

PANEL DISCUSSION: Management of Early Lung Cancer

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Dr Darlong

Thoracic Surgical Oncologist
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Dr Virendra Tiwari

Thoracic Surgical Oncologist
TMH, Mumbai

Dr Aparna Dhar

Molecular Oncologist
FMRI, Gurgaon

Dr Anil Tibdewal

Radiation Oncologist
TMH Mumbai

Dr Dodul Mondol

Radiation Oncologist
Max, Delhi

RADIATION

RADIATION

MEDICAL

ONCOLOGIST

SURGEON SURGEON

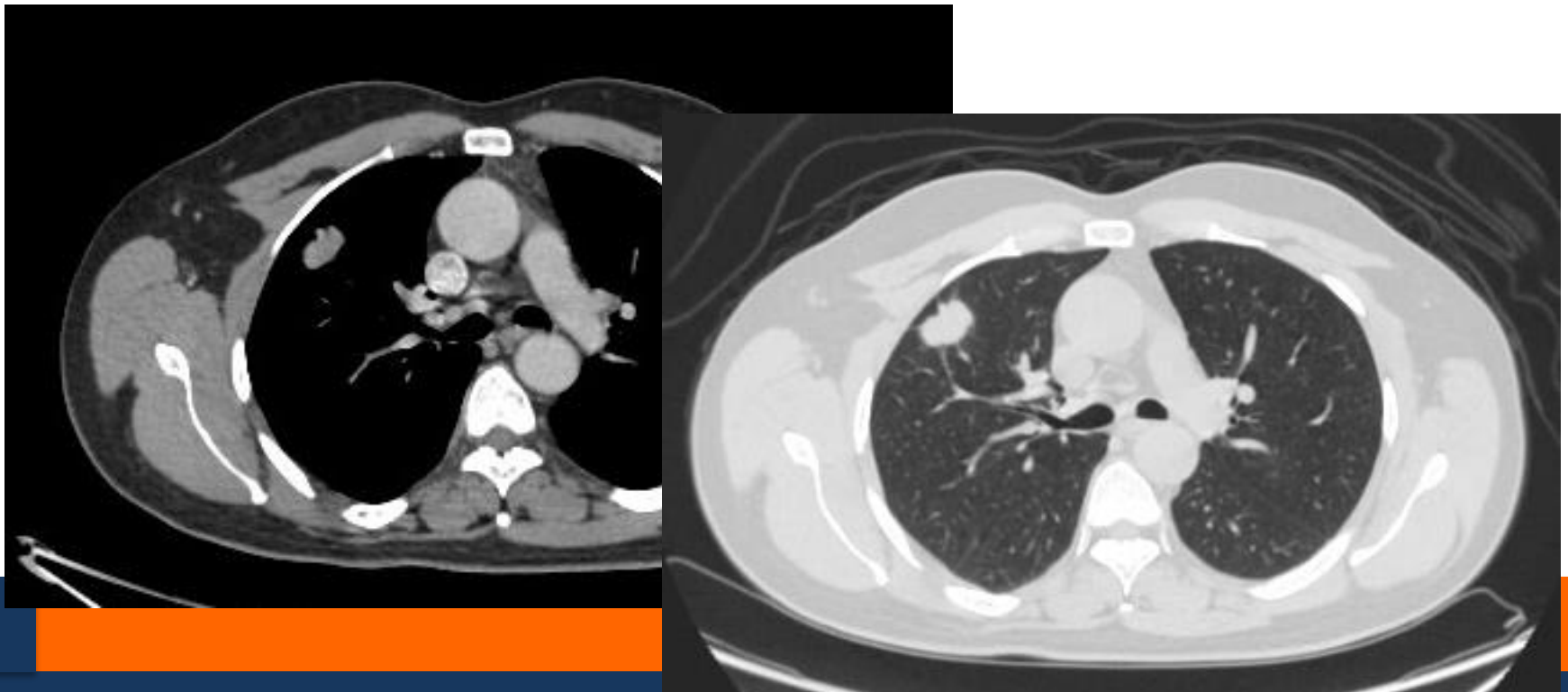


Define Early Lung Cancer (Dr Darlong)

