Tumor Tissue Modified Viral HPV DNA Can Predict Parotid Metastases from HPV+ Oropharyngeal Carcinoma

Whitney Jin, BA, Sindhura Sridhar, BS, Brittany Topf, PA, Michael C. Topf, MD, MSCI
Department of Otolaryngology—Head and Neck Surgery, Vanderbilt University Medical Center

INTRODUCTION

- HPV+ oropharyngeal squamous cell carcinoma (OPSCC) frequently metastasizes to cervical lymph nodes, but parotid metastases are rare and may present a diagnostic challenge.
- Tumor tissue-modified viral (TTMV) HPV DNA is a novel liquid biopsy that detects circulating tumor-specific HPV DNA fragments for surveillance of tumor burden and early detection of recurrence.
- The utility of the TTMV-HPV DNA assay has not been well-described in detecting early recurrence at the parotid gland.

DISCUSSION

- This case highlights the clinical utility of TTMV-HPV DNA as the first indicator of recurrence in the parotid gland for HPV+.
- Despite favorable outcomes, 15-25% of patients with HPV+ OPSCC will have recurrence.[1,2]
- Studies have shown that TTMV-HPV DNA positivity frequently precedes the clinical diagnosis of recurrence.[2,3]
- The median lead time ranges from 53 days to 3.9 months, and up to 18 months in some cases.[3]
- TTMV-HPV DNA can help guide surveillance, especially at rare sites of recurrence.

TTMV-HPV DNA conversion from negative to positive can serve as an early, sensitive indicator of recurrence, even in rare metastatic sites such as the parotid gland.

CASE: PATIENT PRESENTATION

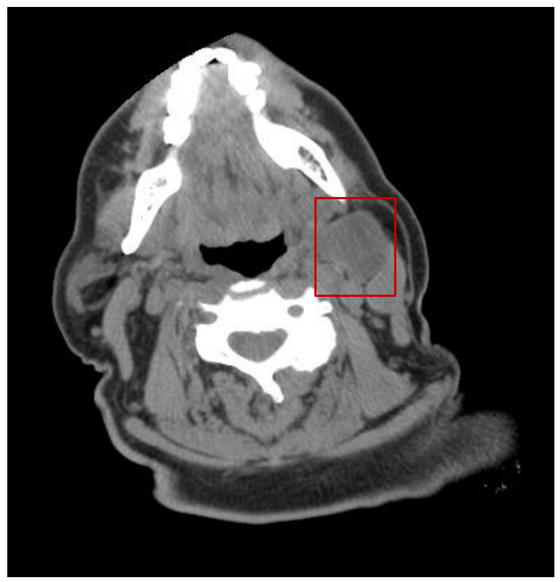

Figure 1. Pre-treatment axial CT demonstrating a cystic L level II mass. No primary was detected on FDG-PET scan.

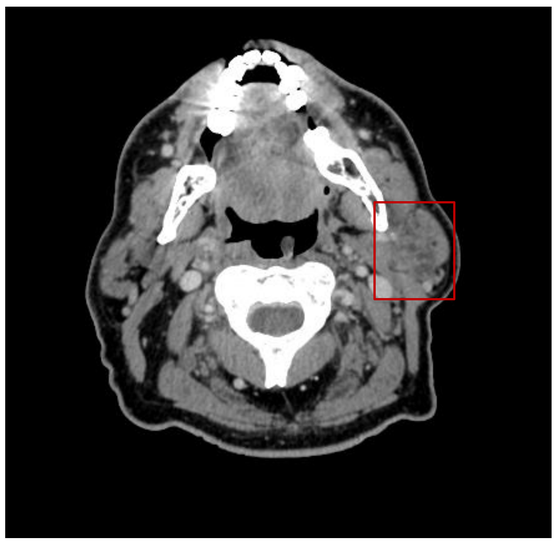

Figure 2. Axial CT demonstrating new 2.3 cm nodular lesion within superficial lobe of L parotid gland (19 months post-treatment)

59 year-old male with former 20-py smoking history presented to a tertiary referral center for L neck mass.

Physical Exam: Subtle nodularity in inferior left tonsil, overall soft and symmetric tonsils bilaterally, base of tongue and soft palate soft.
3 cm level II neck mobile mass. Imaging is in **Figure 1.**

Subtle hypervascularity in left inferior tonsillar pole on narrow band imaging.

Biopsy: Biopsy revealed squamous cell carcinoma of unknown primary (SCCUP) with indeterminate p16 status on FNA.

Pre-treatment tumor tissue modified viral (TTMV-HPV) DNA: 267 frag/ml

Surgery: Diagnostic and therapeutic transoral robotic surgery (TORS) of L tonsil, R radical tonsillectomy, and ipsilateral neck dissection of levels II-IV

Path: 0.7 cm P16+ SCC of L palatine tonsil, 1/22 nodes+ without ENE

Post-treatment TTMV-HPV DNA: 0 frag/ml

4, 7, and 10 months post-treatment TTMV-HPV DNA: 0 frag/ml

15 months post-treatment TTMV-HPV DNA: 9 frag/ml

19 months post-treatment TTMV-HPV DNA: 30 frag/ml. Imaging is in Figure 2.

Surgery: L superficial parotidectomy

Path: Metastatic SCC, 1/3 nodes+ without ENE, - margins

Patient converted to a negative TTMV-HPV post-operatively and has been undergoing surveillance.

CONTACT US:

Whitney Jin
Vanderbilt University Medical Center
Whitney.jin@bcm.edu

Michael C. Topf
Vanderbilt University Medical Center
Michael.topf@vumc.org

REFERENCES: