RADIATION DOSE MAPPING OF THE STOMACH IN TRIMODALITY THERAPY FOR ESOPHAGEAL CANCER
Andrew Bang, Joel Broomfield, Sebastien Gilbert, Jason Pantarotto
The Ottawa Hospital Cancer Centre, Ottawa, ON

Purpose: Esophageal cancer remains a difficult cancer to cure despite aggressive therapy. A common strategy aimed at achieving cure in locally advanced esophageal cancers is to use neoadjuvant concurrent chemoradiotherapy followed by surgery (“trimodality” therapy). Post-operative complications following esophagectomy with gastric pull-up are significant events when they occur, including possible anastomotic leaks. Our goal is to investigate whether a relationship exists between these complications and radiation dose to the tissues used to form an anastomosis with the proximal esophagus.

Methods and Materials: An ethics board-approved retrospective analysis was performed on 37 consecutive patients at our institution who underwent neoadjuvant chemoradiotherapy followed by a radical esophagectomy. Patients were treated between January 1, 2008 and December 31, 2012. For each case, the 3D conformal plan was re-calculated once the stomach was contoured. Gastric contouring consisted of an overall organ contour from the gastro-esophageal junction to the pylorus. A series of sub-contours were then devised dividing the stomach into thirds: superior, middle and inferior third. The superior third was further subdivided into medial and lateral sub-components. At the time of simulation, patients were not given any specific instructions for food avoidance, and a subset were asked to drink oral contrast (≤ 100 ml). The mean radiation dose and V40 were computed for specified regions of the stomach.

Results: A total of 37 patients were analyzed. The study cohort included 31 cases of esophageal adenocarcinoma and six cases of squamous cell carcinoma. Thirty-five of 37 cases involved the lower third of the esophagus. All surgeries were performed with a transthoracic approach, with minimal invasiveness (15) or open techniques (22). Radiation dose varied between 4500-5040 cGy, given 180-200 cGy per day, often with a two phase approach with a smaller boost volume. The mean (range) dose of the medial superior, lateral superior, middle and inferior thirds of the stomach was 3919 cGy (46-5193), 2587 cGy (40-5077), 2569 cGy (27-4713) and 1304 cGy (14-4265) respectively. The calculated V40 for each gastric sub-segment was 72.3%, 34.0%, 34.7% and 12.5% respectively.

Conclusions: There is no radiation sparing of the distal 2/3 of the stomach in patients treated with neoadjuvant radiotherapy for esophageal cancer. In some cases, doses approach or are equal to the prescribed dose. Surgeons may not be aware that tissues used to form an anastomosis with the proximal esophagus may have received significant dose. There is rationale to investigate a relationship between dose to the stomach and potential anastomotic complications in this patient population.

ADJUVANT RADIOTHERAPY FOR PROSTATE CANCER: DID GUROC RECOMMENDATIONS INFLUENCE PRACTICE TRENDS?
Wei Ning (Will) Jiang1, Amandeep Taggar1, Majed Alghamdi1, Derek Tilley2, Xanthoula Kostaras1, Marc Kerba1, Siraj Husain1, Geoff Gotto2, Michael Sia1
1Tom Baker Cancer Centre, Calgary, AB
2Cancer Control Alberta, Calgary, AB
3University of Alberta, Edmonton, AB
4University of Calgary, Calgary, AB
5British Columbia Cancer Agency, Abbotsford, BC

Purpose: In 2008, the Genito-Urinary Radiation Oncologist of Canada (GUROC) published a guideline recommending adjuvant radiotherapy (aRT) for the treatment of prostate cancer patients with high-risk features (HRF; positive margins, extracapsular extension [ECE], or seminal vesicle invasion [SVI]). To determine the association between the guideline and the patterns of practice, we compared the rate of aRT offered prior to and following this GUROC recommendation.

Methods and Materials: All patients treated with radical prostatectomy (RP) in 2005 (pre-GUROC cohort) and 2012 (post-GUROC cohort), who were eligible for aRT (HRF and post-operative PSA < 0.2ng/mL) and were referred to a radiation oncologist in a particular Canadian province were identified retrospectively from the cancer registry. Demographics, pathology, commodities, and treatment data were extracted from patients’ electronic medical record. aRT was defined as radiation given within six months of RP with the last PSA before