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495   Supplemental Table 1: Adjuvant Therapy Based on Nodal Status

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	pN0 (N=33; 33%)	pN1 (N=6; 6.0%)	pN2 (N=61; 61%)	p
Adjuvant Therapy				
None	22 (67%)	0 (0%)	17 (28%)	<0.0001
PORT only	2 (6.1%)	5 (83%)	30 (49%)	
Adjuvant Chemotherapy only	8 (24%)	1 (17%)	7 (11%)	
PORT + Adjuvant Chemotherapy	1 (3.0%)	0 (0%)	7 (11%)	

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	pN0 (N=33; 33%)	pN1 (N=6; 6.0%)	pN2 (N=61; 61%)	p
Any Adjuvant Therapy				
No	22 (67%)	0 (0%)	17 (28%)	<0.0001
Yes	11 (33%)	6 (100%)	44 (72%)	

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501   PORT = post-operative radiation therapy.

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504   Supplemental Table 2: Results of Post-Induction N2-Avidity in Detecting Pathological

505   Mediastinal (N2-Persistent) disease.

	Post-Induction PET N2-Status	
	N2-Negative (N=36; 47%)	N2-Avid (N=41; 53%)
Pathologic N2-Status		
N2-negative (N=31, 40%)	17 (47%)	14 (34%)
N2-persistent (N=46, 60%)	19 (53%)	27 (66%)

506   Total 77 with available post-induction PET and Pathologic N2 report.

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510   Supplemental Table 3: Pre-induction and Post-induction PET N2-status for those with both pre-

511   and post-induction PET scans.*

	Post-Induction PET N2-Status	
	N2-Negative (N=36; 47%)	N2-Avid (N=41; 53%)
Pre-Induction PET N2-status (N=73)		
N2-Negative (N=6, 8%)	5 (15%)	1 (2.5%)
N2-Avid (N=67, 92%)	28 (85%)	39 (98%)

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513   *N=73 patients had valid pre-induction and post-induction avidity reported on PET scans.

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522 Supplemental Table 4: Univariable logistic regression models to investigate association between
523 factors and odds of pathologic N2-persistent disease.

Variable	OR	95% CI	P
Post-induction PET (N2-avid *v* N2-negative)	1.73	0.69, 4.33	0.2
Age at Surgery	0.98	0.94, 1.03	0.4
Male	0.83	0.37, 1.86	0.6
Smoking, yes	1.12	0.39, 3.23	0.8
Pack-years >30, yes	0.77	0.34, 1.73	0.5
Pulmonary comorbidity, yes	0.71	0.29, 1.73	0.4
Cardiac comorbidity, yes	0.99	0.40, 2.45	1
NIDDM, yes	0.72	0.17, 3.14	0.7
FEV1 (%)	1.00	0.97, 1.03	1
Diffusion (%)	1.00	0.98, 1.02	0.8
Adenocarcinoma, yes	2.89	1.09, 7.63	0.032
EGFR, present	0.91	0.21, 4.01	0.9
KRAS, present	0.70	0.24, 2.08	0.5
Type of mediastinal stage			
EBUS vs med-only	1.46	0.61, 3.50	0.4
EBUS +med vs med-only	5.89	0.65, 53.11	0.11
Others vs med-only	0.56	0.08, 3.79	0.6
Pre-induction PET SUVmax N > 6.5[a]	1.66	0.68, 4.04	0.3
Pre-induction PET SUVmax T> 9.75[b]	0.67	0.29, 1.56	0.3
Post-induction PET SUVmax N> 3.3[c]	4.58	1.04, 20.24	0.045

Post-induction PET SUVmax T> 5.0[d]	0.36	0.13, 0.98	0.046

524   a. The median of 86 numerical SUVmax N was 6.5; 43/86 had SUVmax N >6.5
525   b. The median of 93 numerical SUVmax T was 9.75; 46/93 had SUVmax T >9.75
526   c. The median of 41 numerical SUVmax N was 3.3; 18/41 had SUVmax N >3.3
527   d. The median of 69 numerical SUVmax T was 5.0; 33/69 had SUVmax N >5.0
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529 PET = positron emission scan; NIDDM = non-insulin dependent diabetes; FEV1 = Forced
530 expiratory volume in one second; EGFR = Endothelial growth factor receptor; KRAS = Kirsten
531 rat sarcoma viral oncogene homolog; EBUS = endobronchial ultrasound; SUVmax = Maximum
532 standardized uptake values.

