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# IMPACT OF CIRCULATING CELL FREE TUMOR TISSUE MODIFIED VIRAL-HPV DNA TESTING ON POST-TREATMENT IMAGING SURVEILLANCE PROTOCOL IN OROPHARYNGEAL CARCINOMA

30 - HPV and oropharynx / Head and neck cancer

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**Background/Objectives:** Post-treatment surveillance imaging recommendations for oropharyngeal squamous cell carcinoma (OPSCC) lack level I evidence, with significant variability in protocols by institution and providers. In addition to cross-sectional imaging (CSI), peripheral blood testing is available to detect circulating, cell free tumor tissue modified viral (TTMV)-HPV DNA in >90% of OPSSC. Given the paucity of data regarding radiologic surveillance with circulating tumor DNA (ctDNA) blood testing,1 this study aims to evaluate a novel post-treatment serologic surveillance pathway.

**Methods:** Retrospective review of post-treatment imaging in HPV-associated OPSCC was performed over 2-years at a single site. Frequency of CSI was compared between 2 groups: 1-year prior to ctDNA (control) versus 1-year after ctDNA (experimental). Eligible participants included patients treated for primary HPV-associated OPSCC with no evidence of disease on 3-month, post-treatment PET/CT. In-office exam and point of care ultrasound (POCUS) was used at each surveillance visit for all participants to assess for regional recurrence. The control group received CT neck with contrast every 6-months and CT chest at 6-12 months based on smoking history. The experimental group received ctDNA testing (NavDx, Naveris, Inc.) every 3-months; no additional imaging was obtained 1) unless there was concern for recurrence based on exam/POCUS/blood testing or, 2) deemed high-risk for metachronous lung primary per US Preventative Services Task Force (USPSTF) recommendations.2

**Results:** Among 81 participants, 25 controls (31%) underwent routine surveillance imaging and 56 (69%) received serologic surveillance. Over 12-months, all controls (100%) obtained at least 1 CT neck and chest. In the experimental group, 3 patients (5.4%) obtained a CT neck, yielding a 95% reduction in neck CSI. Of the experimental group, 26 (46%) were non-smokers (USPSTF low-risk); 30 (54%) were former/current smokers, of which 7 (1%) were considered USPSTF high-risk and received annual screening chest CT. Utilizing serologic surveillance, chest CSI was avoided in 100% of patients considered low-risk for metachronous lung primary (n=49, 88%).

**Conclusions:** ctDNA testing for OPSCC surveillance can decrease CSI neck and chest by 95% and 100%, respectively, in patients with low-risk smoking history. The impact of imaging reductions on health-system and individual-level costs, including patient financial toxicity, presents an area for future investigation. The potential to integrate surveillance ctDNA protocols may improve patient adherence to follow-ups and presents opportunities for novel remote tele-surveillance paradigms.

**References:** 1. Berger BM, Hanna GJ, Posner MR, et al. Detection of Occult Recurrence Using Circulating Tumor Tissue Modified Viral HPV DNA among Patients Treated for HPV-Driven Oropharyngeal Carcinoma. doi:10.1158/1078-0432.CCR-22-0562 2. Krist AH, Davidson KW, Mangione CM, et al. Screening for Lung Cancer: US Preventive Services Task Force Recommendation Statement. l Association. 2021;325(10):962-970. doi:10.1001/JAMA.2021.1117