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SCLC
Surgery: Does it have a place?

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elcc EUROPEAN LUNG CANCER CONFERENCE

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Surgery for SCLC

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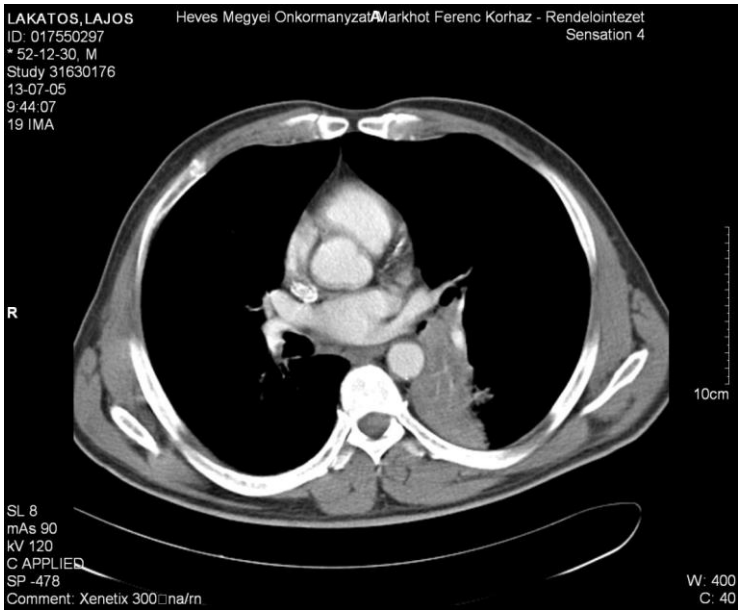
No disclosures

CASE I

Case I

- 62 years old male, 5 kg weight loss within 2 months
- Good general condition
- CT: left lower lobe endobrochial tumor with partial LL atelectasis



Case I

- BSK: Tumor at the origine of lower lobe bronchus
- Transbronchial biopsy: **SCLC**
- Further staging examinations:
  - PET/CT: High FDG uptake in left lower lobe (SUV max 14.2), otherwise negative
  - Brain MRI: negative

- Clinical staging: cT2a N0/1 M0

Case I

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How would you treat the patient?

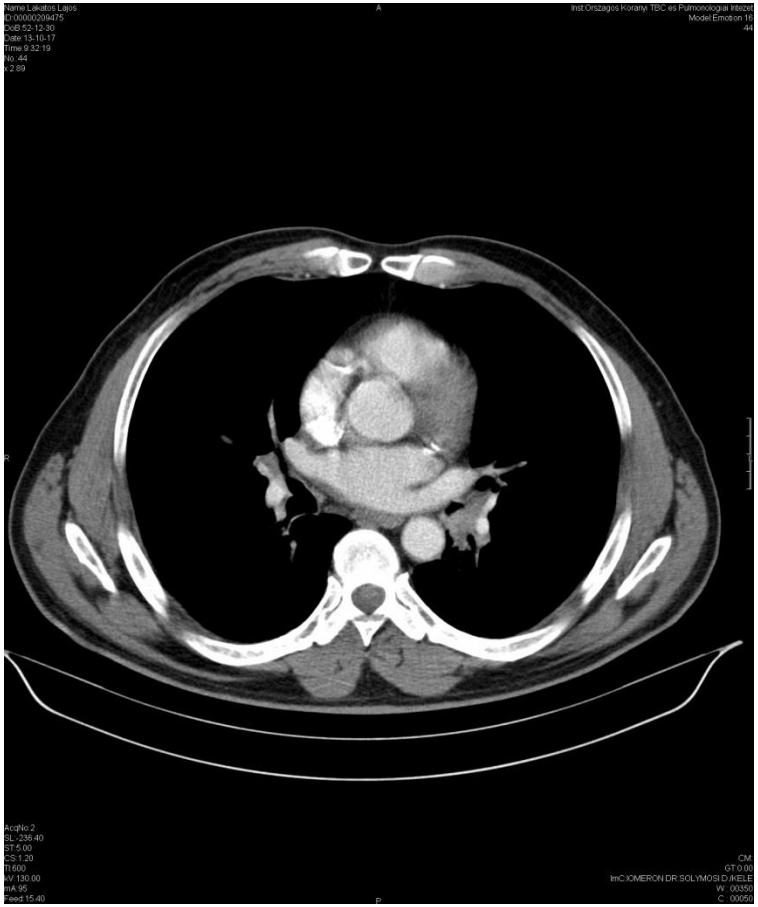
- Chemotherapy?
- Chemo/radiotherapy?
- Any place for surgery?

Case I

4 cycles Carboplatin + Etoposide

Major response

Still no evidence of distant disease



Case I

How would you continue treatment?

- Add radiotherapy?
- Continue chemo?
- Add surgery?

