Thymic epithelial tumors

Surgery

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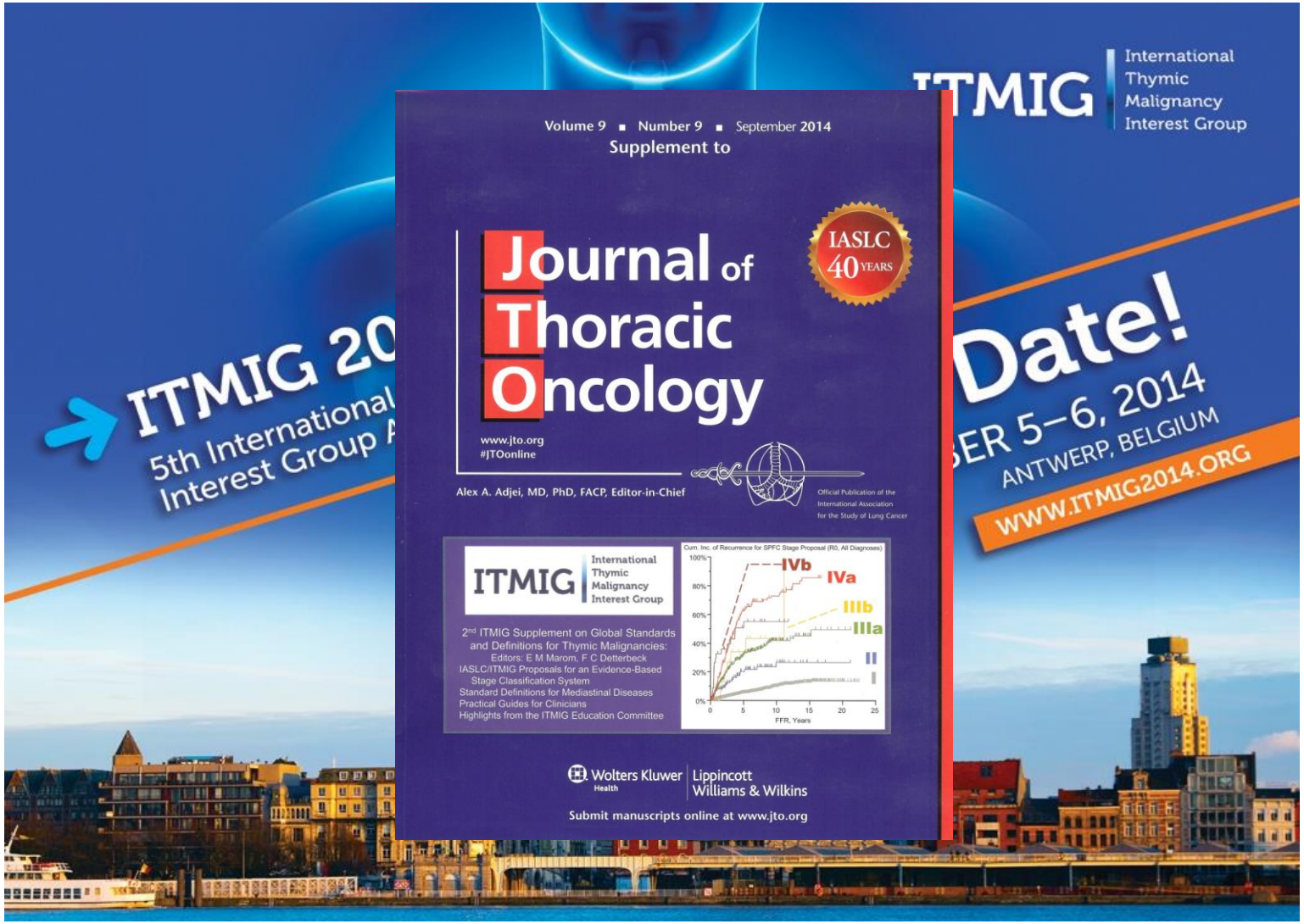
TOGA symposium 01/10/21
Internationale dag van de ouderen


