

**Shaheen, N.J., Smith, M., Goldblum, J. et al. Progression of Barrett's esophagus (BE) and dysplasia detected by wide area transepithelial sampling with computer-assisted 3D analysis (WATS3D) confirms the clinical significance of crypt dysplasia. Am J Gastroenterol. 2018;113:s172.**

**BACKGROUND:** Endoscopic surveillance of BE is performed to identify progression to neoplasia. WATS3D sampling (CDx Diagnostics, Suffern, NY), an adjunct to forceps biopsy, uses brush cytology to evaluate routine histologic and cytologic features. While the diagnosis of non-dysplastic BE (NDBE), low-grade dysplasia (LGD) and high-grade dysplasia (HGD) on WATS is made using standard biopsy tissue morphologic criteria, BE with crypt dysplasia (CD) is diagnosed in instances where dysplasia-like atypia involves the crypts, but not the surface epithelium. The importance of CD is unclear.

**AIM:** To assess the risk of progression of WATS-reported CD to HGD/EAC, and to compare this to the progression rate of both WATS-detected NDBE and WATS-detected LGD.

**METHODS:** We analyzed patients (pts) who underwent WATS as part of routine care from 2013-2018. Eligible pts had two WATS  $\geq 6$  months apart. Pts were categorized by initial WATS findings (NDBE, CD and LGD). Pt-years (pt-yrs) of observation were calculated by multiplying the mean period of follow-up by the number of pts with each histology. Progression, defined as a subsequent WATS finding of either HGD or EAC, was assessed for each group. The crude progression rate, expressed as percent progressing per pt-yr, was calculated.

**RESULTS:** A total of 151,224 WATS cases (76% male, mean age 68) were catalogued, with 43,145 (29%) having goblet cell metaplasia. Of these, 4,512 pts had two samples separated by  $\geq 6$  months. A total of 4,049 pts who had NDBE on baseline WATS were followed for an average of 1.4 yrs between assays (5,736 pt-yrs total) and experienced 19 progressions to HGD/EAC, for a rate of 0.33%/pt-yr. An additional 380 pts had CD on baseline WATS and were followed for a mean of 1.25 yrs between assays (475 pt-yrs total). These pts experienced 10 progressions to HGD/EAC, for a rate of 2.1%/ pt-yr. The overall rate of progression of CD to any neoplasia (LGD/HGD/EAC) was 9.9%/pt-yr. Finally, 83 pts had WATS-detected LGD at baseline and were followed for a mean of 1.25 years between assays (103.7 pt-yrs total). These LGD pts experienced 8 progressions to HGD/EAC, for a rate of 7.7%/pt-yr.

**CONCLUSIONS:** A finding of NDBE or LGD on WATS predicts progression to HGD/EAC at rates that are comparable to, or higher than, the reported risk of progression in forceps biopsy-confirmed NDBE and LGD. Crypt dysplasia reported on WATS has a risk of progression comparable to that of forceps biopsy-confirmed LGD.