T/M	Label	N0	N1	N2	N3
T1	T1a ≤ 1	IA1	IIB	IIIA	IIIB
	T1b $>1-2$	IA2	IIB	IIIA	IIIB
	T1c $>2-3$	IA3	IIB	IIIA	IIIB
T2	T2a <i>Cent, Yisc Pl</i>	IB	IIB	IIIA	IIIB
	T2a $>3-4$	IB	IIB	IIIA	IIIB
	T2b $>4-5$	IIA	IIB	IIIA	IIIB
T3	T3 $>5-7$	IIB	IIIA	IIIB	IIIC
	T3 <i>Inv</i>	IIB	IIIA	IIIB	IIIC
	T3 <i>Satell</i>	IIB	IIIA	IIIB	IIIC
T4	T4 >7	IIIA	IIIA	IIIB	IIIC
	T4 <i>Inv</i>	IIIA	IIIA	IIIB	IIIC
	T4 <i>Ipsi Nod</i>	IIIA	IIIA	IIIB	IIIC
M1	M1a <i>Contr Nod</i>	IVA	IVA	IVA	IVA
	M1a <i>Pl Dissem</i>	IVA	IVA	IVA	IVA
	M1b <i>Single</i>	IVA	IVA	IVA	IVA
	M1c <i>Multi</i>	IVB	IVB	IVB	IVB

68 year gentleman/ ECOG 1/ Never Smoker

CT Scan showed illdefined spiculated nodule in right upper lobe of size 3 x 2 cm.



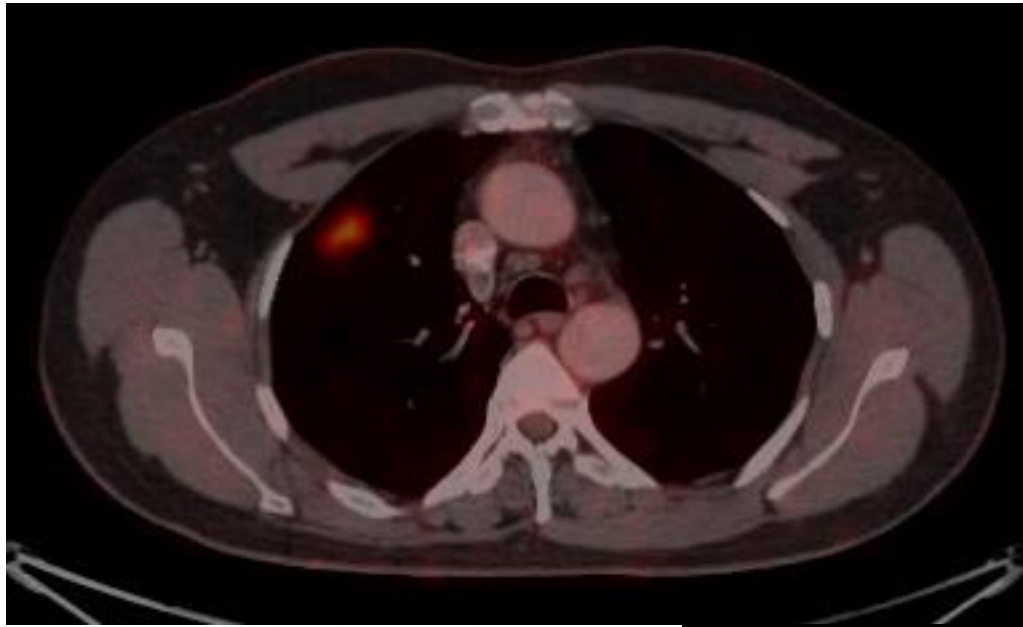
PET CT showed

Significant SUV uptake in right upper lobe lung nodule of size 1.8 x 2 cm with no mediastinal nodes

