Highly conformal radiotherapy for T1-2 N0 (≤3 cm, <50% of the anal circumference) anal cancers: outcome and toxicity

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Purpose/Objective: While for locally-advanced (T3-T4) tumors, the combination of elective lymph-node irradiation along with concomitant chemotherapy (CT) has been demonstrated to improve loco-regional control (LRC) compared to radiotherapy (RT) alone, the best treatment strategy remains controversial in early-stage anal tumors (T1-T2) without nodal involvement. The role of prophylactic inguinal irradiation (PII) in this setting remains an open issue, especially in the era of modern EBRT techniques. The aim of this study was to assess outcomes and toxicity results of highly-conformal EBRT techniques in patients with early-stage T1-2 N0 anal cancers measuring ≤3 cm and involving ≤50% of the anal circumference treated conservatively with or without concomitant CT.

Materials and Methods: Data of 44 patients with cT1 (n=13) or cT2 ≤3 cm, involving ≤50% of the anal circumference (n=31, median size 2.5 cm) cN0, histologically proven anal carcinoma, treated in two institutions between 03/2006 and 04/2014 were retrospectively reviewed. Median age was 61 years (range: 36-87). For all patients, the pelvis and inguinal region were treated with highly conformal EBRT techniques, including helical Tomotherapy, intensity-modulated radiation therapy (IMRT) or volumetric modulated arc therapy (VMAT) in 22, 17 and 5 patients, respectively. Regarding the boost, 28 patients were treated with 3D-conformal RT, 6 with Tomotherapy, 4 with IMRT and 6 with VMAT. Image-guided RT modalities were used for daily repositioning. EBRT schedule consisted of elective lymph node irradiation including PII to 36 Gy (1.8 Gy/fraction), followed by a boost to the GTV up to 59.4 Gy after a median gap of 10 days (range: 1-26). Concomitant CT was delivered in 37 patients (Mitomycin/C/5-FU and Mitomycin/Capcitabine for 25 and 9 patients, respectively). Toxicity was scored according to the CTCAE v3.0 scale.

Results: Treatments were delivered in all patients as planned, with no interruptions. After a median follow-up of...