

cervical sympathetic (4), vagal (5) and hypoglossal nerve (4), all recovered within 5 months.

**Conclusion:** Subadventitial dissection is recommended. The postoperative morbidity is particularly low in the early cases (Shamblin type I/II).

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### Advanced primary and recurrent head and neck malignancies treated with interstitial thermoradiotherapy: 10-year results

M. Seegenschmied<sup>1,3</sup>, P. Martus<sup>2</sup>, L. Keilholz<sup>1</sup>, G. Klautke<sup>1</sup>, R. Sauer<sup>1</sup>.

<sup>1</sup>Depart. of Radiation Oncology; <sup>2</sup>Institute of Medical Statistics & Documentation, University of Erlangen-Nürnberg; <sup>3</sup>Alfried-Krupp Krankenhaus Essen, Essen, Germany

**Purpose:** "Internal" use of radiotherapy (RT) and hyperthermia (HT) offers high efficacy within a limited target volume and a reduced toxicity due to better sparing of surrounding normal structures. Herein our 10 year clinical experience is compiled.

**Methods:** Between 1986–1994, 87 patients (16 f., 71 m.; mean age: 56 yrs) with localized head and neck tumors received low dose rate Iridium-192 brachytherapy, external RT and interstitial 915 MHz microwave HT (with up to 16 independent antennae). Tumors were classified as advanced primary or persistent tumors (n = 37) and local recurrent or metastatic (50). Tumor sites included tongue (38), floor of mouth (25), oropharynx (8), tonsillar fossa (3), neck nodes (11) and other sites (2). Mean tumor volume was 68 cm<sup>3</sup> (range: 8–288 cm<sup>3</sup>). Mean RT dose was 25 Gy (IRT) and 55 Gy (ERT) HT was aimed for intratumoral temperatures of 41–44°C over 1 hour. Invasive thermometry was assessed with multiple invasive probes.

**Results:** At last follow-up, 30 (35%) patients were alive. In uni/bivariate analysis several tumor and treatment variables were significantly correlated with each other: tumor class and volume; class and RT dose; volume and RT dose; volume and thermal parameters; also, all thermal parameters were highly correlated between each other (all  $P \leq 0.002$ ). Logistic regression analysis revealed, that tumor response at 3 (CR) and 12 months (LC) depended on tumor class, volume, RT dose, and minimum thermal parameters. Multivariate analysis showed two independent prognostic factors: tumor volume and minimum thermal parameters.

**Conclusion:** IHT-IRT is a safe and effective treatment. The results provide important implications for (a) planning of randomized phase II/III studies, and (b) defining precise quality control criteria and thermal performance.

## Melanoma

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### The early diagnosis of cutaneous malignant melanoma: The role of the epiluminescent microscopy

P.A. Ascierto<sup>1</sup>, R.A. Satriano<sup>2</sup>, G. Botti<sup>1</sup>, L. Bosco<sup>2</sup>, A. Daponte<sup>1</sup>, F. Ionna<sup>1</sup>, R. Parasole<sup>1</sup>, G. Castello<sup>1</sup>. <sup>1</sup>Melanoma-Group National Cancer Institute of Naples; <sup>2</sup>Department of Dermatology 2nd University of Naples, Italy

**Purpose:** Epiluminescent microscopy (ELM) has been reported to be very useful in the differential diagnosis of cutaneous pigmentary lesions. Improvement in the differential diagnosis of cutaneous pigmentary lesions by using ELM was evaluated during a health campaign for early diagnosis of cutaneous melanoma.

**Methods:** During 1996, 3869 lesions in 2121 patients (1132 females and 789 males) were evaluated. The median age was 29 years (range 1–89 years). For ELM we used a new hand-held video microscope imaging system (Scopeman Moritex) which utilizes zoom lens allowing 25x and 50x magnifications. Pigmented lesions were evaluated and classified as: a) no melanocytic lesions; b) melanocytic lesions without pigment network; c) melanocytic lesions with pigment network. Melanocytic lesions with pigment network has been further classified as at low-, medium-, high- and very high risk according to the Kenet and Fitzpatrick criteria (1994). Advice for surgery was given in medium-, high- and very high risk lesions. In low risk lesions surgery was justified by cosmetic and/or functional reasons.

**Results:** In the sample examined we diagnosed 60 new cases of cutaneous melanoma: 32 (53.3%) stage IA (AJCC), 9 (15%) stage IB, 11 (18.3%) stage IIA, 6 (10%) stage IIB, 1 (1.7%) stage III and 1 (1.7%) stage IV.

**Conclusions:** ELM is a non invasive, easy to use, low cost, highly

sensitive method to improve clinical diagnosis in pigment lesions. ELM sensitivity is high (about 88%). ELM allows identification of cutaneous melanoma when thickness is low and permits, therefore, early treatment and better outcome.