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537   Supplemental Table 5: Locations of Distant Recurrences

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Location of Distance Metastases[a]	
Single Distant Site	37 (67)
Multiple Distant Sites	18 (33)
Brain	21 (38)[b]
Lung	18 (33)[b]
Bone	10 (18)[b]
Pleural	6 (11)[b]
Liver	7 (13)[b]
Adrenal	1 (2)[b]
Extra-Thoracic Lymph Nodes	9 (16)[b]

[a]55 total patients with distant metastasis is denominator
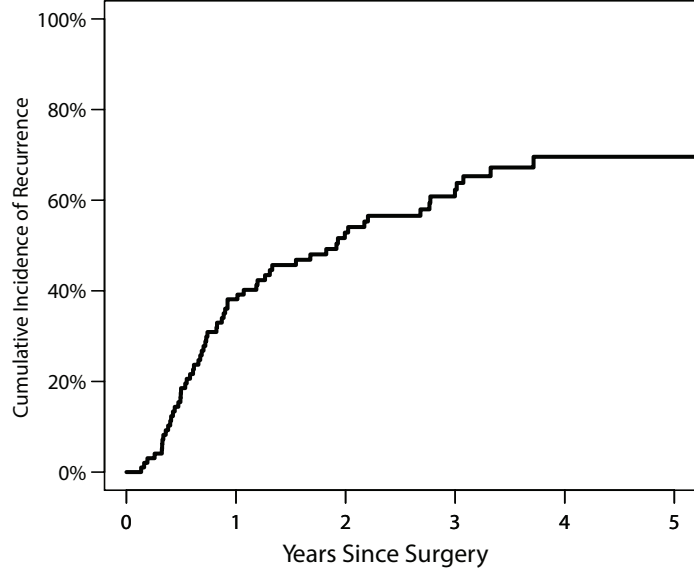
[b]>100% because of multiple site recurrences

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FIGURE LEGENDS

Figure 1. Overall survival (OS). A, Entire cohort: the 5-year OS was 39% (95% CI, 28%–56%). B, Postinduction PET N2 status: the 5-year OS for N2-negative was 43% (95% CI, 22%–83%) *vs* 39% (95% CI, 23%–64%) for N2-avid disease (p=0.251). C, Pathologic N2 status: the 5-year OS for N2-negative was 40% (95% CI, 25%–64%) *vs* 38% (95% CI, 21%–67%) for N2-persistent disease (p=0.936). D, Pathologic staging: the 5-year OS for <ypIIIA was 41% (95% CI, 25%–66%) *v*s 37% (95% CI, 21%–66%) for ≥ypIIIA (p = 0.791).

Figure 2. Disease-free survival (DFS). A, Entire cohort: the 5-year DFS was 23% (95% CI, 14%–37%). B, Postinduction PET N2 status: the 5-year DFS for N2-negative was 24% (95% CI, 11%–51%) *vs* 24% (95% CI, 11%–54%) for N2-avid disease (p=0.867). C, Pathologic N2 status: the 5-year DFS for N2-negative was 34% (95% CI, 21%–56%) *vs* 9% (95% CI, 2%–45%) for N2-persistent disease (p=0.079). D, Pathologic staging: the 5-year DFS for <ypIIIA was 36% (95% CI, 22%–58%) *vs* 9% (95% CI, 2%–44%) for ≥ypIIIA (p=0.054).
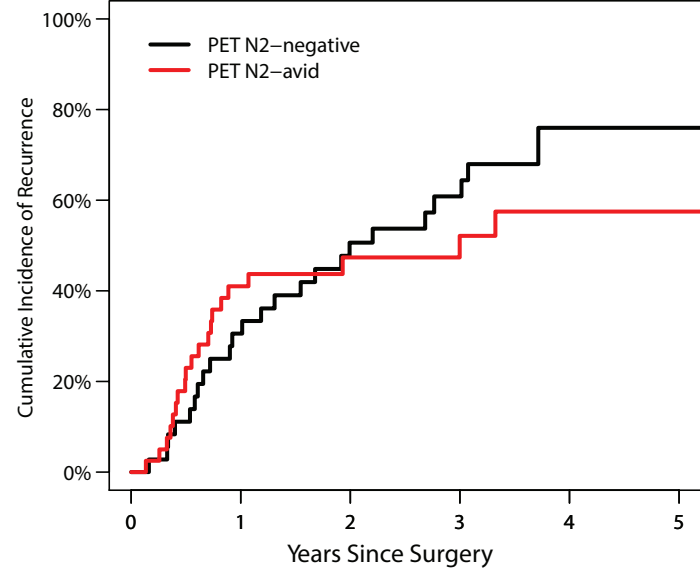
Supplemental Figure 1. Cumulative incidence of recurrence (CIR). A, Entire cohort: the 5-year CIR was 70% (95% CI, 60%–81%). B, Postinduction PET N2 status: the 5-year CIR for N2-negative was 76% (95% CI, 58%–99%) *vs* 58% (95% CI, 41%–80%) for N2-avid disease (Gray's test, p=0.571). C, Pathologic N2 status: the 5-year CIR for N2-negative was 59% (95% CI, 44%–79%) *vs* 80% (95% CI, 66%–96%) for N2-persistent disease (Gray's test, p=0.077). D, Pathologic staging: the 5-year CIR for <ypIIIA was 57% (95% CI, 41%–78%) *vs* 80% (95% CI, 67%–96%) for ≥ypIIIA (Gray's test, p=0.049).
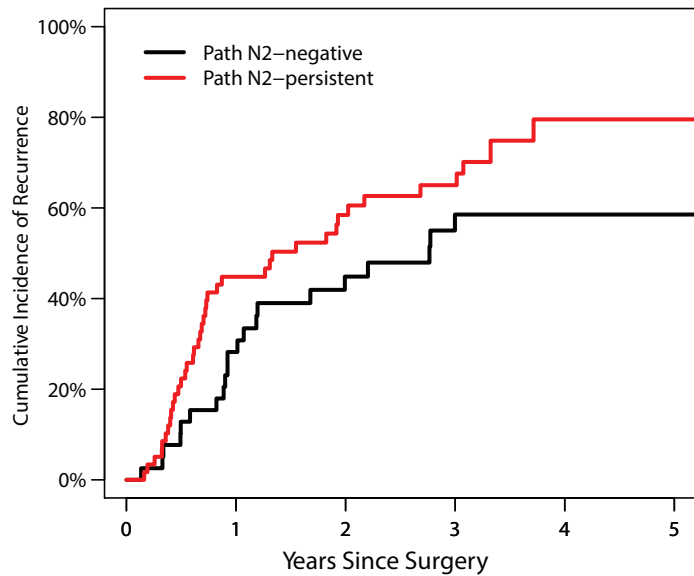
A

