Routine p16 pathology reporting in head and neck squamous cell carcinoma diagnostic samples. A clinical audit.

N Lowe MRCS (ENT), J Goswamy FRCS (ORL-HNS), R Kumar FRCS (ORL-HNS).
The Christie NHS Foundation Trust, Manchester, UK.

Background:

HPV is an important causative agent in a subset of head and neck squamous cell carcinoma (HNSCC) tumours with >70% of new oropharyngeal SCC cases thought to be HPV driven. HPV tumours are more likely to occur in younger, fitter patients who do not smoke or drink heavily; have a better prognosis than those caused by smoking and alcohol; and are thought to be more chemoradiosensitive. P16 used as a surrogate biomarker for HPV status in HNSCC can help provide prognostic information and guide treatment decisions. HPV positivity may point towards a likely oropharyngeal primary in unknown primary neck lumps.

Objectives:

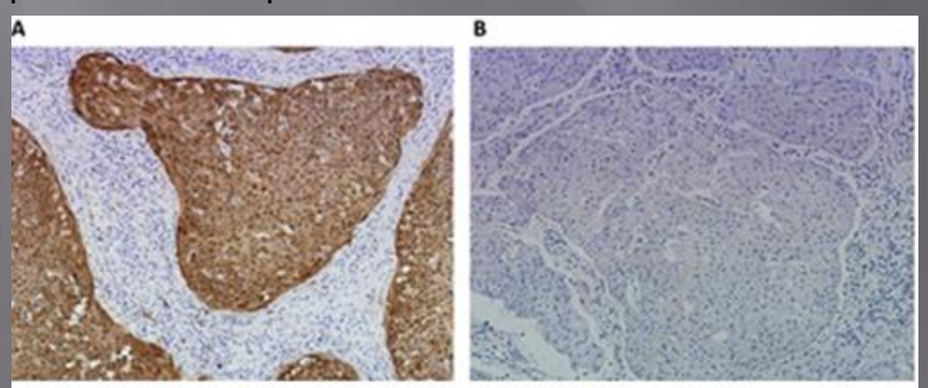
To determine if p16 status is routinely performed in all diagnostic biopsies and cytological samples from suspected oropharyngeal HNSCCs and unknown primary neck lumps referred to The Christie NHS Foundation Trust Head and Neck MDT meeting.

Standards of practice:

There are currently no official guidelines as to whether or not p16 status should be reported by the pathologist in head and neck specimens. The Cancer Outcome and Services Data set (pathology) Version 7.0 does not require pathologist to report on p16 status. However, as p16 status provides prognostic and predictive information about the tumour: local clinical preference and verbal agreement with pathologists is that: ***100% of biopsy reports from oropharynx SCCs should include p16 status.*** Additionally: Due to the low incidence of HPV related tumours from areas outside the oropharynx ***p16 status is not necessary in other HNSCC areas except unknown primary tumours.***

Methods:

An audit was performed of all new referrals to the Head and Neck MDT over a one month period. New referrals were assessed for subsite of biopsy, pathology results and p16 status. After analysis, recommendations for change were made and the audit process was repeated.



HNSCC tumour with A. p16 positive staining and B. p16 negative staining

Results:

Cycle 1	Cycle 2
Results: • 38% of results that required p16 status information did not provide p16 status (2 histology and 1 cytology sample) • 100% of these samples went on to have p16 status reported after physician request at MDT. • 27% of subsites at low risk for HPV aetiology had p16 status reported	**Results:** • 86% of results that required p16 status information did not provide p16 status • 100% of these samples went on to have p16 status reported after physician request at MDT. • 0% of subsites at low risk for HPV aetiology had p16 status reported • Main university hospital had improved but not district hospitals
Recommendations for change: • Presentation at MDT to disperse knowledge • Education to pathology labs to perform p16 analysis on all oropharynx diagnostic biopsy requests and select unknown primary / neck lump cytology requests • Education to clinicians to place cytology specimens in cytospin collection fluid for p16 analysis rather than slides. • Re-audit	**Recommendations for change:** • Presentation at MDT to disperse knowledge • Formal letter to pathology labs to request p16 analysis on all oropharynx diagnostic biopsy requests and select unknown primary / neck lump cytology requests • More education to clinicians to place cytology specimens in cytospin collection fluid for p16 analysis rather than slides. • Request help form university hospital to help recruit district hospitals to plan • Re-audit

Conclusion:

P16 analysis was not performed routinely in oropharyngeal tumours despite clinical preference to aid prognosis and treatment decisions. Conversely, non oropharyngeal tumours were being assessed for p16 regardless of clinical need. Recommendations for change lead to an improvement in p16 analysis rate, however, the 100% target was not reached with the district hospital laboratories being slowest to respond. It was highlighted that in the unknown primary lymph node, a cell block from fine needle aspiration cytology should be tested for Epstein-Barr virus as well as p16 to aid location of the occult primary. Cytology specimens need to be collected in cytospin collection fluid to enable these analyses.

1. **CHATURVEDI, A. K. et al. 2011. Human papillomavirus and rising oropharyngeal cancer incidence in the United States. *J Clin Oncol,* 29, 4294-301.**
2. **MIRGHANI, H. et al. 2015. Treatment de-escalation in HPV-positive oropharyngeal carcinoma: ongoing trials, critical issues and perspectives. *Int J Cancer,* 136, 1494-503.**
3. **UPILE, N. et al. 2014. Squamous cell carcinoma of the head and neck outside the oropharynx is rarely human papillomavirus related. *Laryngoscope,* 124, 2739-44.**