No other distant metastasis

CT guided Biopsy s/o adenocarcinoma





What further information would you need to decide further management of early lung cancer (Dr Virendra/ Dr Darlong)

COMORBIDITIES

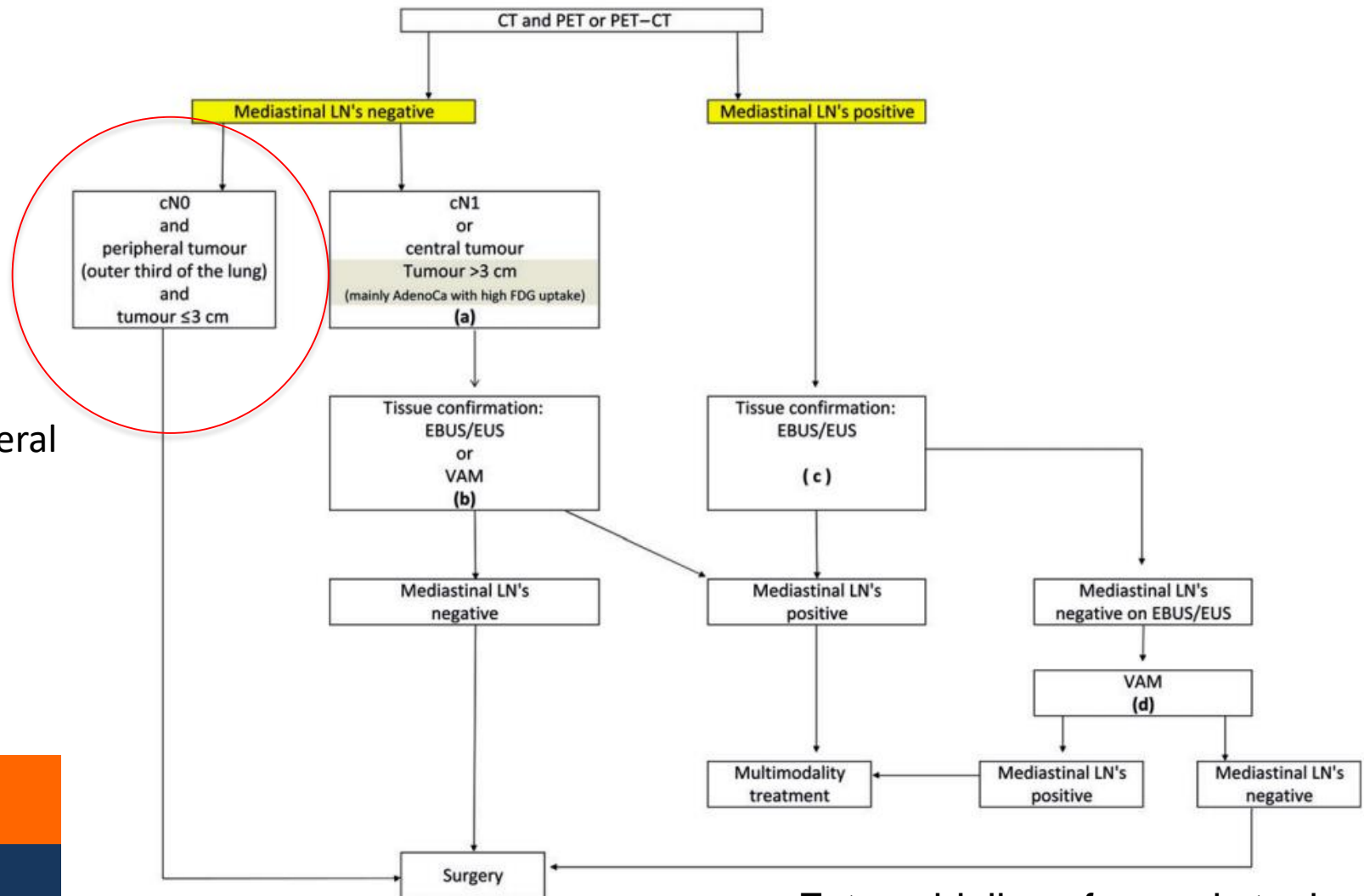
PULMONARY FUNCTION TEST

ASSESSING CARDIAC STATUS

INVASIVE MEDIASTINAL STAGING

What about invasive mediastinal staging? Would we need in this kind of disease? (Dr Virendra)

INVASIVE MEDIASTINAL STAGING



Peripheral
<3cm
cNo

What about MRI brain for early lung cancer (Dr Dodul)

Diagnostic Yield of Staging Brain MRI in Patients with Newly Diagnosed Non-Small Cell Lung Cancer

Results

id A total of 1712 patients (mean age, 64 years \pm 10 [standard deviation]; 1035 men) were included. The **id** **✓** diagnostic yield of staging brain MRI in newly diagnosed NSCLC was 11.9% (203 of 1712; 95% confidence interval [CI]: 10.4%, 13.5%). In clinical stage IA, IB, and II disease, the diagnostic yields were 0.3% (two of 615; 95% CI: 0.0%, 1.2%), 3.8% (seven of 186; 95% CI: 1.5%, 7.6%), and 4.7% (eight of 171; 95% CI: 2.0%, 9.0%), respectively. The diagnostic yield was higher in patients with adenocarcinoma (13.6%; 176 of 1297; 95% CI: 11.8%, 15.6%) than squamous cell carcinoma (5.9%; 21 of 354; 95% CI: 3.7%, 8.9%) and in patients with *EGFR* mutation-positive adenocarcinoma (17.5%; 85 of 487; 95% CI: 14.2%, 21.1%) than with *EGFR* mutation-negative adenocarcinoma (10.6%; 68 of 639; 95% CI: 8.4%, 13.3%) ($P < .001$ for both).

Conclusion

