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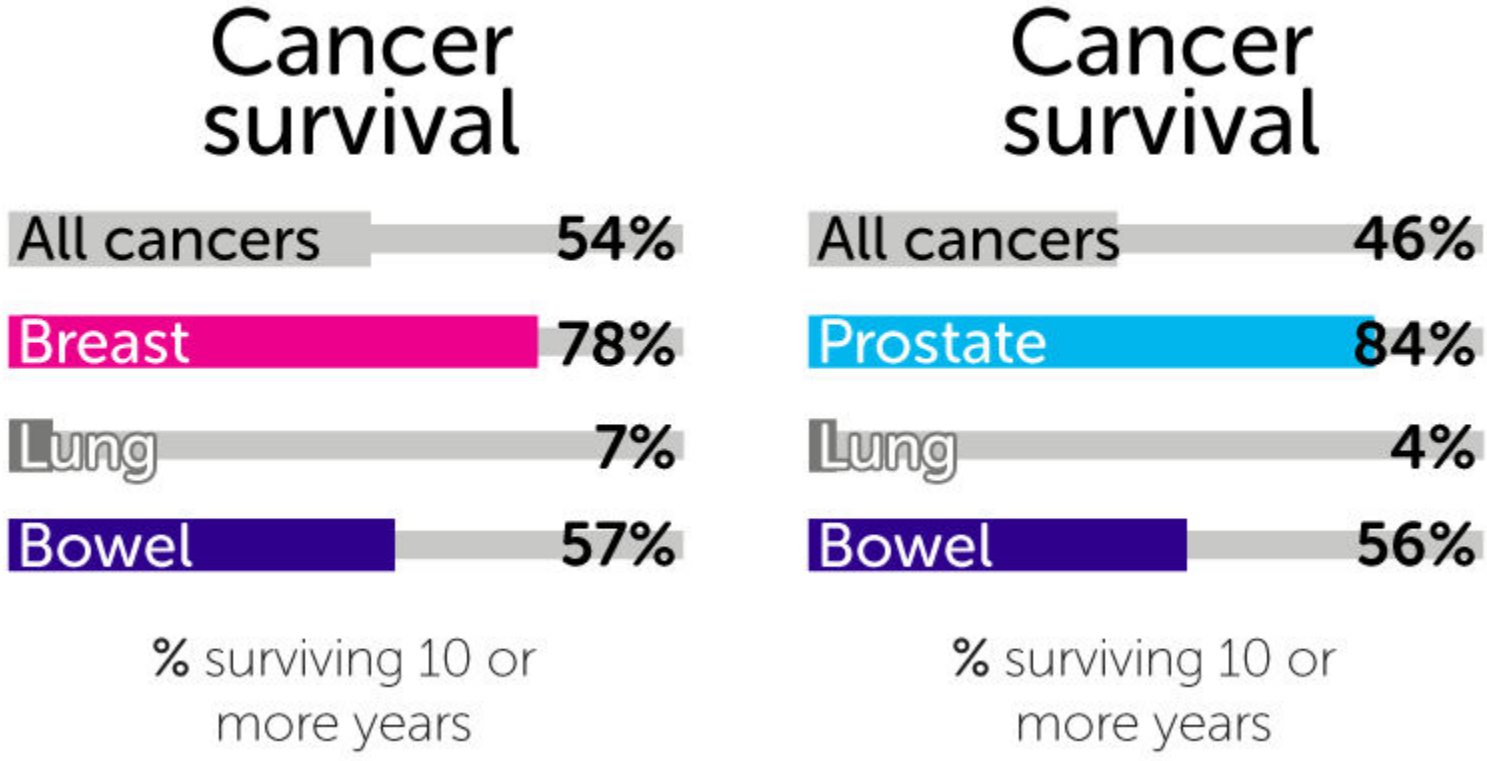
Lung Cancer

Age-Standardised Ten-Year Survival for Common Cancers in Males and Females, England and Wales, 2010-2011



