



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.

Author Disclosure: G.Q. Yang: None. M. Echevarria: None. J.J. Caude: Research Grant; Varian Medical Systems. Honoraria; Varian Medical Systems. Consultant; Varian Medical Systems.

2849

Integrating Quantitative Radiomics in De-intensification Treatment for Oropharyngeal Carcinoma

R. Paul,¹ J. Richmon,² A. Juliano,³ and A.W. Chan¹; ¹Department of Radiation Oncology, Massachusetts General Hospital, Harvard Medical School, Boston, MA, ²Department of Otolaryngology, Massachusetts Eye and Ear Infirmary, Harvard Medical School, Boston, MA, ³Department of Radiology, Massachusetts Eye and Ear Infirmary, Harvard Medical School, Boston, MA

Purpose/Objective(s): Deintensification for early-stage oropharyngeal carcinoma includes surgery +/- adjuvant radiation therapy without the use of concurrent chemotherapy. Pathologic findings of nodal extracapsular extension (ECE), however, obligate the use of postoperative concurrent chemotherapy in these patients. The purpose of this study was to develop a robust predictive model for ECE using quantitative radiomics.

Materials/Methods: Between 2016 and 2020, 81 patients with newly diagnosed resectable oropharyngeal carcinoma underwent upfront transoral robotic surgery and neck dissection at our institutions. In all these patients, high-resolution CT scans were done preoperatively and were concluded to have no evidence of ECE by experienced head and neck radiologists. Eight five percent of tumors were HPV-positive. Median age was 63 years. Radiomics features (107 features) from the primary and extended nodal regions (1-3 mm extension) were extracted to generate predictive models. Two feature selection approaches were evaluated: Minimum Redundancy Maximum Relevance (MRMR) and Linear Discriminant Analysis (LDA). Logistic regression, decision tree, and random forests classifier were chosen for our analysis.

Results: Thirty eight percent of patients were found to have ECE in at least one of the nodes, and therefore received concurrent chemoradiation post-operatively. There was a total of 119 pathological positive nodes. Of these positive nodes, 31 nodes were found to have ECE with a ECE of less than 1 to 10mm. Five-fold stratified cross-validation was used for evaluation. A 96% accuracy (0.95 AUC, 0.96 recall) was achieved from the primary node without extension, using LDA feature selection. An improved result of 97% accuracy (0.96 AUC, 0.97 recall) was obtained with the 3mm extension. MRMR attained the maximum accuracy of 77% (0.64 AUC, 0.36 recall) with the 3mm extension.

Conclusion: Quantitative radiomics allows a robust prediction of ECE, thereby optimizing de-intensification therapy for oropharyngeal carcinoma.

Author Disclosure: R. Paul: None. J. Richmon: None. A. Juliano: None. A.W. Chan: None.

2850

Oropharyngeal Cancer Early Outcomes and Challenges During the COVID-19 Pandemic

J.J. Kang,¹ Y. Wu,² A. Rybkin,¹ Y. Yu,¹ L. Chen,¹ K. Zakeri,¹ S. McBride,¹ N. Riaz,¹ C.J. Tsai,¹ D. Gelblum,¹ R.J. Wong,³ E. Sherman,⁴ D.G. Pfister,⁴ and N.Y. Lee¹; ¹Department of Radiation Oncology, Memorial Sloan Kettering Cancer Center, New York, NY, ²Memorial Sloan Kettering Cancer Center, New York, NY, ³Department of Surgery, Memorial Sloan Kettering Cancer Center, New York, NY, ⁴Department of Medical Oncology, Memorial Sloan Kettering Cancer Center, New York, NY

Purpose/Objective(s): The COVID-19 pandemic triggered a national emergency which drastically affected the practice of medicine. Studies have already shown that delays in cancer screening/diagnosis/treatment have ensued, and some project this will translate into increased mortality.

We aimed to evaluate if early oropharyngeal cancer (OPC) outcomes with radiation therapy (RT) were affected.

