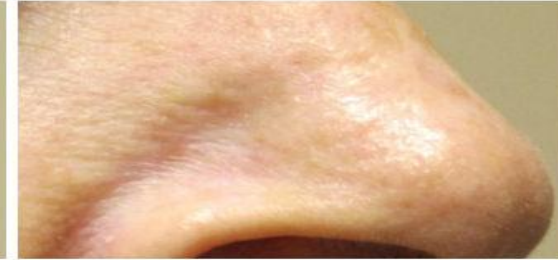
- 54 (77.1%) required no further treatment & are recurrence-free
- 16 had residual tumor or recurred.
- 21 patients have died (30%)
 - 10: disease progression
 - 10: other illnesses
- Poorer control if:
 - Recurrent
 - SCC
 - Bony erosion
 - Nodal disease

Radiation Therapy

- No butt flaps (better cosmesis)
- Safe even for poor operative candidates
- Equivalent cure rates

Electronic Brachytherapy

- HDR EBT (High-dose rate electronic brachytherapy)
 - 40 Gy in 8 fractions twice weekly, with 48 hrs between fractions, to a depth of 3-7 mm
- Benefits:
 - Hypofractionated (convenient)
 - No radioactive isotope (minimal shielding needed)
- Effective:
 - Early outcomes (median follow-up 4 months): acceptable acute reactions & favorable cosmesis. No severe late reactions.



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Thank you!