CANCER RESEARCH UK

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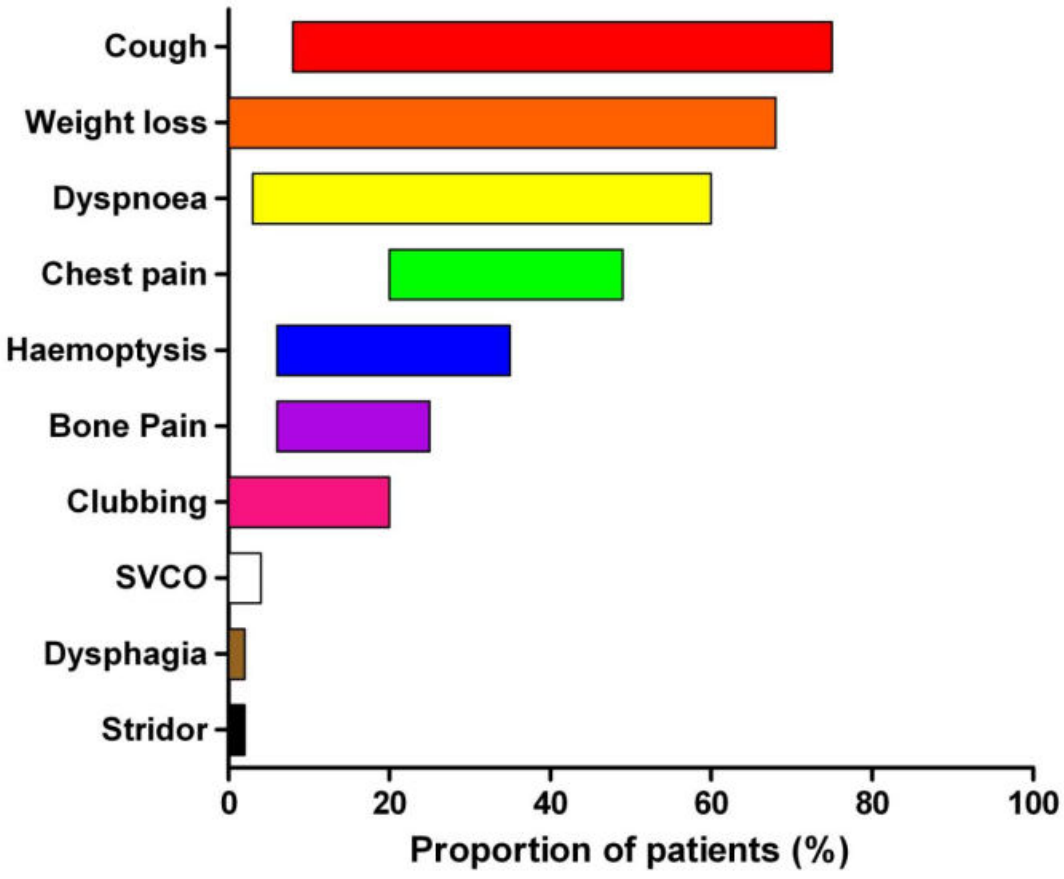
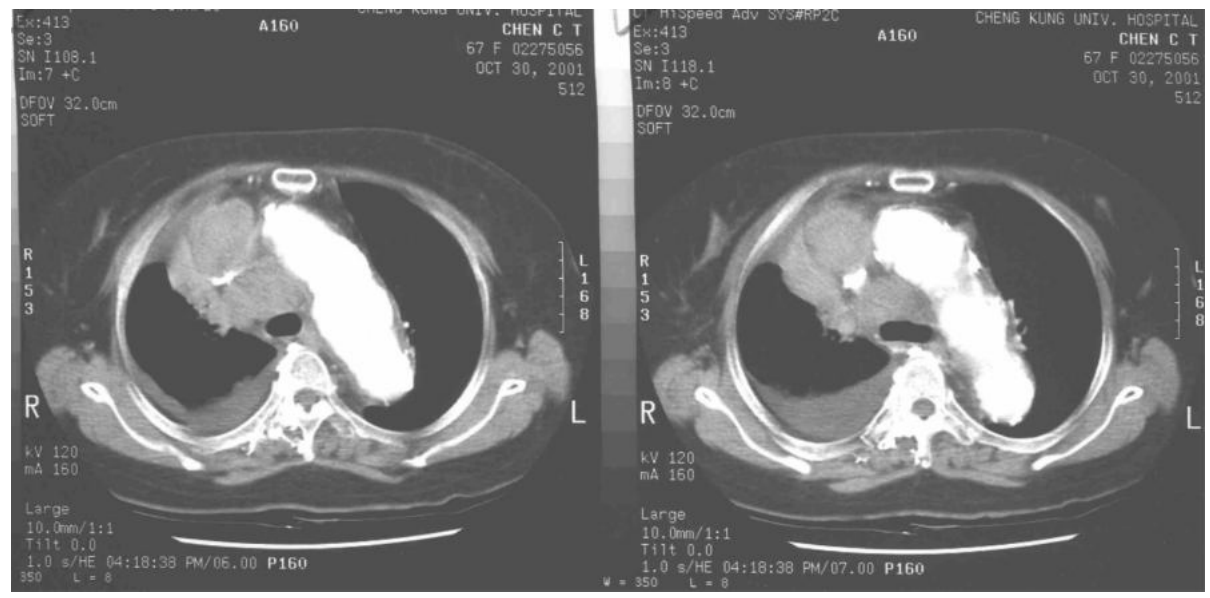
Reasons why lung cancer survival is still variable and poor?

- Late presentation
- Deprivation (not just smoking, but mainly)
- Lack of advocacy & research
- Stigma
- Access to staff,diagnostics and treatment

Symptoms in patients who turn out to have lung cancer





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Red flags are not always reliable but……NICE says

- Any haemoptysis
- Three weeks of unexplained clubbing or…..
- Cough
- Breathlessness
- Chest or shoulder pain
- Weight loss
- Hoarseness
- Chest signs

- Or just because smokes and tired? Unclear. But probably.
- Don’t wait for antibiotics to work