Case I – Therapy and follow-up

- Pneumonectomy with radical mediastinal lymph node dissection
- Final histology: SCLC, pT2a N1 M0
- 2 cycles adjuvant Carboplatin-Etoposide treatment,

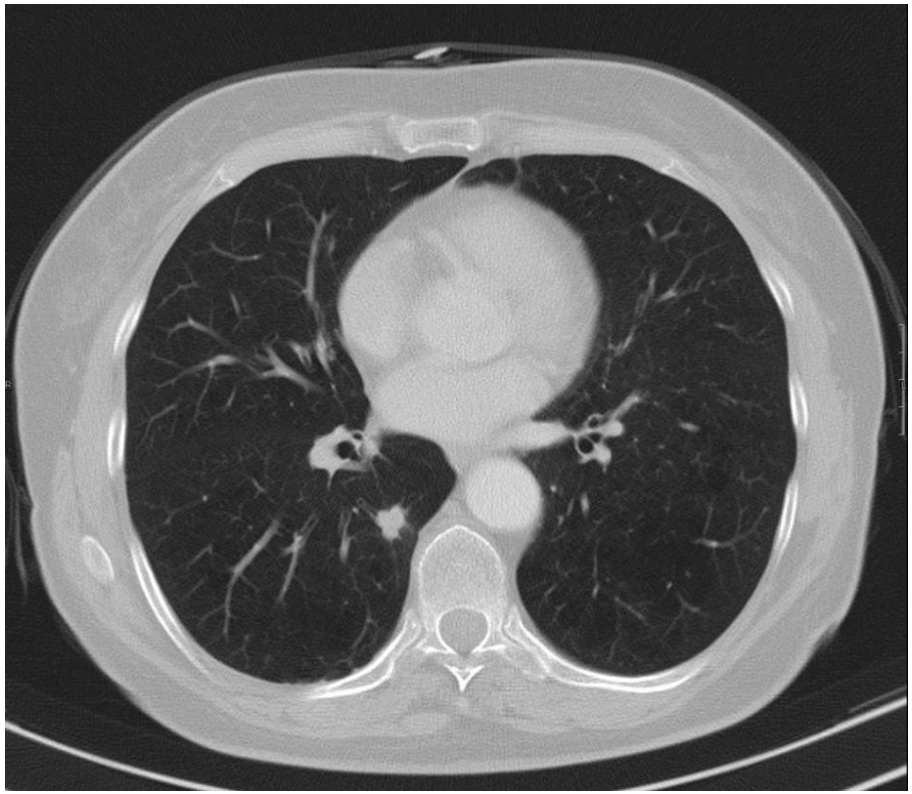
- Outcome: 2.2 years

  alive, good performance status

  no evidence of recurrence

Case II

- 61 years old female
- CT scan: RLL S6 solitary nodule 2.3 cm



Case II

- CT guided biopsy not possible
- Bronchoscopy: negative
- Staging:
  - PET: FDG uptake in RLL (SUV max 11.2), otherwise negative
  - Brain MRI: negative
- Clinical staging: T1b N0 M0

Case II

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How would you procede?

- Reevaluation at 3 months
- Stereotactic radiotherapy
- Unspecific chemotherapy
- Surgical resection

Case II – Follow-up

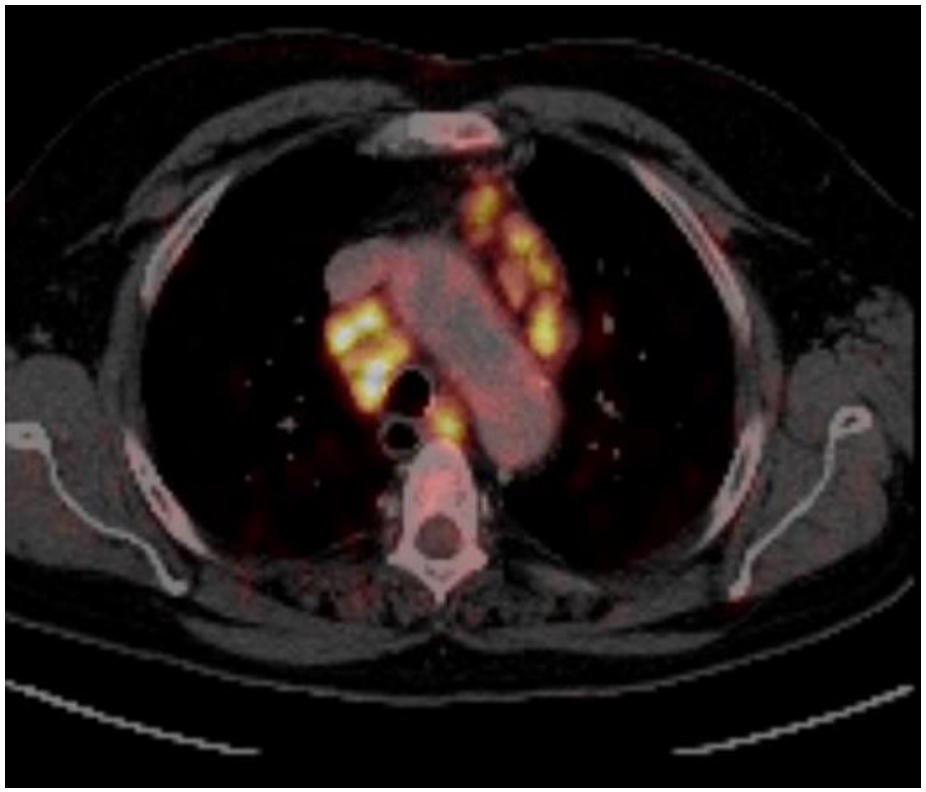
- Anatomical segmentectomy
- Frozen section: **SCLC**
- Mediastinal lymph node dissection
- Final histology: SCLC, pT1b N0 M0
- 4 cycles of adjuvant Carboplatin-Etoposide

