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Surgeon-performed intraoperative transoral ultrasound improves the detection of human papillomavirus-positive head and neck cancers of unknown primary. Oral Oncol. 2024 Dec; 159: 107073.

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Abstract

Background: Squamous cell carcinomas of unknown primary (SCCUP) are often HPV-positive (HPV: Human Papillomavirus). Due to their small size, extensive surgical work-up is required to locate the primary tumors. High-frequency transoral ultrasound (US) may provide improved visualization of these small tumors. Our study aimed to explore whether surgeon-performed intraoperative transoral US for patients with HPV-positive SCCUP could improve primary tumor detection during panendoscopy.

Methods: This was a single-center, prospective diagnostic study including patients

undergoing panendoscopy under general anesthesia with HPV-positive SCCUP. Preoperative MRIs, PET/CTs, and HPV DNA-testing of lymph node metastases were performed in all patients. Intraoperative transoral US was performed prior to panendoscopy. Frozen section biopsies were performed unblinded to US results, and transoral US-guided biopsies were attempted if initial biopsies were negative. Final histopathology was obtained with palatine- and/or lingual tonsillectomy if frozen section was negative. The main outcome was the primary tumor detection rate with intraoperative transoral US and panendoscopy.

Results: Thirty patients were included: 24 (80%) were men, and the median age was 60 years [range 35–79 years]. Twenty-nine primary tumors (97%) were confirmed; 18 (62%) and 10 (34%) in the lingual and palatine tonsils, respectively, and one (3%) in the posterior oropharynx. Transoral US had a significantly higher sensitivity than panendoscopy to locate the primary tumor (93% vs 76%, $p=0.02$), and significantly higher than pre-operative PET/CT (62%, $p=0.002$), CT (45%, $p<0.001$), and MRI (28%, $p<0.001$).

Conclusions: Intraoperative transoral US during panendoscopy is a promising diagnostic tool that may improve the detection of HPV-positive SCCUP.

Strengths: Prospective interventional study design. A sufficient number of patients was included. The results could demonstrate that the detection of small HPV positive primaries in the oropharyngeal region is best possible with high-resolution surgeon-performed intraoperative ultrasound.

Weaknesses: The presented special ultrasound technique and interventional setting are not easy to implement outside this single center experience.

Personally thinking: The detection of small primaries in the head and neck improves prognosis of patients and reduces anxieties, in contrast to CUP situations. Required spe-

cial intraoperative ultrasound transducers are available but not cheap. However, surgeons should be aware of this innovative and effective diagnostic tool to improve results of panendoscopy. The present study can be regarded as a relevant publication in the field of head and neck diagnostics.

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