Causes and Risk factors of Lung Cancer

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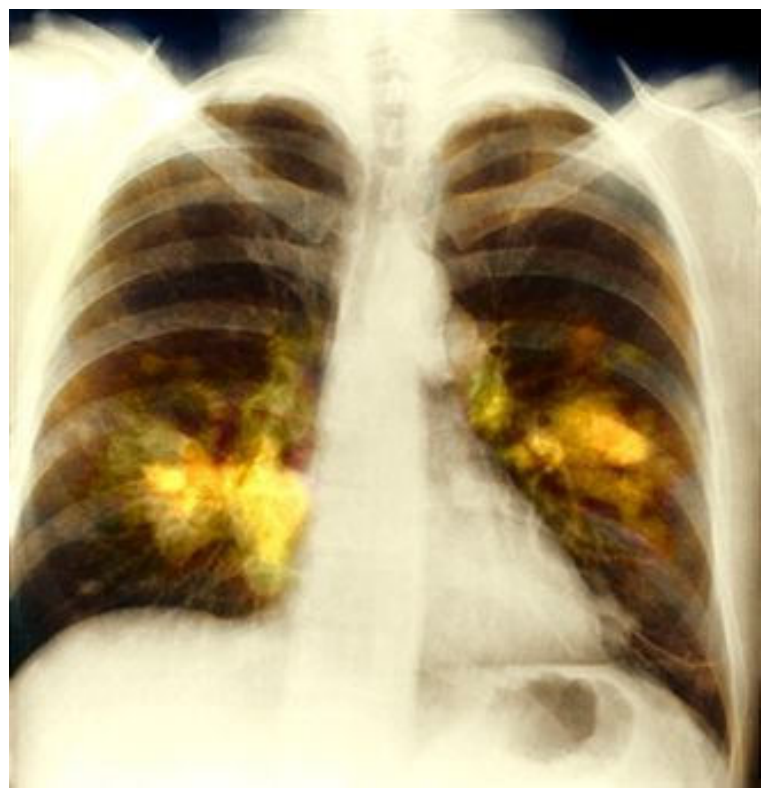
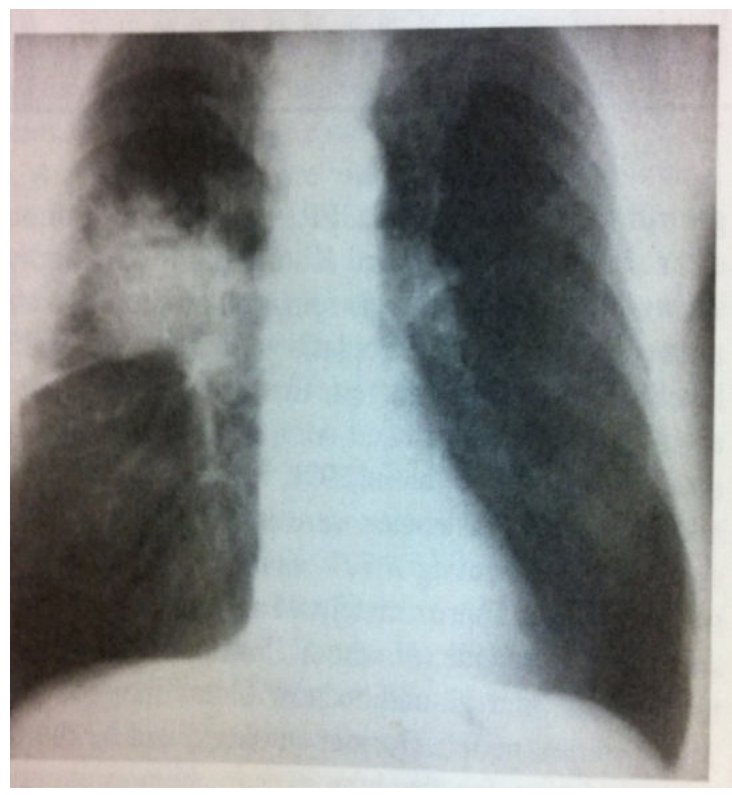
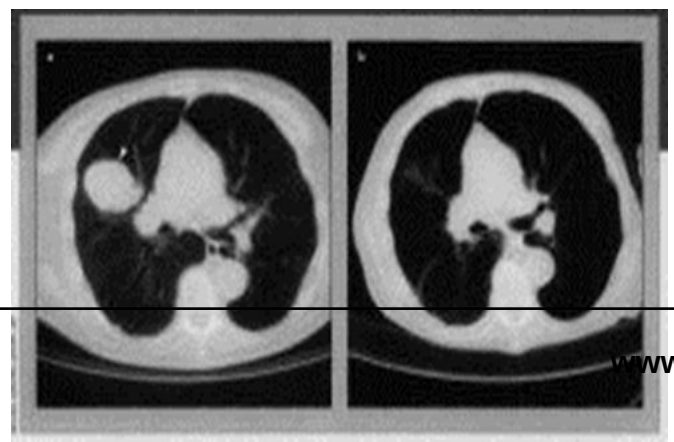




Diagnostic Tests

- CXR
- CT Scans
- MRI
- Sputum cytology
- Fibreoptic bronchoscopy
- Transthoracic fine needle aspiration



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Laboratory Tests

- Blood Tests

  *CBC-to check red/white blood cell & platelets

  -to check bone marrow and organ function

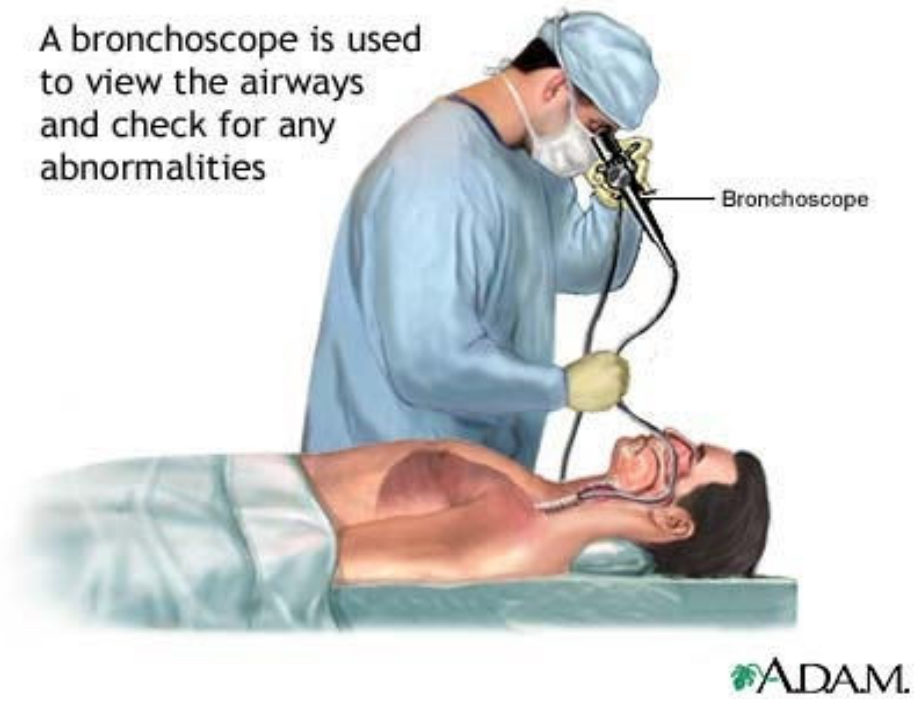
  *Blood Chemistry Test-to assess how organs are functioning such as liver and kidney

- Biopsy-to determine if the tumor is cancer or not

  -to determine the type of cancer

  -to determine the grade of cancer (slow or fast)

Biopsy



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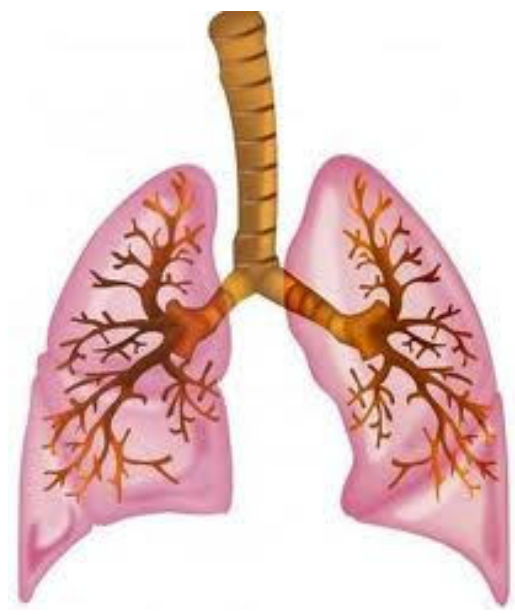
Endoscopy