- Outcome: alive

  no evidence of disease at 3.2 years

Case III

- 52 male
- Nodule in left upper lobe + multiple mediastinal leasons



Case III

- EBUS: **SCLC**
- Further staging:
  - PET/CT: intrathoracic disease, no distant metastasis
  - Brain MRI: negative

- **How would you treat this patient??**

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Surgery for SCLC

The search for evidence

The Role of Surgery in the Treatment of Limited Disease Small Cell Lung Cancer

Time to Reevaluate

Eric Lim, FRCS (C-Th), Elizabeth Belcher, FRCS,
Yoon Khoong Yap, MRCS, Andrew G. Nicholson, FRCPath, and Peter Goldstraw, FRCS

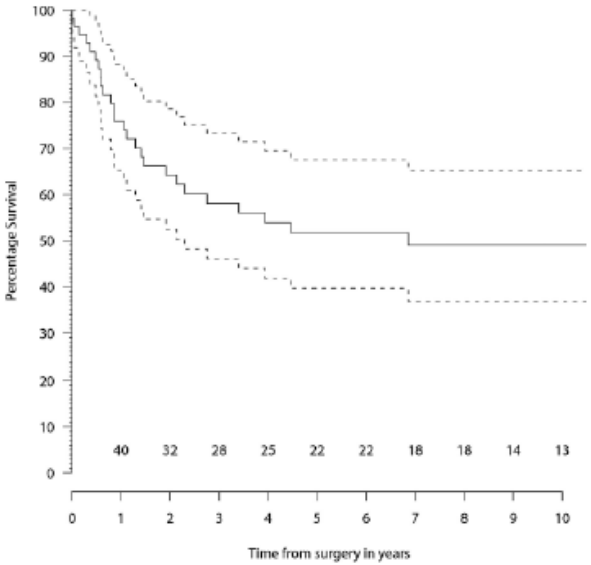

FIGURE 1. Overall survival (95% confidence interval) after lung resection for small cell lung cancer. Numbers at risk are presented per year.

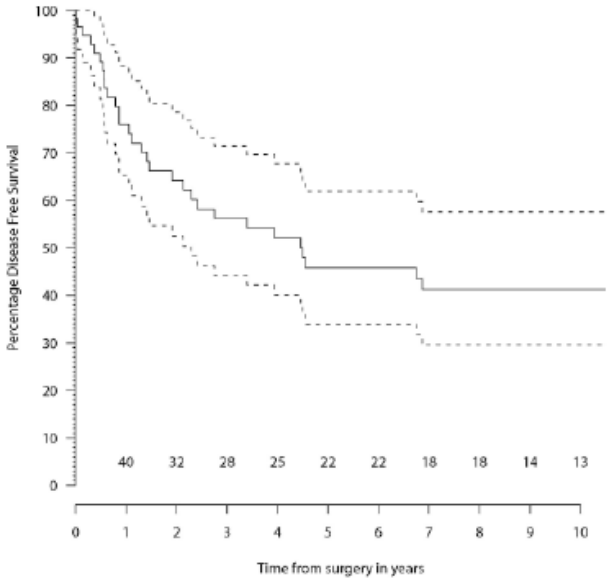

FIGURE 2. Disease free survival (95% confidence interval) after lung resection for small cell lung cancer. Numbers at risk are presented per year.

n = 59
Stage IA – IIIB
1y surv: 76%
5y surv: 52%

Jto 2008

Surveillance Epidemiology and End Results Evaluation of the Role of Surgery for Stage I Small Cell Lung Cancer

James B. Yu, MD, Roy H. Decker, MD, PhD,* Frank C. Detterbeck, MD,† and Lynn D. Wilson, MD, MPH**

Results: A total of 1560 patients were identified as having stage I SCLC. Median age was 70 years (range 27–94 years). Two hundred forty-seven patients underwent lobectomy, 121 had local tumor excision/ablation, 10 had a pneumonectomy, and surgery was unknown in 21. One thousand one hundred sixty-one did not have any cancer-directed surgery. Of those who had lobectomy, 205 (83%) did not receive radiation therapy (RT), 38 (15%) did receive RT, and use of RT was unknown in 4 (2%).

