

dose' was defined as a mean gland dose of above 50 Gy. The four groups were: high thyroid and pituitary doses (HTHP group); high thyroid and low pituitary doses (HTLP group); low thyroid and high pituitary doses (LTHP group) and low thyroid and pituitary doses (LTLP group). Repeated measurements of the fT3, fT4 and TSH were taken at 3, 6, 12 and 18 months after completion of radiotherapy. Any abnormal thyroid hormone levels and incidences of hypothyroidism were identified and analysed with respect to the four different patient groups defined above.

**Results:** In general, the thyroid gland received relatively higher dose than the pituitary gland, with the average mean and D50 thyroid dose about 60% higher than that of the pituitary. 22 patients (33.8%) and 17 patients (26.2%) received high mean thyroid and pituitary doses of over 50 Gy respectively. At the 18 months post-RT, 4 patients (6.2%) developed overt hypothyroidism, 9 (13.8%) developed subclinical hypothyroidism and 2 (3.1%) developed central hypothyroidism (Table 1). The incidence of abnormal thyroid function was highest in the HTHP group, in which 5 out of 6 cases (83.3%) developed hypothyroidism followed by the HTLP group with an incidence of 50%. The LTHP and LTLP groups showed much lower incidence of hypothyroidism (<10%).

**Table 1**

Incidence and percentage (in bracket) of abnormal thyroid conditions under each patient group classified according to the level of thyroid and pituitary doses at the 18-month time interval.

	Patient Groups				Total (n=65)
	HTHP (n=6)	HTLP (n=16)	LTHP (n=11)	LTLP (n=32)	
Overt Hypothyroidism	2 (33.3%)	2 (12.5%)	0 (0%)	0 (0%)	4 (6.2%)
Subclinical Hypothyroidism	1 (6.7%)	6 (37.5%)	1 (9.1%)	1 (3.1%)	9 (13.8%)
Central Hypothyroidism	2 (33.3%)	0 (0%)	0 (0%)	0 (0%)	2 (3.1%)
All types	5 (83.3%)	8 (50.0%)	1 (9.1%)	1 (3.1%)	15 (23.1%)

**Conclusions:** Patients who received both high thyroid and pituitary glands doses carried the highest risks of abnormal thyroid functions. High thyroid dose was a more influential factor than high pituitary dose in inducing post-RT hypothyroidism. Therefore, measure to keep the mean thyroid dose below 50 Gy in treatment planning was essential to minimize the thyroid complications.

#### EP-1027

**Unusual cases of hyperpigmentation of tongue in patients treated for head and neck cancer.**

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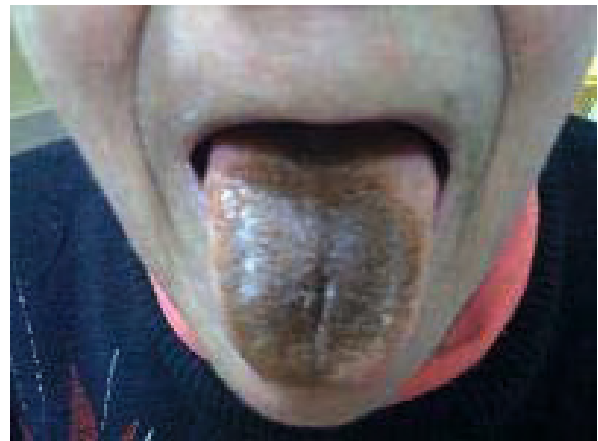
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**Purpose/Objective:** External radiation therapy (ERT) and chemotherapy are currently used for the treatment of head and neck cancer. These therapies are often associated with mucositis and xerostomia while hyperpigmentation of the tongue is a rare event. The aim of our study was to study all cases of dark tongue in patients (pts) treated with ERT on the head and neck area by performing a routine microbiological test and looking for possible correlations with ERT or other therapies administered.

**Materials and Methods:** In a period of 9 months we observed 10 cases of hyperpigmentation of tongue. Four pts underwent radical surgery before ERT, 2 pts had conservative surgery. Six pts were treated concurrent with chemotherapy. Eight patients were treated with 3DCRT, 2 pts with IMRT. The evaluation of acute toxicity was made using the RTOG criteria. Lingual swabs were performed at the appearance of lingual discoloration. An assessment of the dose-volume histogram (DVH) was carried out for each patient.



**Results:** Pts developed hyperpigmentation of tongue at a mean dose of 40,65 Gy (range 22 - 68 Gy). For all pts, the brown coloration was on the anterior half of dorsal surface of mobile tongue without pain, burning sensation or other type of tongue distress. Mucositis G2 were observed in 5 pts and G1 in 1 pt. Salivary gland toxicity G2 was detected in 5 pts and G1 in 1 pt. No pts developed hematologic toxicity. In only one case (5%) an infection by two microorganisms (Klebsiella pneumoniae and Candida spp.) was reported, while in all other cases there were monomicrobial infections represented in 50% of the cases by Candida spp, in the 45% by gram-negative bacterial pathogens (Acinetobacter lwoffii, Acinetobacter Baumanni, Enterobacter cloacae, Pseudomonas spp.). From an initial assessment, evaluating the DVH data, we did not observe a direct correlation between the appearance of hyperpigmentation of tongue and the dose absorbed by the tongue nor by parotid glands. We did not find a correlation between the initial infection and the administration of chemotherapy. All patients assumed topical therapy for the prevention and palliative treatment of xerostomia and mucositis. In order to treat hyperpigmentation of the dorsal surface of tongue, five patients (2 with Candida and 3 with bacterial infection) did not assume any therapy while the others were treated with systemic antifungal therapy or with antibiotic depending by the microbial agent reported. It may be stated that administration of systemic targeted therapy did not give any advantage as to the time of resolution of the black tongue.

**Conclusions:** We believe that for all patients, the hyperpigmentation of tongue is related to the changed microenvironmental conditions of the oral cavity favoring the development of opportunistic microorganisms. We would also like to emphasize the need for a microbiological swab test before prescribing any drug to subjects with a black tongue discoloration.

#### EP-1028

**Comparison of quality of life in patients with head and neck cancer prior radiotherapy and 1 year after**

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**Purpose/Objective:** Radiotherapy alone (RT) or in combination with chemotherapy (CRT) is a standard of care for patients in locally advanced squamous cell carcinoma head and neck cancer (LA-HNSCC). However, RT is associated with side effects, which can have a significant impact on the QoL. The purpose of this study was to investigate the longitudinal changes in QoL for patients with LA-HNSCC following RT or CRT.

**Materials and Methods:** From September 2008 to February 2010, 205 patients with LA-HNSCC were included. The data pertaining to their QoL were collected using the European Organization for Research and Treatment of Cancer Quality of Life Core Questionnaire (EORTC QLQ-C30) and the EORTC Head and Neck Module (QLQ-H&N35) before RT and 12 months after the end of RT. The data of all items and scales of the EORTC QLQ-C30 and the EORTC QLQ-H&N35 were transformed to a 0-100 scale for presentation according to the guidelines of the EORTC. For statistical evaluation the student t-test was performed with significance level of p < 0.05.

**Results:** In general, during the 1 year follow-up after the end of RT the QoL of patients increased and the global QoL was not statistically different than prior RT. The most significant improvement was observed for the following issues: appetite, pain, nausea and vomiting, and fatigue. However, after 1 year from the end of RT the QoL for many subscales is still lower than prior treatment. For