- Bronchoscopy
- Mediastinoscopy
- VATS (video assisted thoracoscopic surgery)



Bronchoscopy

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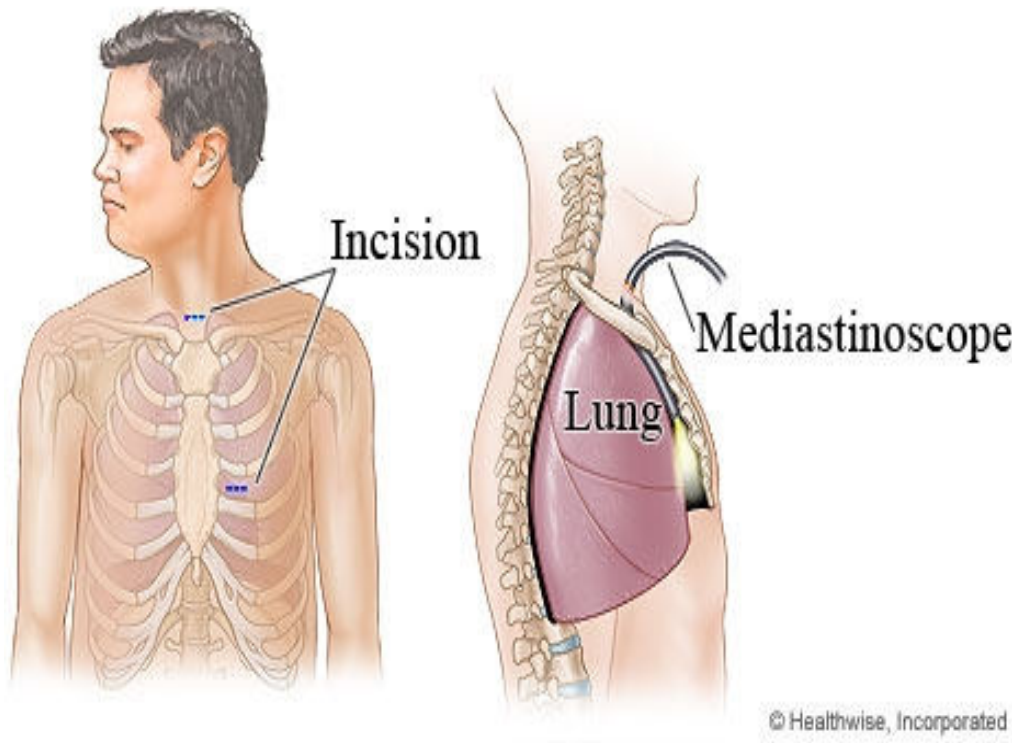
Mediastinoscopy



VATS (video assisted thoracoscopic surgery)

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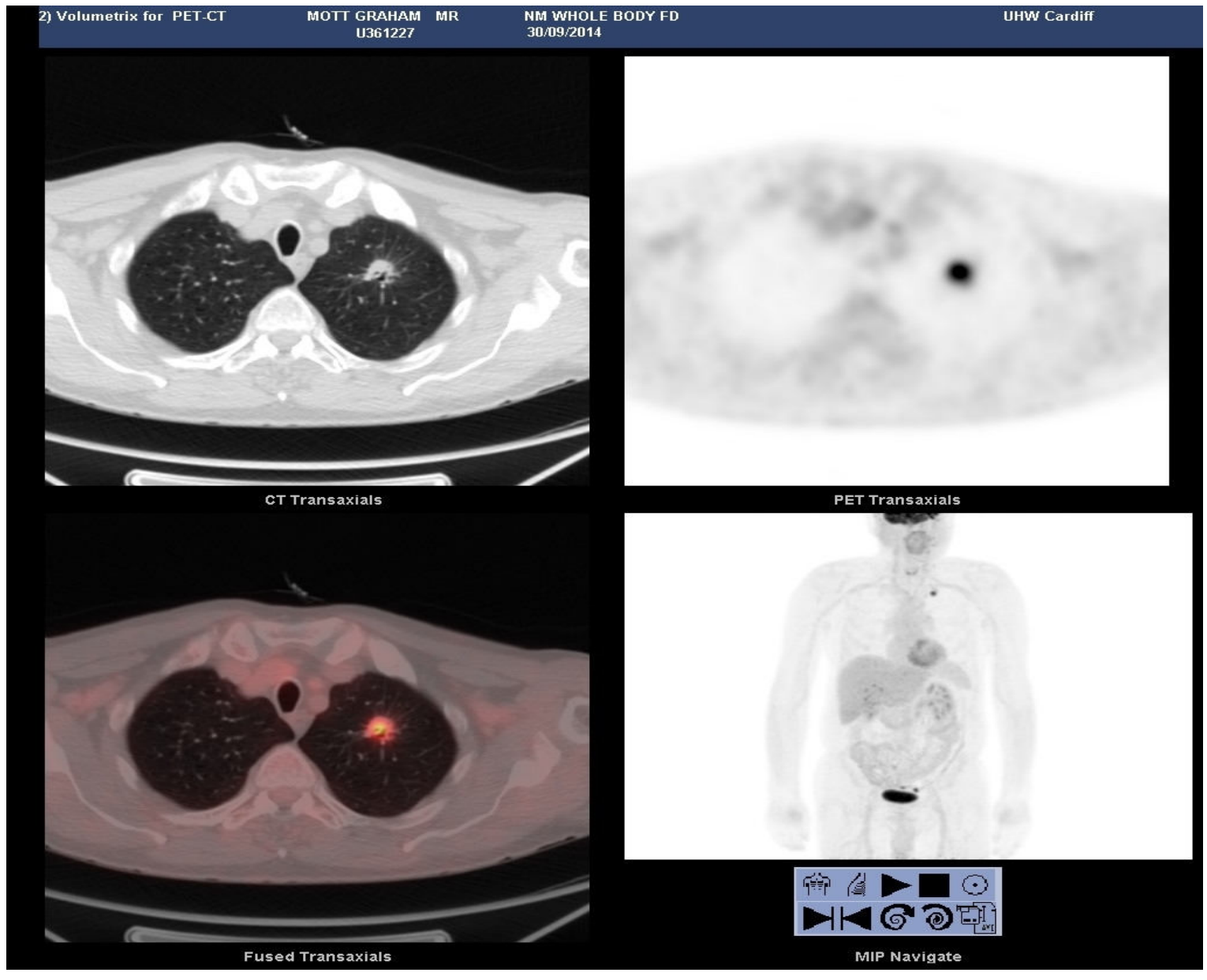