For those who had lobectomy without RT (n = 205), 3- and 5-year OS was 58.1% (95% confidence interval [CI] 51.1–64.5%) and 50.3% (95% CI 43.1–57.1%), respectively. For those patients who had a lobectomy with RT (n = 38), 3- and 5-year OS was 64.9% (95% CI 45.5–78.9%) and 57.1% (95% CI 37.4–72.7%), respectively.

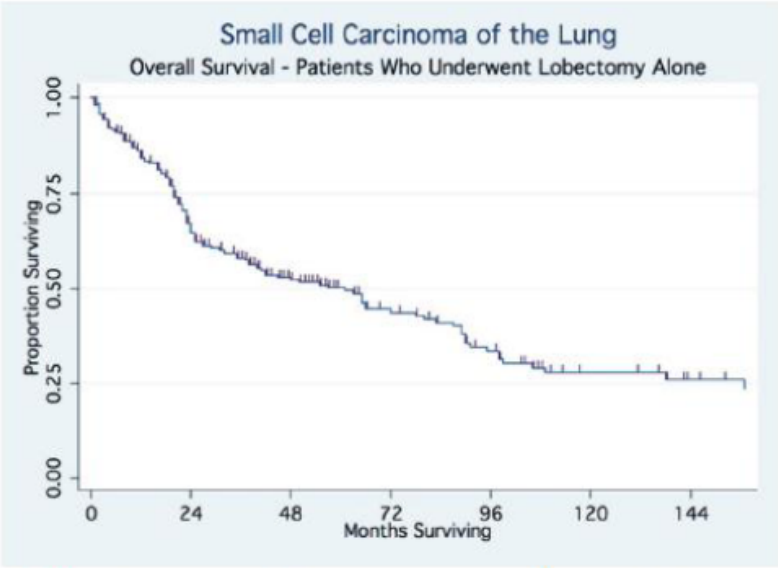

FIGURE 1. Kaplan-Meier curve for overall survival (lobectomy alone, node negative).

(*J Thorac Oncol.* 2010;5: 215–219)

Small cell lung cancer in Norway. Should more patients have been offered surgical therapy?

Hans Rostad[a,*], Anne Naalsund[b], Randi Jacobsen[a], Trond Eirik Strand[a], Helge Scott[c], Erik Heyerdahl Strøm[c], Jarle Norstein[a]

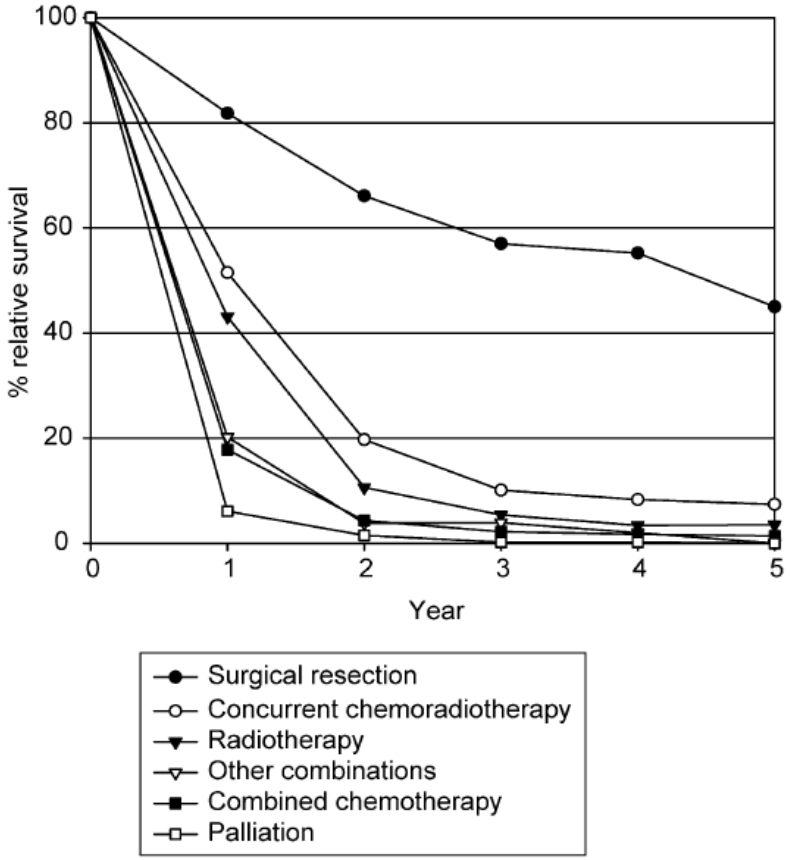

Fig. 1. Relative survival by different treatment modalities, for 1727 patients with SCLC 1993–1997.