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### Primary advanced, recurrent and metastatic malignant melanoma clinical update on 20-year results of external beam radiotherapy

M.H. Seegenschmied<sup>1,5</sup>, A. Altendorf-Hofmann<sup>2</sup>, H. Schell<sup>3</sup>, C. Wittekind<sup>4</sup>, R. Sauer<sup>1</sup>. <sup>1</sup>Departments of Radiation Oncology; <sup>2</sup>Surgery; <sup>3</sup>Dermatology; <sup>4</sup>Clinical Pathology, University Erlangen-Nürnberg; <sup>5</sup>Alfried-Krupp Krankenhaus Essen, Germany

**Purpose:** Radiotherapy (RT) for malignant melanoma is regarded only as "last resort" in the treatment of malignant melanoma (MM). We have analyzed initial and long-term local control, survival and prognostic factors in locally advanced, recurrent and metastatic MM

**Methods:** Between 1977–1995, at our clinic a total of 121 out of 2917 (4%) consecutive patients (56 female, 65 male) with histologically proven malignant melanoma (MM) received RT due to advanced stage MM. The primary histology was NM in 51 (47%) pts., SSM in 35 (32%) pts., ALM in 8 (7%) pts. and LMM in 4 (5%) pts.. The indication for RT was primarily for palliative intention in the advanced UICC stages II to IV: (a) 11 (9%) pts with R1-resection of primary or recurrent MM (UICC II); (b) 57 (47%) pts with regional LN metastases (33) or in-transit metastases (24) (UICC III); (c) 53 (44%) pts with distant metastases (7 M1a; 46 M1b) (UICC IV). The mean interval between first diagnosis and actual RT was 19 mos. (range: 3–186 mos). Conventional or hypofractionated RT was applied with 2–6 Gy single dose to a median of 48 Gy (range: 20–60 Gy) total dose.

**Results:** Complete (CR) or overall response (CR + PR) at 3 mos FU with regard to UICC stage was achieved in 7 or 11 of 11 pts (UICC II); in 25 or 44 of 57 pts (UICC III); and in 9 or 26 of 53 pts (UICC IV). Tumor progression during RT occurred in 25 (21%) pts Median FU was 9 years (range: 0.3–15.5 yrs.). Patients with CR survived longer (median 40 mos) than with no CR (10 mos) ( $p < 0.01$ ). At last FU 26 (21%) pts were still alive: 6 (55%) UICC II; 17 (30%) UICC III; 3 (6%) UICC IV ( $p < 0.01$ ). Univariate analysis revealed the following prognostic parameters for CR: UICC stage ( $p < 0.001$ ), primary location, single and total RT dose  $> 40$  Gy (all  $p < 0.05$ ), while sex, age and histology had no impact. In multivariate analysis the UICC stage was the single prognostic factor.

**Conclusion:** RT is an effective therapy for UICC stage II–IV malignant melanoma.

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### Role of lymph node dissection in malignant melanoma – New aspects

Th. Meyer, J. Göhl, W. Hohenberger. Department of Surgery, University Hospital Erlangen-Nuremberg, FRG

The prognosis of established lymph node metastasis, elective lymph node dissection and its potential as a staging procedure, and the technique of sentinel node biopsy are the most important aspects of lymph node dissection in malignant melanoma.

Prospectively gathered data of 879 elective (ELND) and 265 regional lymph node dissections (RLND) during 1967 and 1994 were analysed.

With rising tumor thickness the incidence of lymph node metastases (l.n.m.) increased (ELND: 1.51–3 mm 11.1%,  $> 4$  mm 22.1%; RLND: 1.51–3 mm 74%,  $> 4$  mm 93%). Simultaneously, the interval until the development of l.n.m. decreased ( $< 3$  mm: 47%,  $> 3$  mm: 74% within 2 years). Micrometastases were significantly more frequent following ELND (44.9% vs. 3.5%), while the number of positive lymph nodes was higher following RLND ( $> 3$  l.n.m. 18.3% vs. 46%). If lymph node metastasis had occurred, the prognosis of malignant melanoma deteriorated by 20% to 50%, depending on the extent of metastasis in the individual case. The prognosis following ELND in case of l.n.m. was significantly better than after RLND (pN+: 10-yr-survival 51% vs. 23%).

The subgroups who would actually benefit from ELND are yet to be identified. The technique of sentinel node biopsy may be a solution to the problem. Our own experience with this procedure confirmed the possible identification of the sentinel node in 80–90%. However, this method needs further evaluation. Recently, first studies have identified subgroups of nodal positive patients who would profit from adjuvant chemioimmunotherapy. Therefore, lymph node dissection as a staging procedure has to be discussed in the future.