DIAGNOSTIC WORKUP

- **History:** metastasis symptoms
- **PE:** H & N lymph nodes
- **Chest X-ray**
- **CT**: the most valuable radiologic study for evaluation, staging, and therapeutic planning of lung cancer
- **MRI:** mediastninum or paravetebral region
- **Bone scans**: stage III before curative therapy

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- *PET influenced radiation delivery in 65% for definitive radiotherapy (Kalff et al.).*
- Brain CT scan: small cell carcinoma.
- Pulmonary function tests: ability to undergo surgical resection or withstand irradiation

- **Sputum cytology**: **20% to 30%** sensitivity
- **Bronchoscopic examination**: **90%** positive
- **CT-guided Bx**: **95%** positive
- **Bx**: Primary tumor lesion, scalene node

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Pathology

- **Sputum cytology**: **20% to 30%** sensitivity
- **Bronchoscopic examination**: **90%** positive
- **CT-guided Bx**: **95%** positive
- **Bx**: Primary tumor lesion, scalene node

Incidence

	Taiwan (TCOG)	USA
NSCLC	85-88 %	80 %
SCLA	12-15 %	20 %

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Lung Cancer Re-cap

Small Cell Lung Cancer

Non-Small-Cell Lung Cancer

Squamous cell

Adenocarinoma

Squamous cell carcinoma

- Moderate to poor differentiation
- makes up 30-40% of all lung cancers
- more common in males
- most occur centrally in the large bronchi
- Uncommon metastasis that is slow effects the liver, adrenal glands and lymph nodes.
- Associated with smoking
- Not easily visualized on xray (may delay dx)
- Most likely presents as a Pancoasts tumor

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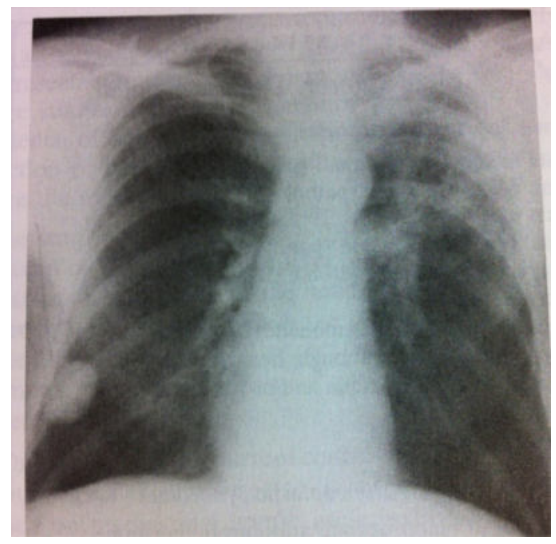
Adenocacinoma

- Increasing in frequency. Most common type of Lung cancer (40-50% of all lung cancers).
- Clearly defined peripheral lesions (RLL lesion)
- Glandular appearance under a microscope
- Easily seen on a CXR
- Can occur in non-smokers
- Highly metastatic in nature
  - Pts present with or develop brain, liver, adrenal or bone metastasis



Large cell carcinomas

- makes up 15-20% of all lung cancers
- Poorly differentiated cells
- Tends to occur in the outer part (periphery) of lung, invading sub-segmental bronchi or larger airways
- Metastasis is slow BUT
- Early metastasis occurs to the kidney, liver organs as well as the adrenal glands

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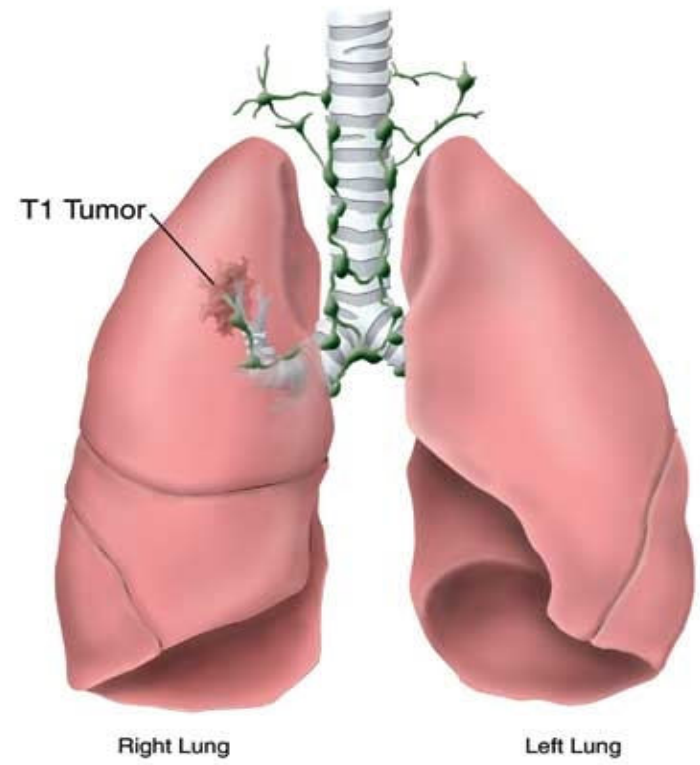
TMN Staging system for Lung Cancer

T= Tumors : tumor size, (local invasion)