Table 5
Five-year relative survival in 1727 patients with SCLC in the period 1993–1997 related to treatment

Treatment	*N*	Relative survival (%)	95% confidence interval
Combined chemotherapy	606	1.4	[0.4–2.4]
Radiotherapy	100	3.5	[0–7.4]
Concurrent chemoradiotherapy	426	7.4	[4.9–9.9]
Other combinations	56	0	
Palliation	510	0	
Surgical resection	29[a]	44.9	[23.9–65.9]

[a] Eighteen patients received adjuvant treatment.

Surgery vs. no surgery

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A retrospective comparative study of surgery followed by chemotherapy vs. non-surgical management in limited-disease small cell lung cancer

Andrzej Badzio[a], Krzysztof Kurowski[b], Hanna Karnicka-Mlodkowska[c], Jacek Jassem[a,*]

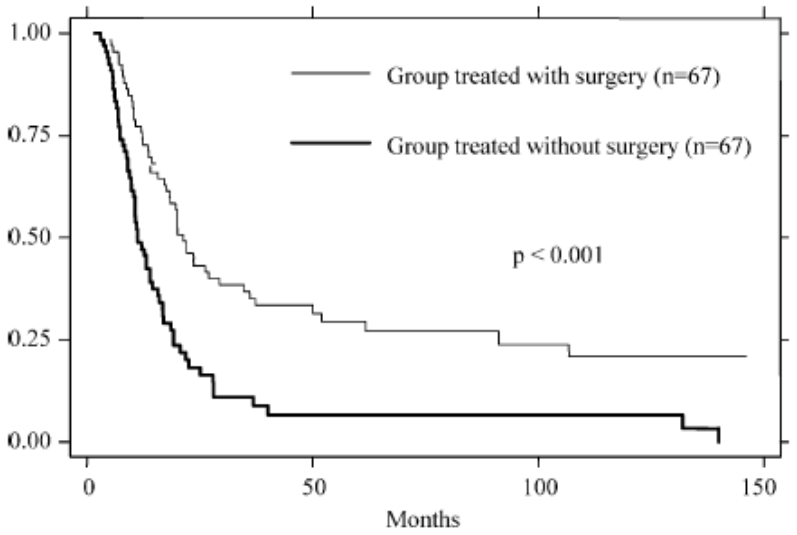


Fig. 1. Overall survival in patients treated with or without surgery.

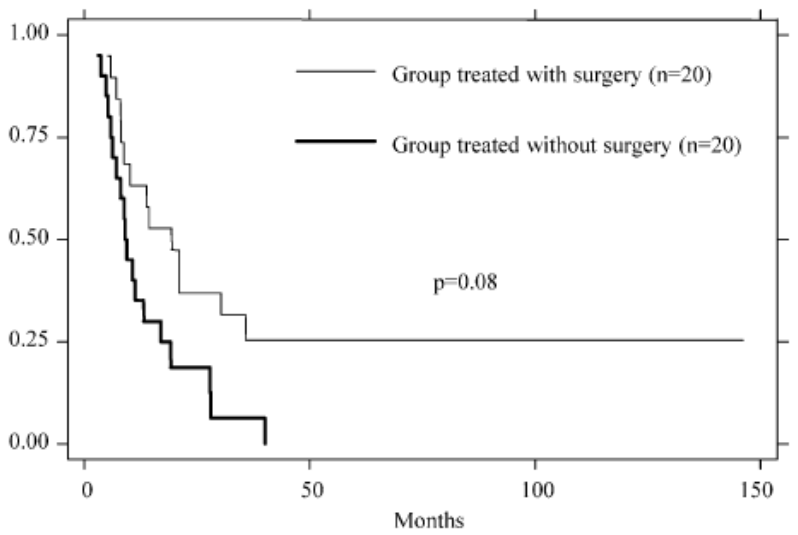
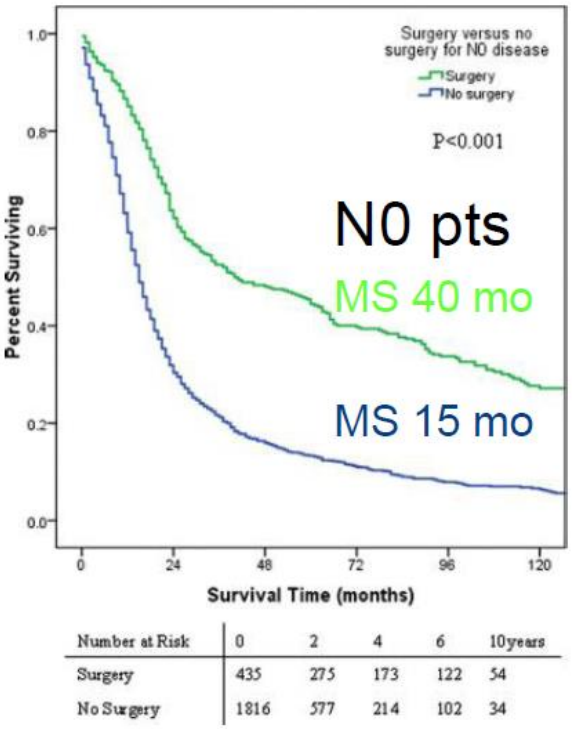