The diagnostic yield of staging brain MRI in clinical stage IA non-small cell lung cancer was low, but staging brain MRI had a higher diagnostic yield in clinical stage IB and epidermal growth factor receptor mutation-positive adenocarcinoma.

Does it matter to a radiation oncologist what the PFTS for a patient is? (Dr Anil)





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Original Article

Is There a Lower Limit of Pretreatment Pulmonary Function for Safe and Effective Stereotactic Body Radiotherapy for Early-Stage Non-small Cell Lung Cancer?

Matthias Guckenberger MD ^{*}  , Larry L. Kestin MD [†], Andrew J. Hope MD [‡], Jose Belderbos MD [§], Maria Werner-Wasik MD ^{||}, Di Yan DSc [†], Jan-Jakob Sonke PhD [§], Jean Pierre Bissonnette PhD [‡], Juergen Wilbert PhD ^{*}, Ying Xiao PhD ^{||}, Inga S. Grills MD [†]

Results

A large variability of pretreatment PF was observed: the 90% range of forced expiratory volume in 1 second and diffusing capacity for carbon monoxide was 29 to 109% and 5.5 to 19.1 ml/min/mmHg, respectively. PF was significantly correlated with overall survival but not cause-specific survival: diffusing capacity for carbon monoxide of 11.2 ml/min/mmHg differentiated between 3-year overall survival of 66% and 42%. Radiation-induced pneumonitis grade \geq II occurred in 7% of patients and was not increased in patients with lower PF. A significant and progressive change of PF was observed after SBRT: PF decreased by 3.6% and 6.8% on average within 6 and 6 to 24 months after SBRT, respectively. Changes of PF after SBRT were significantly correlated with pretreatment PF: PF improved for worst pretreatment PF and the largest loss was observed for best pretreatment PF.