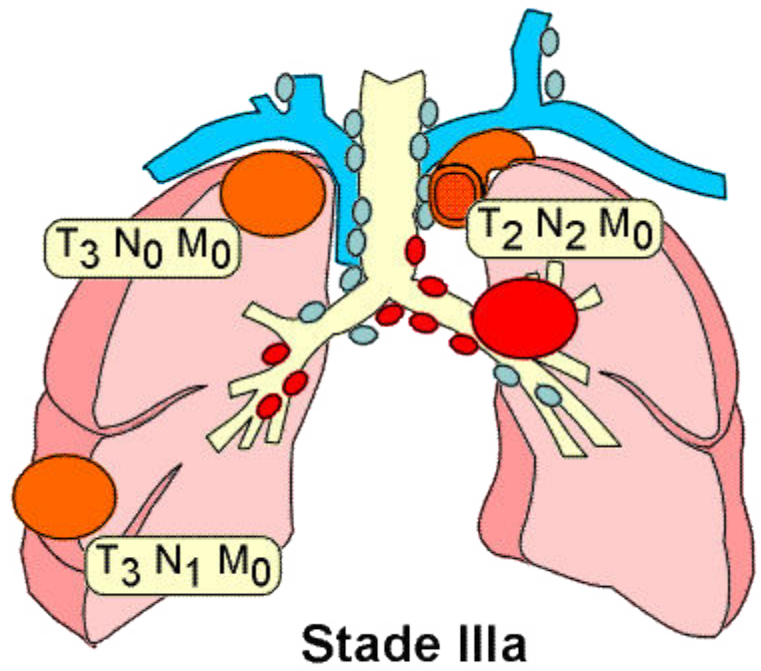
N= Node : node involvement (size and type)

M= Metastasis : general involvement in organs and tissues



Lung Cancer Staging Continued

- T: Tx, T0, Tis, T1-T4 (T3-tumors greater than 7cm, T4 is a tumor of any size)
- N: N0, N1, N2, N3
- M: M0, M1a, M1b



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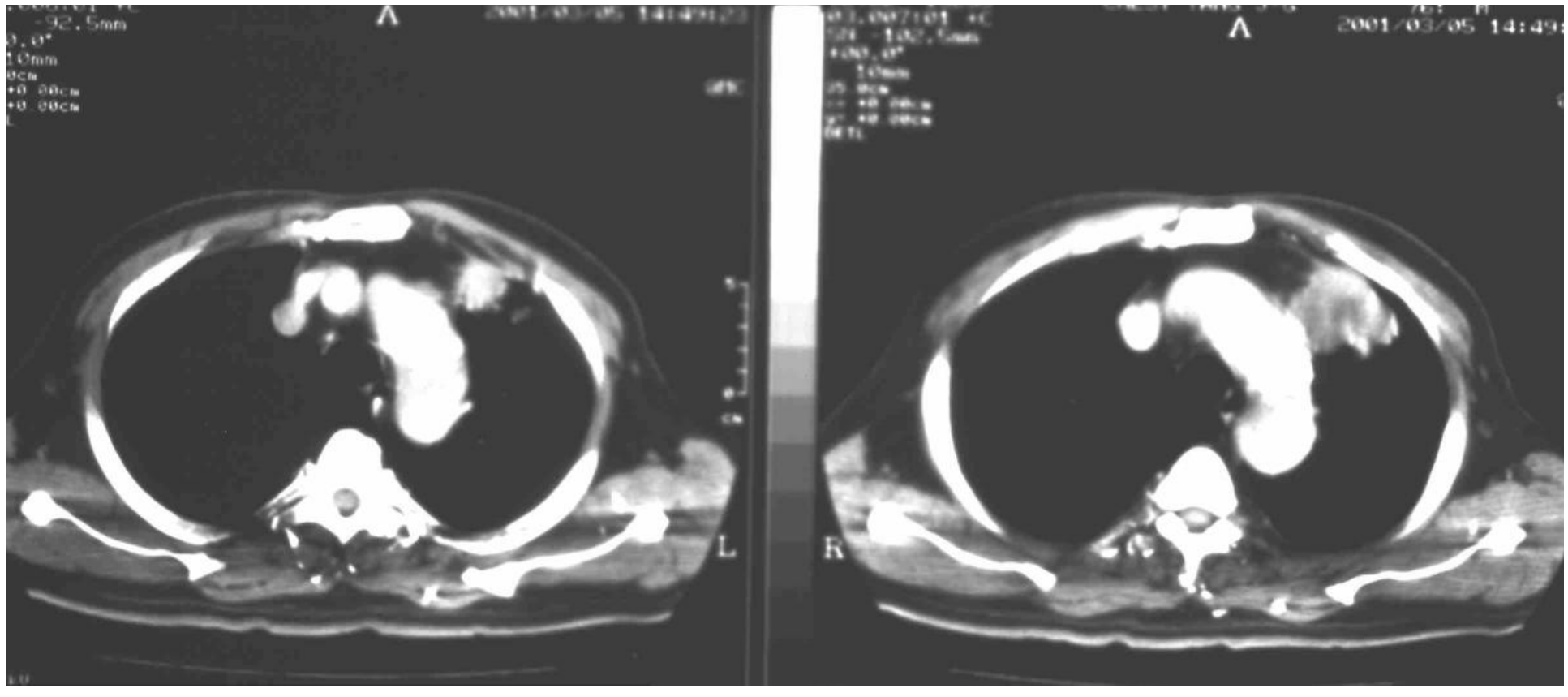
Stage grouping (AJCC 2002)

