Supplementary Table 1: Comparison of NDBE biopsy and index biopsy with advanced neoplasia in BE-Progressor cohort (N=53)

P53 staining parameters	NDBE biopsy (n=53)	Advanced neoplasia (HGD/EAC) biopsy (N=42)*	p value
Number of 3+ p53 positive columnar cells (Mean ± SD, Median, Range)	172.3 ± 513.1, 7, 0-2784	15155 ± 58407, 3005, 21-375452	<0.001
3+ positive p53 columnar cells			
< 10 cells	32 (60%)	0	<0.001
≥ 10 cells	21 (40%)	42 (100%)	
Number of 3+ p53 positive glands (Mean ± SD, Median, Range)	8.1 ± 29.4, 0, 0-200	210.6 ± 321.7, 50, 0-1000	<0.001
≥ 1 3+ p53 positive glands	16 (30%)	41 (98%)	<0.001
3+ p53 positive surface epithelium	4 (8%)	37 (88%)	<0.001
2+ p53 positive columnar cells (Mean ± SD, Median, Range)	596.7 ± 903.9, 327, 0-4999	19547 ± 85407, 2275, 364-623709	<0.000
2+ p53 positive columnar cells			
< 150 cells	15 (28%)	0	<0.001
≥ 150 cells	38 (72%)	42 (100%)	

Mean duration between NDBE biopsy (most proximate to the dysplastic biopsy) and the index biopsy with dysplasia was 3.8 years

NDBE= Non-dysplastic Barrett's esophagus, HGD= High grade dysplasia, EAC= esophageal adenocarcinoma

*The 11 biopsies with a null p53 phenotype were not included in this analysis

Supplementary Table 2a: Specificity and sensitivity of p53 immunohistochemistry in NDBE biopsies from patients with short segment BE

p53 staining parameters	Cut-off points	BE-non-progressor vs progressor			
		Sensitivity	Specificity	PPV	NPV
3+ p53 positive columnar cells (Automated)	(≥ 10 cells)	50%	96%	79%	86%
3+ p53 positive columnar cells (Manual)	(≥ 10 cells)	53%	96%	80%	87%
3+ p53 positive glands	(≥ 1 gland)	37%	97%	79%	83%
2+ p53 positive columnar cells	(≥ 150 cells)	63%	70%	40%	86%
3+ p53 positive surface epithelium	Present/ Absent	7%	100%	100%	77%
3+ p53 positive columnar cells (≥ 10) OR 3+ p53 positive glands (≥ 1) OR 3+ p53 positive surface epithelium (Present/Absent)		53%	90%	62%	86%

Supplementary Table 2b: Specificity and sensitivity of p53 immunohistochemistry in NDBE biopsies from patients with long segment BE

p53 staining parameters	Cut-off points	BE non-progressor vs progressor			
		Sensitivity	Specificity	PPV	NPV
3+ p53 positive columnar cells (Automated)	(≥ 10 cells)	34%	87%	81%	45%
3+ p53 positive columnar cells (manual)	(≥ 10 cells)	43%	94%	92%	50%
3+ p53 positive glands	(≥ 1 gland)	23%	98%	95%	44%
2+ p53 positive columnar cells	(≥ 150 cells)	74%	64%	77%	60%
3+ p53 positive surface epithelium	Present/ Absent	5%	100%	100%	39%
3+ p53 positive columnar cells (≥ 10) OR 3+ p53 positive glands (≥ 1) OR 3+ p53 positive surface epithelium (Present/Absent)		46%	79%	78%	47%

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Supplementary Table 3: Prediction scoring system for predicting advanced neoplasia:

Parameters	Categories	Points
Gender	Male	3
	Female	1
Age	> 55 years	3
	≤ 55 years	1
Endoscopic length	Long BE	6
	Short BE	1
3+ p53 positive columnar cells	≥ 10 cells	3
	< 10 cells	1
3+ p53 positive glands	≥ 1 gland	6
	No gland	1

At a score of >10, the sensitivity for the prediction of advanced neoplasia was 84%, the specificity 67%, positive predictive value 66%, and negative predictive value 85%.

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Supplementary Table 4: p53 expression analysis in the secondary cohort (validation portion of the study)

p53 staining parameters	NDBE biopsies from patients who progressed to HGD or EAC (n=30)
Number of 3+ p53 positive columnar cells (Mean ± SD, Median, Range)	68.4 ± 154.8, 6, 0-623
3+ positive p53 columnar cells*	
< 10 cells	18 (60%)
≥ 10 cells	12 (40%)
Number of 3+ p53 positive glands (semi-quantitative) (Mean ± SD, Median, Range)	1.17 ± 4.6, 0, 0-25
Presence of 3+ p53 positive glands	
≥ 1 gland	6 (20%)
Negative	24 (80%)
3+ p53 positive surface epithelium	1 (3.3%)
Number of 2+ positive p53 columnar cells (Mean ± SD, Median, Range)	531.1 ± 706.0, 330.5, 3-3702
2+ p53 positive columnar cells	
< 150 cells	7 (23.3%)
≥ 150 cells	23 (76.7%)
3+ p53 positive columnar cells (≥ 10 cells) OR Any 3+ p53 positive glands OR 3+ p53 positive surface epithelium	12 (40%)

NDBE= Non-dysplastic Barrett's esophagus, HGD=high grade dysplasia, EAC= esophageal adenocarcinoma

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Supplementary Table 5: Comparison of p53 expression in NDBE biopsies from the prevalent and incident dysplasia from the secondary cohort

p53 Staining Parameters	NDBE progressor biopsies (n=30)		p value
	Incident dysplasia (n=12)	Prevalent dysplasia (n=18)	
3+ p53 positive columnar cells (Mean ± SD, median, range)	67 ± 180, 3, 0-623	69 ± 142, 6.5, 0-563	0.346
3+ p53 positive columnar cells* < 10 cells ≥ 10 cells	 8 (67%) 4 (33%)	 10 (55%) 8 (44%)	0.709
3+ p53 positive glands (semi-quantitative) (Mean ± SD, median, range)	2.4 ± 7.2, 0, 0-25	0.3 ± 0.7, 0, 0-2	0.950
p53 positive glands ≥ 1 3+ positive gland No 3+ positive gland	 2 (17%) 10 (83%)	 5 (28%) 13 (72%)	0.669
3+ p53 positive surface epithelium	0	1 (6%)	1.000
3+ p53 positive columnar cells (≥ 10 cells) OR Any 3+ p53 positive glands OR 3+ p53 surface epithelium	4 (33%)	8 (44%)	0.709