Conclusions

Image-guided SBRT is safe in terms of acute and chronic pulmonary toxicity even for patients with severe pulmonary comorbidities. SBRT should be considered as a curative treatment option for inoperable patients with pretreatment PF as reported in this study.

Would you want molecular testing done of this biopsy specimen (Dr Aparna Dhar)

ONE WORD ANSWER ONLY

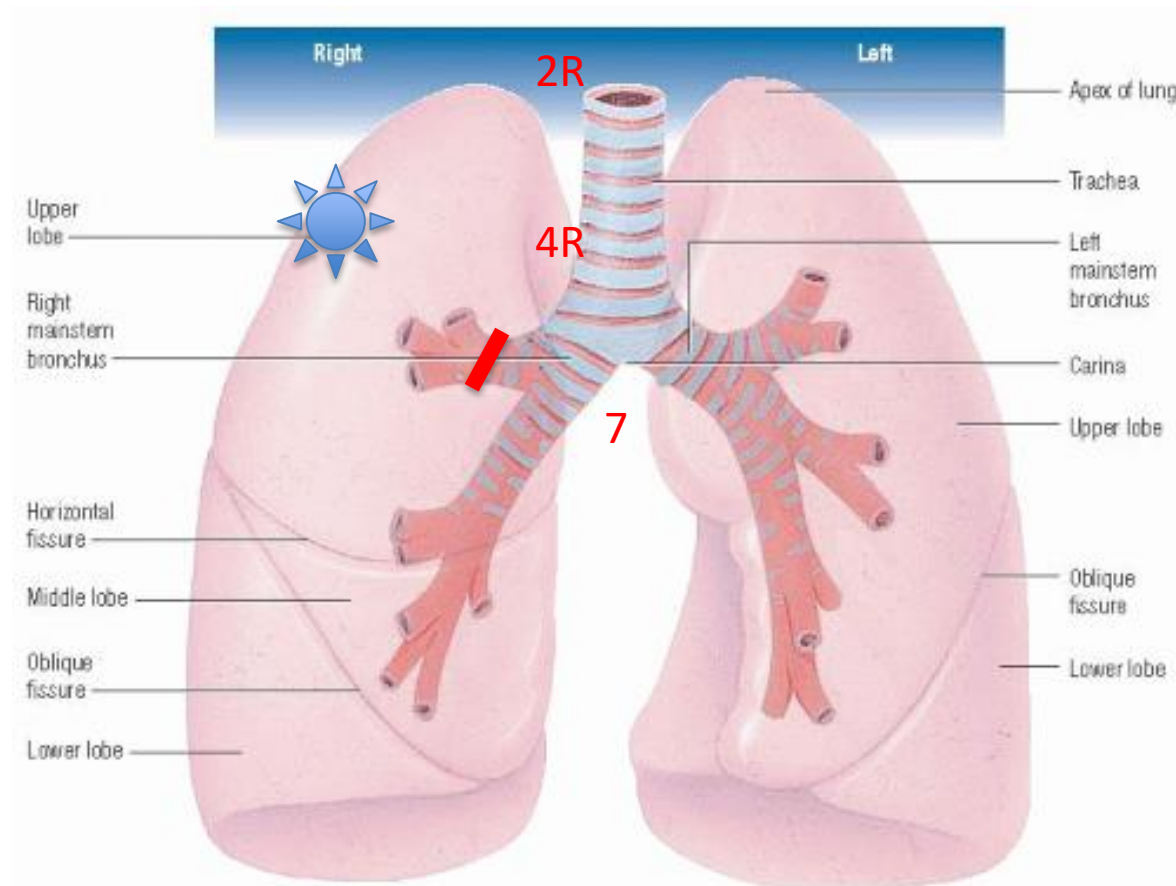
If PFT is Okay, Cardiac function are okay

Whats the Ideal treatment according in early medically operable lung cancer?