	T1	T2	***T3***	T4
N0	IA	IB	IIB	IIIB
N1	IIA	IIB	IIIA	IIIB
N2	IIIA	IIIA	IIIA	IIIB
N3	IIIB	IIIB	IIIB	IIIB

Man, age: 76, cough and BWL



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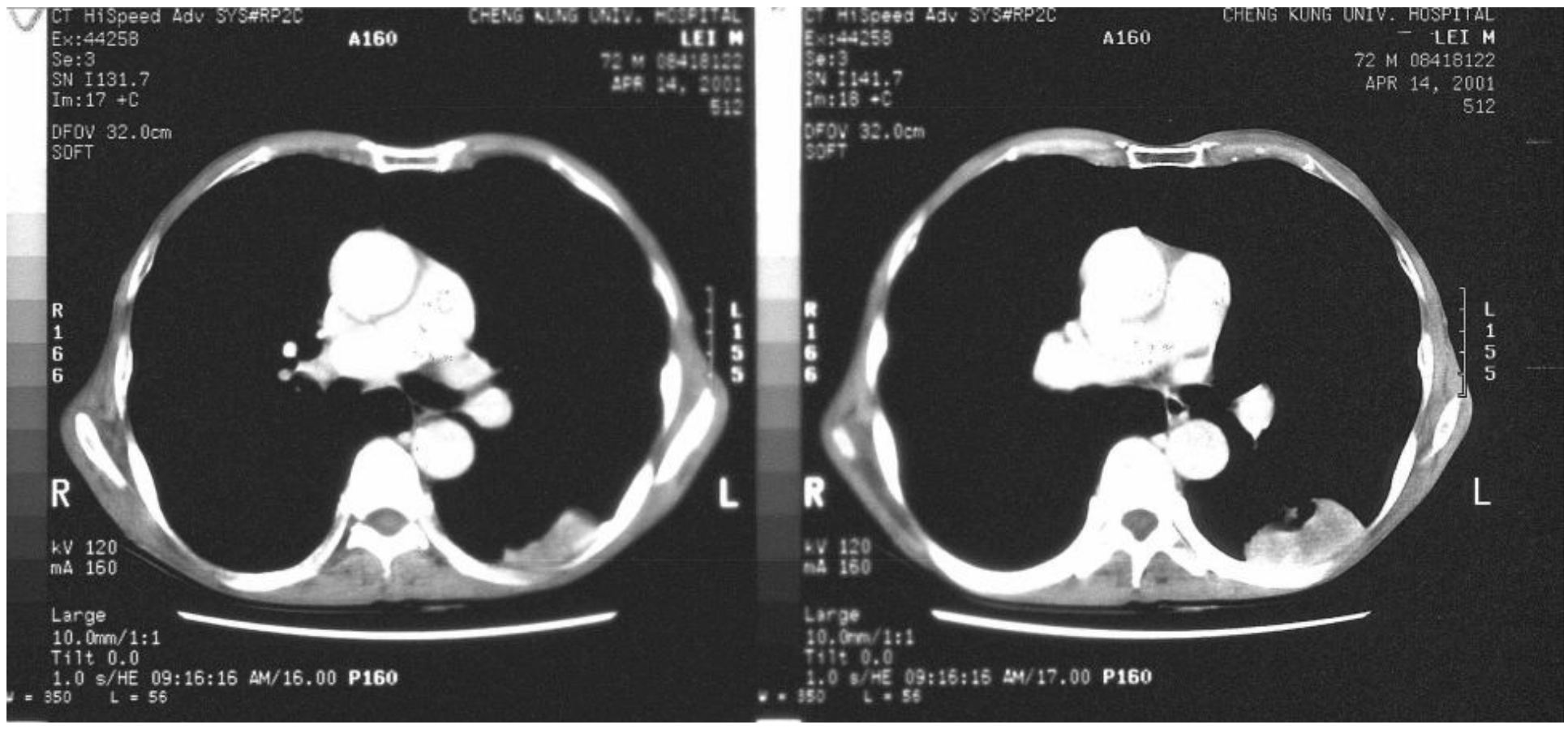
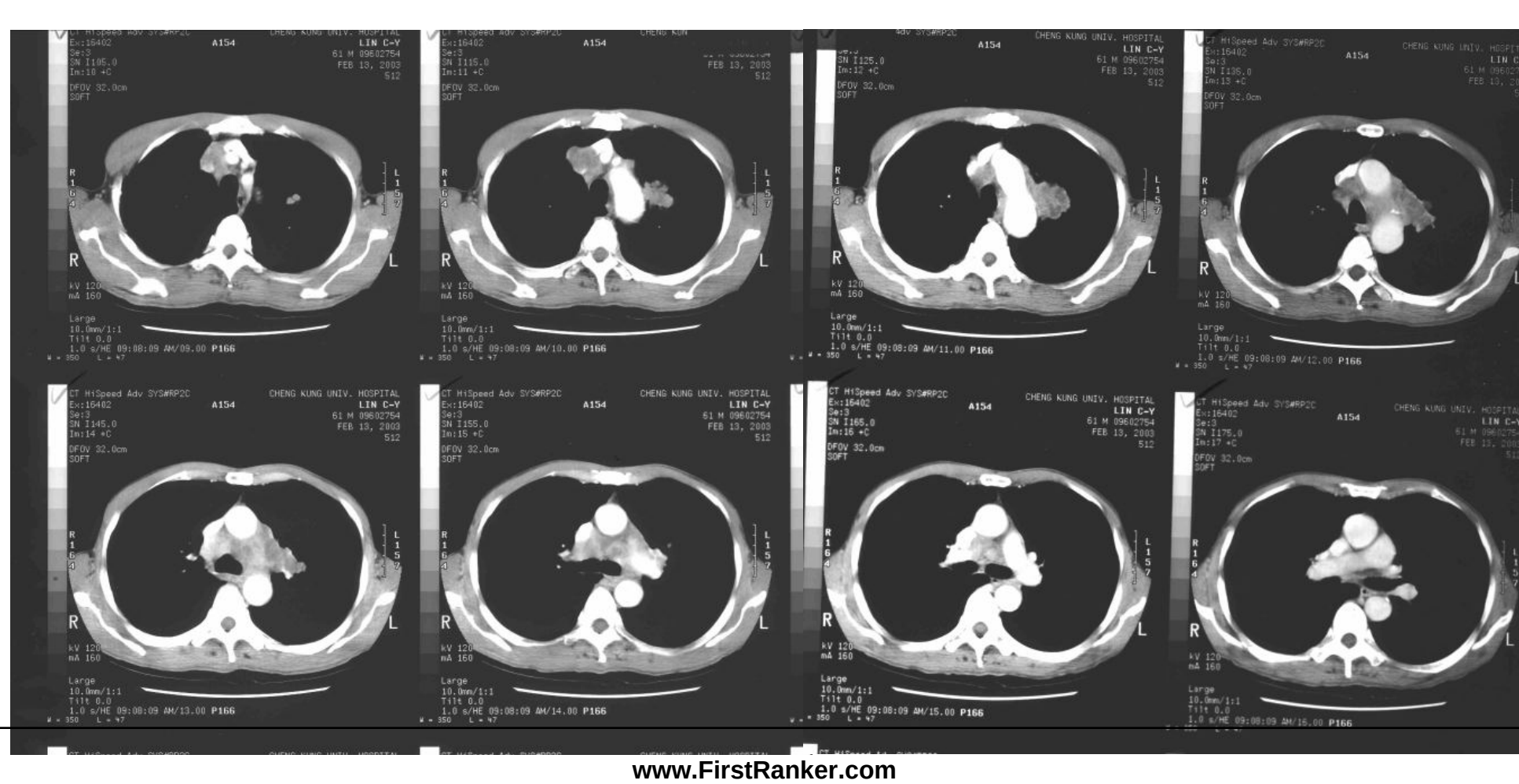
Man, age: 72, LLL