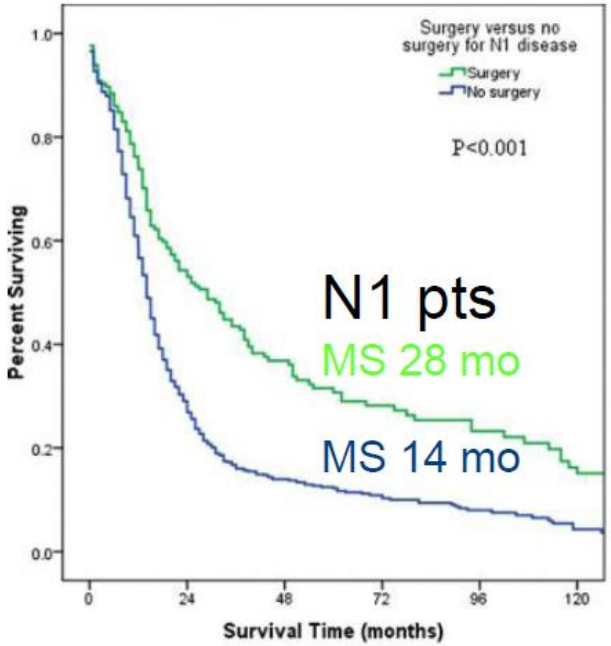
Fig. 3. Survival in a subset of N2 patients treated with or without surgery.

EJCTS 2004

Surgery vs. no surgery



Number at Risk	0	2	4	6	10years
Surgery	435	275	173	122	54
No Surgery	1816	577	214	102	34



Number at Risk	0	2	4	6	10years
Surgery	164	89	50	32	14
No Surgery	638	184	70	39	7

Schreiber et al. Survival outcomes with the use of surgery in LD SCLC: should its role be re-evaluated? Cancer 2010.

Surgery for SCLC

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Does

TUMOR STAGE

have an impact on outcome?

TNM 7 System for SCLC

TABLE 3. Overall 1 and 5-yr Survival for Pathologic Stages T1–4 (Any *N*) M0 Resected SCLC, IASLC Data (n = 339)

T Stage	*N*	1-Yr Survival Rate (%)	5-Yr Survival Rate (%)	Comparison	HR	*p*
T1	125	84	45			
T2	160	70	30	T2 vs. T1	1.46	0.0109
T3	23	52	30	T3 vs. T2	1.38	0.1979
T4	31	58	23	T4 vs. T3	0.90	0.7322

SCLC, small cell lung cancer; IASLC, International Association for the Study of Lung Cancer; HR, hazard ratio.

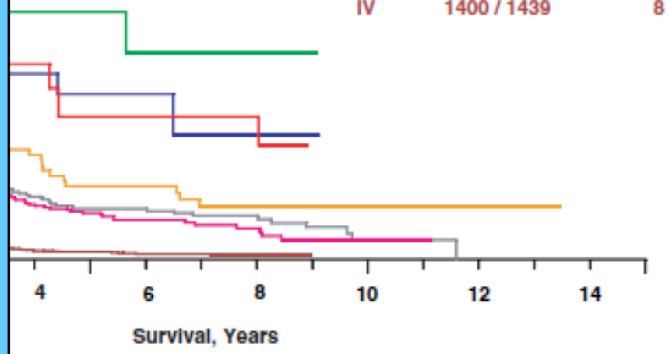
TABLE 4. Overall 1 and 5-yr Survival for Pathologic Categories N0–3 (Any T) M0 Resected SCLC, IASLC Data (n = 339)

N Category	*N*	1 Yr Survival Rate	5-Yr Survival Rate	Comparison	HR	*p*
N0	179	82%	49%			
N1	74	74%	33%	N1 vs. N0	1.43	0.0357
N2	83	54%	6%	N2 vs. N1	2.26	<0.0001
N3	3	0%	0%	N3 vs. N2	3.46	0.0371

SCLC, small cell lung cancer; IASLC, International Association for the Study of Lung Cancer; HR, hazard ratio.

