Median follow-up in living patients was 38 months. One patient was lost from follow-up after 24 months. One patient treated with radiochemotherapy for a cT4a cN2b M0 hypopharyngeal primary tumour was diagnosed with locoregional recurrence at 6 months of follow-up and deceased 3 weeks later. Due to renal insufficiency, he only received one cycle of cisplatin 100 mg/m² at day 1 of C-ART-DPBN. There were no other loco-regional or distant recurrences. A single other patient died due to a second primary lung tumour at 30 months after C-ART-DPBN. Actuarial LRC was 100%, 90%, 90% and 90% after 6, 12, 24 and 36 months, respectively. Actuarial OS was 100%, 90%, 90% and 79% at 6, 12, 24 and 36 months, respectively.

All grade 0-3 late xerostomia, dysphagia and mucosal integrity is shown in Figure 1. Grade 4 trismus was seen in 1 patient at month 6, and reduced to grade 3 thereafter. One patient had a persistent skin ulcer up to 1 year of follow-up (scored as grade 4 skin necrosis) resulting from complete response of an involved neck node invading the skin; thereafter the wound healed spontaneously. There was no other grade 4 and no grade 5 late toxicity.

Conclusions: Continuous adaptive radiotherapy using DPBN has been shown to be feasible and resulted in excellent loco-regional control, survival and late toxicity. A multicentre prospective randomised trial is currently recruiting patients and will compare C-ART-DPBN to standard non-adaptive radiotherapy for head and neck cancer.

EP-1150
Accurate 3D mandibular VMAT dose prediction from 18-FDG pet derived auto contours: streamlined ORN prophylaxis
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Purpose/Objective: Osteoradionecrosis (ORN) of the mandible is a feared late complication of high dose radiotherapy (RT) for head and neck cancer. ORN is often precipitated by extraction of carious teeth from a heavily irradiated mandible. The threshold dose, below which ORN does not occur is controversial, but generally believed to be above 60Gy in 2Gy per fraction. Many centres extract teeth prior to RT commencement to prevent ORN. Dental assessment, extractions and subsequent mandibular healing often delays RT simulation and start. This delay may affect tumour control. To minimise delay, efforts should be made to quickly and accurately identify areas of mandible at risk and focus assessment on the associated teeth, or completely bypass dental assessment. The aim of this study is to validate the accuracy of a rapid and objective 3D model for mandibular dose estimation that can be generated prior to patient simulation for RT.

Materials and Methods: Ten consecutive patients treated definitively for mucosal squamous cell carcinoma (SCC) of the upper aero-digestive tract, with disease within 15mm of the mandible, were identified. All patients were treated over 35 fractions to a maximum dose of 70Gy and had bilateral nodal irradiation to 56Gy using volumetric modulated arc therapy (VMAT). A PTV of 63Gy (biologically 60Gy in 30 fractions) was planned for each patient, consisting of a 10mm isotropic margin from GTV to CTV, and a further 5mm to PTV. Pinnacle 9.6, was used to generate the auto-contoured MANDIBLE and a 63Gy DOSE structure, from the delivered plan. This dataset was imported into MIM 6.0, along with the patient’s PET and corresponding CT scan in RT position. The ‘PET Edge’ tool was used to auto-contour all primary tumours and upper cervical lymph nodes. A 15mm isotropic expansion was applied to create 63Gy MIM. The PET/CT was fused to the RT planning CT by MIM 6.0. The volume of overlap from the actual 63Gy DOSE and MANDIBLE, and 63Gy MIM and MANDIBLE were recorded and compared using the Dice similarity coefficient (DSC).

Results: All patients had stage IVa SCC. Nine patients had primaries of the oropharynx and one of the supraglottic larynx. Eight patients were male. The mean DSC of mandible between 63Gy DOSE and 63Gy MIM was 0.72. Sensitivity, specificity, positive and negative predictive values of the 63Gy MIM model were 0.64, 0.98, 0.86 and 0.95 respectively. The mean and median volume of mandible receiving ≤63Gy was 6.4cc and 5.3cc respectively.

Conclusions: Accurate dose prediction can be achieved using auto-contours from pre-therapy 18-FDG PET scans. Three-dimensional visual displays of high mandibular dose may be useful for oral health practitioners to decide whether to prophylactically extract teeth. The volume of mandible receiving more than 63Gy is low, and the negative predictive value of this model is high. This suggests that the need for extraction may be relatively uncommon in centres using modern RT techniques.

EP-1151
IMRT with simultaneous integrated boost and chemotherapy for locoregionally advanced nasopharyngeal carcinoma
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Purpose/Objective: To evaluate long-term outcome in locoregionally advanced nasopharyngeal carcinoma (NPC) treated with Intensity-Modulated Radiotherapy-Simultaneous Integrated Boost (IMRT-SIB) and concurrent chemoradiotherapy (CHRT) +/- neoadjuvant chemotherapy (CHT).

Materials and Methods: All patients (pts) were treated with IMRT-SIB (step and shoot technique) and +/- neoadjuvant CHT (cisplatin + 5-fluorouracil or docetaxel+cisplatin+ 5-fluorouracil every 21 days for 2 cycles) + concurrent CHRT (weekly cisplatin or cisplatin + 5-fluorouracil every 21 days). Computerized optimization was performed with fusion of MRI and/or PET with treatment planning CT images to accurately delineate the gross tumor volume (GTV), which included the primary disease and nodes greater than 1 cm in diameter or nodes with necrotic centers. The treated volumes and the dose delivered were as follows: Clinical Target Volume (CTV)