Small cell lung Ca
Limited stage



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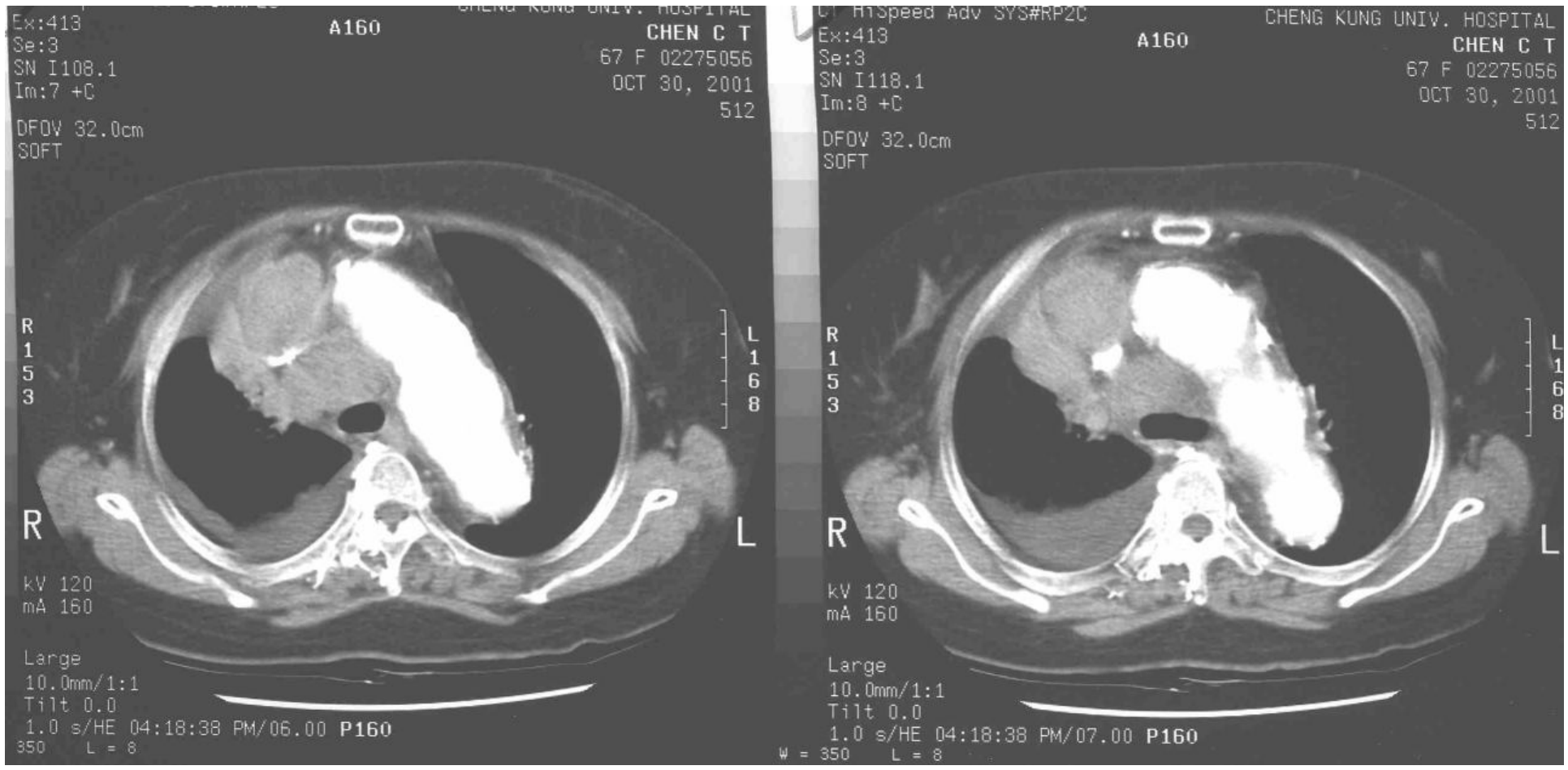
Woman, age: 68
SVC syndrome



Treatment

- Surgery is preferred radical option
- ‘Resectable’ versus ‘operable’
- Radical RT (or SBRT) should be considered even if patient not fit for surgery (‘operable’)
- Performance status at diagnosis is crucial:

Grade	Explanation of activity
0	Fully active, able to carry on all pre-disease performance without restriction
1	Restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature, e.g., light house work, office work
2	Ambulatory and capable of all selfcare but unable to carry out any work activities. Up and about more than 50% of waking hours
3	Capable of only limited selfcare, confined to bed or chair more than 50% of waking hours
4	Completely disabled. Cannot carry on any selfcare. Totally confined to bed or chair
5	Dead

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Medical Management

- The three main cancer treatments are:
  - *surgery (lung resections)
  - *radiation therapy
  - *chemotherapy
- Other types of treatment that are used to treat certain cancers are hormonal therapy, biological therapy, Immunotherapy, targeted chemotherapy or stem cell transplant.

Prognostic Factors

- The best estimate on how a patient will do based on:
  - *type of cancer cells
  - *grade of the cancer
  - *size or location of the tumor
  - *stage of the cancer at the time of diagnosis
  - *age of the person
  - *gender
  - *results of blood or other tests
  - *a persons specific response to treatment
  - *overall health and physical condition