Survival in SCLC according to 7th edition of TNM classification

	Deaths / N	Median in Months
IA	17 / 25	31
IB	14 / 19	35
IIA	8 / 15	68
IIB	84 / 101	17
IIIA	332 / 384	13
IIIB	424 / 481	12
IV	1400 / 1439	8



Sheperd et al, JTO 2007
Vallieres et al, JTO 2007

The IASLC Lung Cancer Staging Project

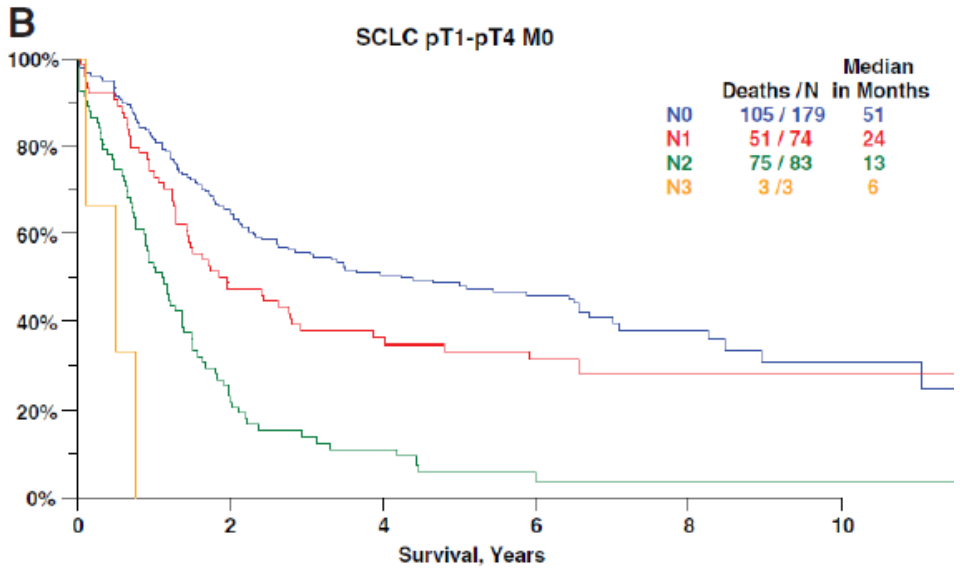
Proposals Regarding the Relevance of TNM in the Pathologic Staging of Small Cell Lung Cancer in the Forthcoming (Seventh) Edition of the TNM Classification for Lung Cancer

Eric Vallières, MD, FRCSC, Frances A. Shepherd, MD, FRCPC,† John Crowley, PhD,‡ Paul Van Houtte, MD,§ Pieter E. Postmus, MD, PhD,‖ Desmond Carney, MD, PhD,¶ Kari Chansky, MS,‡ Zeba Shaikh, BSc,# and Peter Goldstraw, FRCS#, on Behalf of the International Association for the Study of Lung Cancer International Staging Committee and Participating Institutions*

TABLE 5. Overall 1 and 5-yr Survival Comparisons for Pathologic TNM Stages Resected SCLC, IASLC Data (n = 349)

6th Edition TNM Stages	N	1-Yr Survival Rate (%)	5-Yr Survival Rate (%)	Comparison	HR	p
IA	68	90	53			
IB	91	78	44	IB vs. IA	1.29	
IIA	37	76	43	IIA vs. IB	1.02	0.2354
IIB	34	79	35	IIB vs. IIA	1.35	0.9483
IIIA	76	54	8	IIIA vs. IIB	2.03	0.3047
IIIB	33	55	21	IIIB vs. IIIA	0.68	0.0024
IV	10	50	30	IV vs. IIIB	1.17	0.0891

TNM, tumor node metastasis; SCLC, small cell lung cancer; IASLC, International Association for the Study of Lung Cancer; HR, hazard ratio.



(*J Thorac Oncol.* 2009;4: 1049–1059)

Tumor stages

NSCLC						
„limited disease“					„advanced disease“	
N0	N0	N1	N1	N2	N3	Any
IA	IB	IIA	IIB	IIIA	IIIB	IV
Surgery					No surgery	

SCLC						
„limited disease“				„advanced disease“		
N0	N0	N1	N1	N2	N3	Any
IA	IB	IIA	IIB	IIIA	IIIB	IV
Surgery				No surgery		

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-> IMPACT OF R0 RESECTION

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Prognostically orientated multimodality treatment including surgery for selected patients of small-cell lung cancer patients stages IB to IIIB: long-term results of a phase II trial

W Eberhardt[1], G Stamatis[3], M Stuschke[2], H Wilke[1], MR Müller[1], S Kolks[1], M Flasshove[1], J Schütte[1], M Stahl[1], L Schlenger[1], V Budach[2], D Greschuchna[3], G Stüben[2], H Teschler[3], H Sack[2] and S Seeber[1]