Cumulative Incidence of Recurrence — Years Since Surgery

No. At Risk	100	58	37	24	10	7
CIR (%)	0	38	53	62	70	70
95% CI	–	(30,49)	(44,64)	(53,74)	(60,81)	(60,81)

B

Legend: PET N2–negative, PET N2–avid

Cumulative Incidence of Recurrence — Years Since Surgery

No. At Risk						
PET N2–negative	36	25	17	11	3	2
PET N2–avid	41	21	13	9	5	3
CIR (%)						
PET N2–negative	0	31	51	61	76	76
PET N2–avid	0	41	47	52	57	57
95% CI						
PET N2–negative	–	(18,50)	(36,71)	(46,81)	(58,99)	(58,99)
PET N2–avid	–	(28,60)	(33,67)	(37,73)	(41,80)	(41,80)

C

Legend: Path N2–negative, Path N2–persistent

Cumulative Incidence of Recurrence — Years Since Surgery

No. At Risk						
Path N2–negative	39	27	18	11	6	6
Path N2–persistent	61	31	19	13	4	1
CIR (%)						
Path N2–negative	0	28	45	58	58	58
Path N2–persistent	0	45	58	65	80	80
95% CI						
Path N2–negative	–	(17,47)	(31,64)	(44,79)	(44,79)	(44,79)
Path N2–persistent	–	(34,60)	(47,73)	(53,80)	(66,96)	(66,96)

D

Legend: < ypIIIA, ≥ ypIIIA

Cumulative Incidence of Recurrence — Years Since Surgery
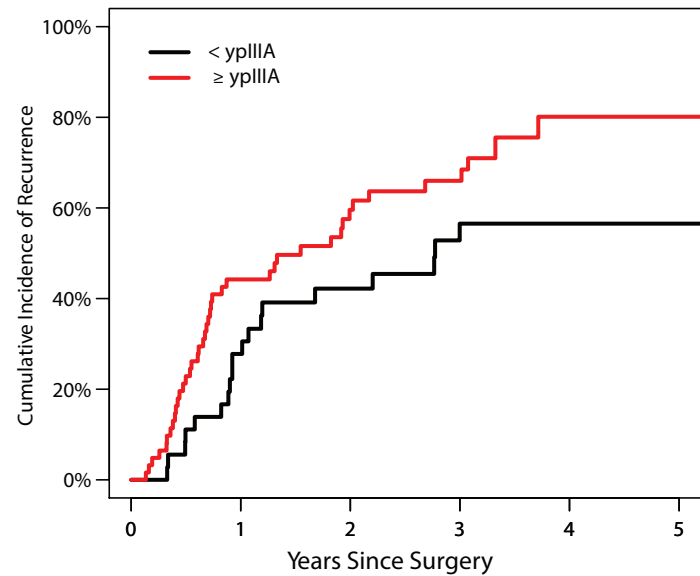
No. At Risk						
< ypIIIA	36	25	18	11	6	6
≥ ypIIIA	64	33	19	13	4	1
CIR (%)						
< ypIIIA	0	28	42	56	56	56
≥ ypIIIA	0	44	60	66	80	80
95% CI						
< ypIIIA	–	(16,48)	(28,63)	(41,78)	(41,78)	(41,78)
≥ ypIIIA	–	(33,59)	(48,74)	(54,80)	(67,96)	(67,96)