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## All high risk? Pathologic extracapsular extension in the era of human papillomavirus associated head/ neck cancers

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**Purpose/Objective(s):** Extracapsular extension (ECE) is an established risk factor for head/neck cancer (HNCa) recurrence and mortality; however, it is unknown if nodal ECE remains a negative prognostic factor in Human Papillomavirus (HPV)+ HNCa.

**Materials & Methods:** Retrospective multi-institutional comparative outcomes analysis of patient- and tumor-specific factors was done by HPV association. Eligible patients had pathologic confirmation of ECE for squamous cell carcinoma of the HN involving the oropharynx (OP), oral cavity (OC), or unknown primary (UP), and underwent curative-intent therapy. Patients with metastatic disease at diagnosis, unknown HPV/p16 status, or <3 month follow-up were excluded.

**Results:** Between the period from 2003 to 2014, 76 patients were found eligible for the present analysis. The median age at diagnosis was 60 years (range 29-82), with 46 OP cases, 28 OC, and 2 UP. Forty-one patients had HPV+ tumors. All but 5 patients had therapeutic neck dissection, and the primary site was resected in 65 patients. For resected primary cases, 38, 23, and 4 patients underwent adjuvant chemoradiotherapy (CRT), radiotherapy (RT) alone, and no adjuvant therapy, respectively. For 9 patients who underwent definitive RT, 7 received concurrent CRT. Of note, 40% of HPV+ and 35% of HPV- patients did not receive chemotherapy (p=NS). The median number of nodes excised and involved were 27 (1-92) and 2 (1-32), respectively. At a median follow-up of 26.3 months (1.4-104.0; median 34.1 for survivors), 52 patients were alive (48 without recurrence, 4 with salvaged recurrence) and 24 patients had died (21 of HNCa).Patterns of failure included local (n=6), regional (6), locoregional + distant (6), and distant only (4). In comparing the HPV+ and HPV- groups, disease-free and overall survival was superior for the HPV+ group (p<0.01; Table). HPV+ cases were more likely to be male (93% vs. 51%), undergo definitive RT (30% vs. 20%), have higher stage (73% vs. 49% stage IV) and larger nodal size (median 3.6 vs. 1.9 cm), and less likely to have undergone resection of primary (78% vs. 94%). There were no differences in number of lymph nodes sampled or involved or in follow-up between the groups.

**Conclusion:** HPV+ HNCa with ECE has an excellent prognosis despite the propensity for advanced AJCC stage and large pathologic nodal size. This excellent prognosis persists without the use of chemotherapy. Prognosis in the HPV– population with ECE remains poor despite therapeutic escalation using modern multimodality therapy (surgery, chemotherapy and radiation). ECE in the HPV+ population should be re-evaluated as a negative prognostic factor and indicator for therapeutic escalation.

## **Biography**

Tarek Dufan is currently serving as a Medical Director of Bismarck Cancer Center. He is also a Cancer Committee Chair, CHI St. Alexius Health Center, Bismarck, ND and also acting as an Associate Professor at University of North Dakota and is affiliated with St. Alexius Medical Center. He received his Medical degree from University of Tripoli School of Medicine and has been in practice between 11-20 years. He is one of 2 doctors at St. Alexius Medical Center who is specialized in Radiation Oncology.

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