Materials/Methods: On 3/17/2020, in response to the crisis in New York City, telemedicine consultations were implemented at our institution and patients followed prospectively. The Covid cohort (COV) includes new patients through July 2020. They were compared to a contemporary pre-Covid (PC) historical cohort of new patients from November 2019 to 3/16/2020. We reviewed medical records and collected clinicopathologic factors for OPC patients treated with curative intent RT. The Kaplan-Meier method was used to estimate time-to-event outcomes.

Results: Median follow-up was 8.6 [1.0-13.8] months for all (5.8 months COV, 10.1 months PC). Both cohorts encompassed ~19 weeks, but half as many consults were seen during the pandemic (n = 38 COV, n = 78 PC). The COV cohort included: 74% telehealth, 92% definitive RT (no surgery), and 89% chemoRT. The PC cohort included: 0% telehealth, 88% definitive RT (no surgery), and 94% chemoRT. There was no difference in COV vs. PC median times from consultation to simulation (1.1 [0-6.4] weeks vs. 1.4 [0-10.6] weeks) or simulation to RT start (2.1 [1.3-4.9] weeks vs. 2.0 [1.1-9.9] weeks). There was no difference in 6 month outcomes between COV vs. PC cohorts: local control (100% vs. 100%, P=0.70), regional control 100% vs. 100%, P=0.70), distant control (95.2% vs. 97.2%, P=0.91), cancer-specific survival (100% vs. 98.7%, P=0.48). There was no difference in outcomes between telemedicine vs. in-person consults. There were numerically more patients with very advanced disease during the pandemic: T4 (13.2% COV vs. 7.7% PC) or N3/M1 (5.2% COV vs. 2.6% PC), but differences were not statistically significant due to limited numbers. More patients treated during the pandemic developed grade 3 dysphagia requiring feeding tubes (10.5% COV vs. 5.1% PC), not significant due to limited numbers. No patients diagnosed with COVID (1 before, 2 during, and 5 after RT) had recurrence at last follow-up.

Conclusion: There was no difference in early 6 month outcomes between COV and PC cohorts, no difference in outcomes with telemedicine, and RT delivery was sustained at pre-pandemic timelines. Several important clinical trends were identified in the COV cohort: about half as many consultations were seen during the pandemic, patients appeared more likely to present with very advanced disease, and more patients required feeding tubes during treatment. These findings may have important post-pandemic healthcare delivery implications related to delays in diagnosis, threats to long-term outcomes, and increased supportive care needs.

Author Disclosure: J.J. Kang: None. Y. Wu: None. A. Rybkin: None. Y. Yu: None. L. Chen: None. K. Zakeri: None. S. McBride: Research Grant; AstraZeneca, Roche-Genentech, Janssen. N. Riaz: Research Grant; AstraZeneca, BMS, Pfizer. Consultant; Illumina, Mirati Therapeutics, REPARE. C. Tsai: Honoraria; Varian Medical Inc. Consultant; Varian Medical Inc. D. Gelblum: Consultant; Premier Global Health, MORE Health. R.J. Wong: None. E. Sherman: Research Grant; Eisai Pharmaceuticals, Kura Oncology, AstraZeneca, Pfizer, Lilly, Bayer. Consultant; Genentech. Advisory Board; Sanofi Genzyme, Novartis, Merck, Bristol-Myers Squibb, Regeneron/Sanofi Aventis, Sun Pharmaceuticals. D.G. Pfister: None. N.Y. Lee: Research Grant; AstraZeneca, Pfizer, Merck. Advisory Board; Pfizer, Merck, Merck Serono.

2851

Fractionated Radiotherapy for Pleomorphic Adenoma

S. Clark, C. Rapp, C.G. Morris, R.J. Amdur, and W.M. Mendenhall; Department of Radiation Oncology, University of Florida College of Medicine, Gainesville, FL

Purpose/Objective(s): Pleomorphic adenoma is the most common benign salivary gland tumor. It is primarily treated with definitive surgery. Rarely, radiation therapy can be utilized for recurrent lesions and in other scenarios such as positive margins. There are relatively few studies reporting efficacy and outcomes of pleomorphic adenoma treated with radiation therapy. The purpose of this project is to report tumor control,