Introduction In Barrett’s oesophagus (BE), Barrett’s dysplasia and esophageal carcinoma (EC) there can be genomic instability. This instability leads to DNA abnormalities, typically aneuploidy, where cells accumulate abnormal amounts of DNA. Tetraploidy is a specific term given to cells with twice the normal (diploid) content of DNA. In our specialist referral centre for BE, ploidy assessment is requested for cases with persistent or recurrent low-grade/indefinite for dysplasia (LGD/IFD), clinical suspicion of progression due for example to a strong family history of EC in long segment BE, or cases suspected to relapse after prior treatment for high-grade dysplasia/intramucosal cancer (HGD/IMC). This study aimed to assess correlation between dysplasia and DNA ploidy abnormalities (DNA-PA) in clinical cases with BE referred for ploidy assessment to the UCLH specialist image cytometry (IC) service.

Methods All clinical referrals for IC were retrospectively identified (n = 189) and reports from analysed blocks captured (n = 682). All samples were processed by a specialist IC technician to produce ploidy results with an automated image cytometric analyser. Ploidy histograms were then reviewed to confirm the automated IC result as diploid, aneuploid, tetraploid or equivocal. Histology was then reported or reviewed by an expert GI pathologist and scored as 1 (BE), 2 (IFD), 3 (LGD) or 4 (HGD).

Results Case referrals were received from 4 institutions, mean age was 58yo (24–85yo, SD 13) and the majority were men (79.9%). Corresponding histology was available in 69.7% (n = 475) of samples processed. DNA-PA positivity rates (Aneuploidy/Tetraploidy) in the sub-group with histology were 4% in BE (n = 376), 6.9% in IFD (n = 29), 29% in LGD (n = 51) and 51.3% in HGD (n = 39). Pearson product-moment correlation coefficient showed significant correlation between increasing degree of dysplasia and DNA-PA (Pearson r = 0.96, p = 0.039).

Conclusion This study has demonstrated that in our large case series DNA-PA’s correlate with increasing degree of dysplasia. DNA-PA is a validated biomarker for cancer progression and has been used in our cohort to guide frequency of surveillance and in some LGD cases minimally invasive endoscopic therapy, where they otherwise would not have received it. Further longitudinal studies on the progression to cancer in our case series will provide further insight into this important biomarker.

Disclosure of Interest None Declared

Abstract PTU-158 Figure

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Results MUC1 was shown to be significantly expressed using our antibody panel (HuHMFG1; CT2; NCL-MUC-1) in Sq (61%; 38%; 40%), G (100%; 100%; 86%), NDDE (96%; 100%; 6%), LGD (91%; 86%; 12%), HGD/IMC (91%; 97%; 19%) and IOA (95%; 91%; 82%). 100% of the metastatic OA group with infiltrated LNs stained for the HER2-targeting antibodies (HercepTest®) and HuHMFG1.

Disclosure of Interest None Declared