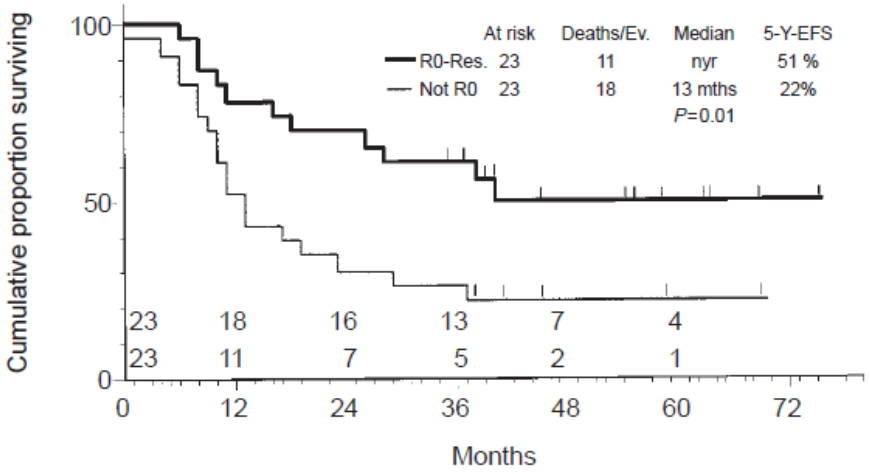

Figure 3 Event-free survival duration in completely resected patients and patients not completely resected – stages IB–IIIB. R0-Res. = R0-(complete) resection; mths = months; 5-Y-EFS = 5-year event-free survival; nyr = not yet reached

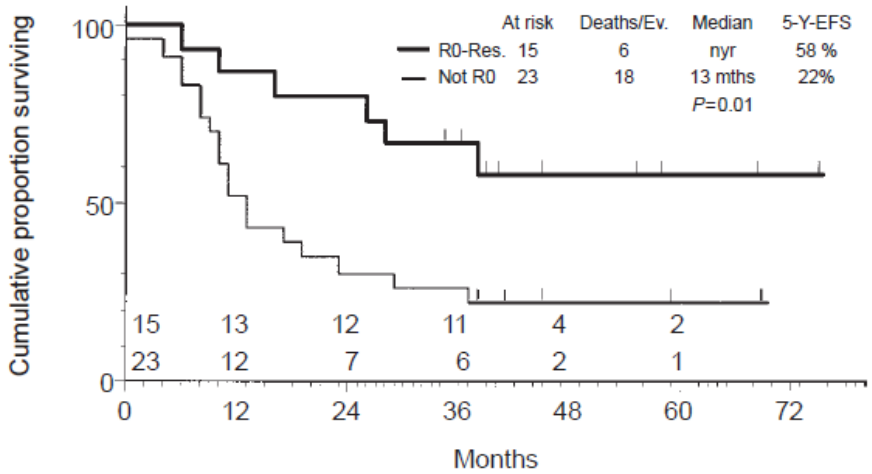

Figure 4 Event-free survival durations in completely resected patients and patients without complete resection – stages IIB/IIIA/IIIB only. R0-Res = R0-(complete)resection; mths = months; 5-Y-EFS = five-year event-free survival; nyr = not yet reached

BJC 1999

Recommendation

- In patients with clinical T1-2 N0-1, who are candidates for surgery, meticulous mediastinal node exploration should be performed
- Surgery may be indicated in patients with absence of mediastinal involvement and resection should be followed by chemotherapy
- Postoperative radiotherapy should be considered for pathologic N1 and unforeseen N2 disease

Strength of recommendation: C
Level of evidence: V

Badzio e al. A retrospective comparative study of surgery followed by chemotherapy vs non-surgical management in LD SCLC. Eur J Cardiothorac Surg 2004
Yu et al. Surveillance epidemiology and end results evaluation of the role of surgery for stage I SCLC. JTO 2010.
Schreiber et al. Survival outcomes with the use of surgery in LD SCLC: should its role be re-evaluated? Cancer 2010.

Proposed classification

Incidental SCLC	SCLC incidentally found during surgery	**-> Primary resection**
Verified SCLC Limited disease (N0)	Single nodule stage I (N0) SCLC	**-> Primary chemo adj res, Primary res adj chemo**
Verified SCLC Limited disease (N1)	Stage IIA – IIB (N1) SCLC Complete response after induction	**-> Resection after induction CHT/RT**
Verified SCLC Advanced disease (N2/3)	SCLC with proven N2/N3 disease	**-> CHT/RT**

Conclusions

- Good long term results for radically resected early SCLC
- R0 resection essential
- Surgery always in combination with chemo (adjuvant or neoadjuvant)
- Surgery for limited disease (<= N1)
- Evidence is limited
- It is high time for a prospective randomized multicenter trial

SCLC

Surgery: Does it have a place?

YES IT DOES