(Dr Dodul/ Dr Aparna / Dr Anil)

Whats the ideal surgery that we can offer to this patient? (Dr Virendra)

HOW MUCH - minimal extent of surgery

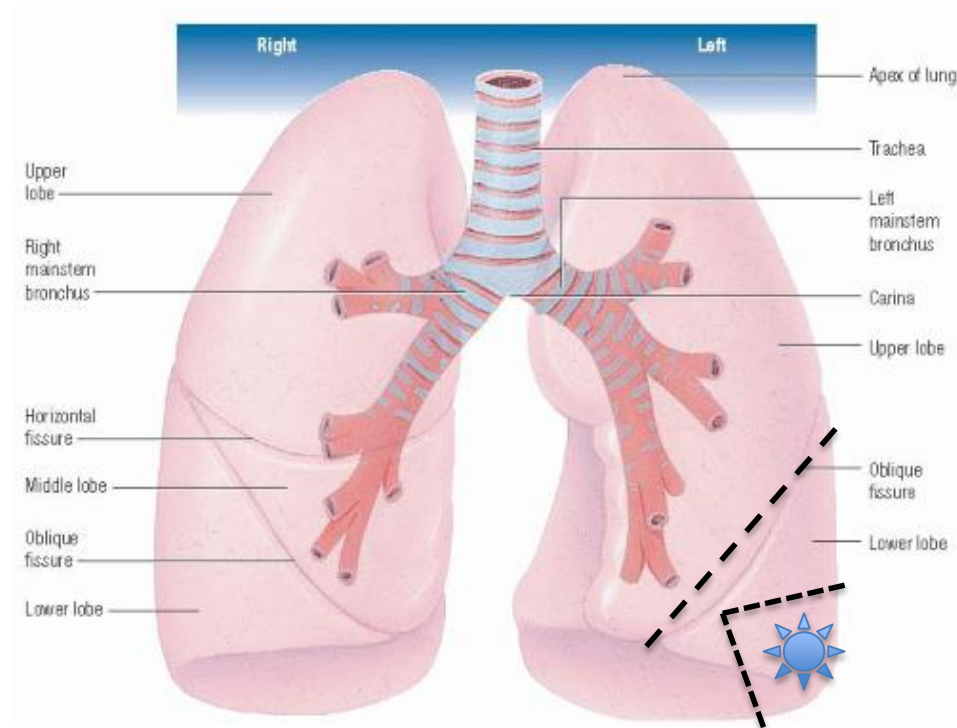


Right Upper Lobectomy with Systemic Mediastinal L'node Dissection

Any role of Neoadjuvant therapy for early operable lung cancer? (Dr Aparna)

Can we offer some surgical treatment less than a lobectomy? How strong is the evidence for the same? (Dr Darlong)

Sub Lobar resection wedge resection/ segmentectomy



SUBLOBAR RESECTIONS

Evidence

Mostly retrospective

Incidentally detected

Selected good risk patients

Compromise for debilitated pts

Author	Source	Population	Lobectomy Comparator	Years	Conclusion
Yendamuri et al ⁵	SEER	Stage I, ≤ 2 cm	Segmentectomy and wedge	1988–1998	Overall survival benefit for lobectomy
Whitson et al ⁶	SEER	Stage IA	Segmentectomy	1998–2007	
Shirvani et al ⁷	SEER	Stage I	Sublobar resection ^a	2001–2007	
Shirvani et al ⁸	SEER	Stage I	Sublobar resection ^a	2003–2009	
Speicher et al ⁴⁹	NCDB	Stage IA	Sublobar resection ^a	2003–2011	
Khuller et al ⁵⁰	NCDB	Stage IA	Sublobar resection ^a	2003–2011	
Kates et al ⁹	SEER	Stage IA, ≤ 1 cm	Sublobar resection ^a	1988–2005	Equivalent overall survival
Yendamuri et al ⁵	SEER	Stage I, ≤ 2 cm	Segmentectomy and wedge	1999–2004 ^b 2005–2008 ^c	
Wisnivesky et al ¹⁰	SEER	Stage I ≤ 2 cm	Sublobar resection ^a	1998–2002	
Whitson et al ¹¹	SEER	AIS, MIA, or lepidic predominant ADC	Segmentectomy and wedge	1998–2007	
Razi et al ¹²	SEER	Stage IA, < 2 cm, age ≥ 75	Segmentectomy and wedge	1998–2007	

