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## Head and neck cancer

### Conservative treatment in locally advanced head and neck cancer

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**Purpose.** The aim of this study is to describe compliance, acute toxicity and radiochemotherapy treatment outcomes in patients diagnosed with locally advanced squamous cell carcinoma of head and neck.

**Patients and methods.** From March 2002 to January 2012, 942 patients diagnosed with head and neck cancer were treated in our department. A subgroup of 150 patients received chemoradiation therapy with radical intent. The radiotherapy schedule used was 50 Gy to clinical target volume (CTV) and 70 Gy to the gross target volume (GTV). The concomitant chemotherapy (QT) regimens were adapted to each clinical case.

**Results.** The median age was 61 years (range 39–82), 87% male and 13% female. 27% of all patients were stage III and 67% stage IV. Locations: 62 larynx (42%), oropharynx 44 (29%), oral cavity 20 (13%), hypopharynx 24 (16%). 77% of all patients received concomitant QT according to the following schemes: 60% received weekly CDDP, 20% CDDP every 21 days, 15% Carboplatin, Cetuximab 5% and the remaining patients received others regimens. G3 toxicity was seen in 35% of patients and mucositis and epithelitis were the most frequent. Median follow-up was 33 months (range 4–115). Two-year and five-year overall survival (OS), cause-specific survival (CSS) and disease-free survival (DFS) were 62% and 37%, 66% and 60%, 64% and 43%, respectively. There was not significant difference in survival with the following analyzed variables: location, sex, age and QT scheme.

**Conclusions.** In our series conservative treatment with radiochemotherapy in locally advanced head and neck cancer offers a good toxicity profile and results comparable to those published in the literature.

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### Experience in head and neck cancer re-irradiation

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**Purpose/objectives.** To evaluate survival and toxicity of re-irradiation (re-RT) in head and neck cancer.

**Materials/methods.** Retrospective review of patients ( $n=29$ ) treated with curative ( $n=25$ ) or palliative ( $n=4$ ) re-RT for recurrent ( $n=24$ ) or second primary ( $n=5$ ) tumors of any histology (23 squamous, 2 adenocarcinomas, 3 undifferentiated and 1 condrosarcoma) between 2002 and 2011. Locations included: oropharynx/oral cavity (14), hypopharynx/larynx (5), nasopharynx (6), nose/paranasal sinuses (3) and parotid (1). Re-RT considered as any overlap between original and new radiotherapy (RT) volumes. Radiation-related toxicities scored using RTOG criteria. Median interval between RT treatments was 26 months (4–133). Salvage surgery preceded re-RT in 12 patients; 24 patients received concurrent chemotherapy and/or cetuximab. Re-RT was given with step-and-shot IMRT ( $n=23$ ), 3D conformal RT ( $n=4$ ), radiosurgery ( $n=1$ ) or brachytherapy ( $n=1$ ). Median cumulative, prior RT and re-RT doses were 123.5 Gy (84–153), 66 Gy (59–83) and 50 Gy (14–70) respectively. Univariate analysis was performed using the log rank test. Survival was calculated with Kaplan–Meier method.

**Results.** Median follow-up was 17.3 (0.5–65) months. The 1 and 2-year survival rates for all patients were 75 and 68%, with 45% loco-regional control. Median survival was 16.8 months (4.5 for palliative and 19 for curative). Eight patients died, all of them with locally progressive disease. Grade 3–4 radiation-related toxicities occurred in 55% of all cases, with 1 fatal carotid rupture. Nasopharynx localization, non surgical cases, systemic treatment and lower total RT doses were associated with worse survival. Recurrent tumors, surgical cases and higher total RT doses were associated with worse toxicity.

**Conclusions.** Re-RT results in encouraging rates of local control and survival, although severe toxicities are substantial. Investigations to identify patients who could benefit most from re-RT and the development of techniques to lower side-effects are warranted.

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### Incidence and prognosis of human papilloma virus induced oropharyngeal cancer

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**Introduction.** Tobacco and alcohol consumption are the primary risks factors for development of head and neck squamous cell carcinoma. However, it has recently been recognized that the human papilloma virus (HPV) can play a role in the pathogenesis of a subset of these cancers, especially in those arising in the oropharynx.

**Objectives.** To analyze the incidence of oropharyngeal squamous-cell carcinomas induced by HPV in Spain, and to determine the prognostic significance of HPV status on overall survival, disease-free survival and loco-regional control among patients treated with conservative treatment.

**Methods.** A retrospective analysis was performed on 102 patients with oropharyngeal squamous-cell carcinoma, treated with curative radiation or concurrent chemoradiation therapy in four university hospitals from Madrid (Spain) between 2000 and 2010. Immunohistochemical expression of p16 was analyzed in matched pretreatment paraffin-embedded tumour blocks from these patients. The influence of p16 status on loco-regional control, disease-free survival and overall survival was analyzed using the Kaplan-Meier method (univariate analysis) and COX's regression analysis (multivariate analysis).

**Results.** p16 positivity by IHC was found in 27 tumours (26.7%). No statistical significant differences were observed between the HPV+ and HPV– groups regarding tumour stage, gender, age or smoking. The median follow-up period was 28 months. Overall survival was improved for HPV+ compared to HPV– patients: with an estimated 3-year overall survival of 67.4% vs 49.7% ( $p = 0.095$ ). Three-year disease-free survival was also improved for HPV+ patients, although the difference was not statistically significant: 63.6% vs 54.6% ( $p = 0.336$ ). Three-year loco-regional control was 52.7% vs 51.1% ( $p = 0.47$ ).

**Conclusions.** The incidence of HPV-related oropharyngeal carcinomas in our group of patients, 26.7%, is similar to that reported in other European countries. HPV positivity, measured by p16 IHC expression, was associated with improved overall survival in oropharyngeal cancer patients treated with conservative treatment.

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### Institutional experience in head and neck cancer treated with IMRT

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**Purpose.** Was evaluated IMRT (integrated boost) treatment in locally advanced head and neck tumors, 4 years follow up.

**Material and methods.** 179 patients treated from May 2007 to December 2011. Mean of age 59 years (25–88) – Stage  $\geq$  T3: 56%,  $\geq$  N1: 72%. Primary tumor location: Oropharynx 21%, Hypopharynx 14%, Larynx 30%, Nasopharynx 16%, Oral cavity 17%, Multifocal 2%. 62% received radical treatment, 38% of them treated with neoadjuvant chemotherapy schema based platinum. 38% of all patients were treated with adjuvant protocol. Used planning CT scan with 5-mm slice thickness. A customized thermoplastic mask covering the head to shoulder region is made to immobilize the patient. A total dose of 69.96 Gy at 2.12 Gy/fraction was given to the PTV1 (gross volumen). While the CTV that included potential microscopic infiltration received 59.40 Gy (PTV2) at 1.80 Gy/fraction. And the neck with clinically negative findings received 54.12 Gy (PTV3) at 1.64 Gy/fraction. The postoperative dose in surgical bed was 66 Gy at 2 Gy/fraction.

**Results.** Acute toxicity: more than 80% of patients presented less or equal GII Mucositis and Dermatitis. 14% of patients suffered treatment interruption (4% secondary of acute toxicity). Evaluated Chronic Xerostomia: more or equal than GII 15%. The overall