SUBLOBAR RESECTIONS

Evidence

Only one randomised trial

30 yr old trial

Better histological classifications

HRCT & PET detect smaller nodules

Trial	Years of Accrual	No.	Specific Inclusion Criteria ^a	Specific Exclusion Criteria ^b	Lobectomy Comparison
LCSG ¹	1982–1988	276	≤3 cm, in periphery	Evidence of metastatic disease by history, physical examination, and blood chemistries, routine CT to detect occult metastases not required	Segmentectomy or wedge
<p>Non inferiority trial</p> <p>3 fold increase in local recurrence</p> <p>Non significant decrease in OS</p>					
JCOG0802/ WJOG4607 ⁴	2009–2014	1100	≤2 cm	C/T ratio <0.25 middle lobe tumors	Segmentectomy
Alliance/CALGB 140503 ³	2007-present	1258	≤2 cm in peripheral 1/3 of lung	Pure GGN	Segmentectomy or wedge






2022 World Conference on Lung Cancer

AUGUST 6-9, 2022 | VIENNA, AUSTRIA

Summary of RCTs in Early Stage NSCLC



	JCOG0802/WJOG4607L	CALGB(Alliance) 140503	NCT02011997
Organization / Country	JCOG & WJOG 	CALGB(Alliance) 	Guangzhou Med. Univ. 
Study design	non-inferiority	non-inferiority	non-inferiority
Primary endpoint	OS	DFS	RFS
Experimental arm	Segmentectomy only	Sublobar resection (segmentectomy / wedge resection)	cVATS segmentectomy
Target	Peripheral NSCLC (tumor diameter ≤ 2 cm; CTR >0.5)	Peripheral T1aN0M0 NSCLC	Stage IA NSCLC with adenocarcinoma in situ or with microinvasion
Accrual	Completed	Closed due to slow accrual	Not updated
N	1106 pts (lob arm = 554; seg arm = 552)	697 pts (lob arm = 357; seg arm = 340)	Estimated 500 pts
Final result	Lancet 2022	WCLC 2022	Not yet

Limitations of sublobar resection (Dr Virendra)

SUBLOBAR RESECTIONS

Tumor characteristics	Size CT appearance Extent of invasion Location	≤ 2 cm Pure GGN, or C/T ratio $< 25\%$ AIS, MAI Peripheral 1/3
Resection specifications	Extent Resection margin Mediastinal nodal evaluation	Segmentectomy ≥ 1 cm, or \geq diameter of tumor Completed

If PFT is borderline, Cardiac function are
borderline

Whats the Ideal treatment according in early
medical inoperable lung cancer?

(Dr Darlong/ Dr Virendra)

Non Surgical Approach - SBRT

Stereotactic Body Radiation Therapy

- Precise Delivery

- High dose RT (10 – 20 Gy/ fraction)

- Few Fractions (3-5 #)

- Small Target (< 5 cm)

Evidence

- Robust in c/o medically inoperable early stage lung cancer

- Disease control rates as high as 95% (RTOG 0236/ Scandinavian)

- Sparse when comparing with lobectomy in medically fit patient

- Mostly matched studies

What about molecular testing in case of SBRT?
(Dr Dhar)?

Last Words

- Medical Operable –
 - Lobectomy vs SubLobar Resection
 - Surgery vs SBRT – VALOR trial / SABRTooth trial
- Medically Inoperable
 - SBRT
 - SBRT vs Sublobar Resection – STABLEMates trial
- Molecular Biology is the King – targeted therapy is here to stay