ITMIG
International
Thymic
Malignancy
Interest Group
Volume 9 ■ Number 9 ■ September 2014
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IASLC 40 YEARS
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#JTOonline
Alex A. Adjei, MD, PhD, FACP, Editor-in-Chief
Official Publication of the International Association for the Study of Lung Cancer
ITMIG International Thymic Malignancy Interest Group
2nd ITMIG Supplement on Global Standards and Definitions for Thymic Malignancies:
Editors: E M Marom, F C Detterbeck
IASLC/ITMIG Proposals for an Evidence-Based Stage Classification System
Standard Definitions for Mediastinal Diseases
Practical Guides for Clinicians
Highlights from the ITMIG Education Committee
Cum. Inc. of Recurrence for SPFC Stage Proposal (R0, All Diagnoses)
IVb
IVa
IIIb
IIIa
II
I
100%
80%
60%
40%
20%
0%
0
5
10
15
20
25
FFR, Years
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WWW.ITMIG2014.ORG

Thymic epithelial tumors: surgery

- mediastinal compartments
- TNM classification
- surgery: from maximally invasive to minimally invasive
- conclusions

Thymic epithelial tumors: surgery

- **mediastinal compartments**
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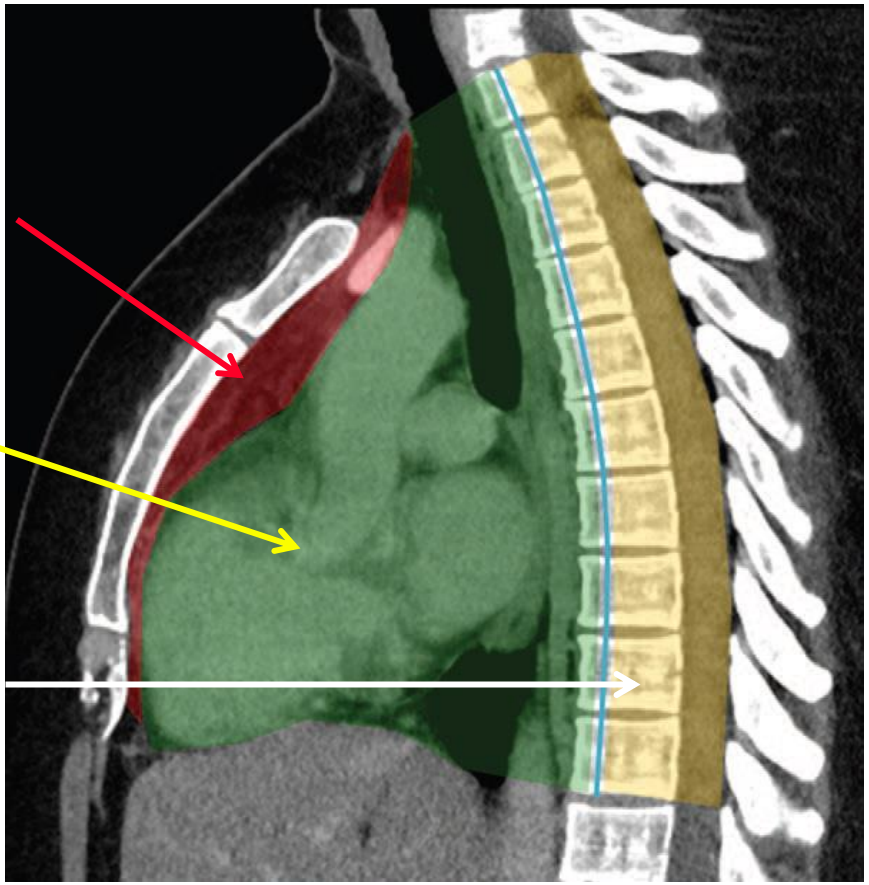
prevascular

visceral

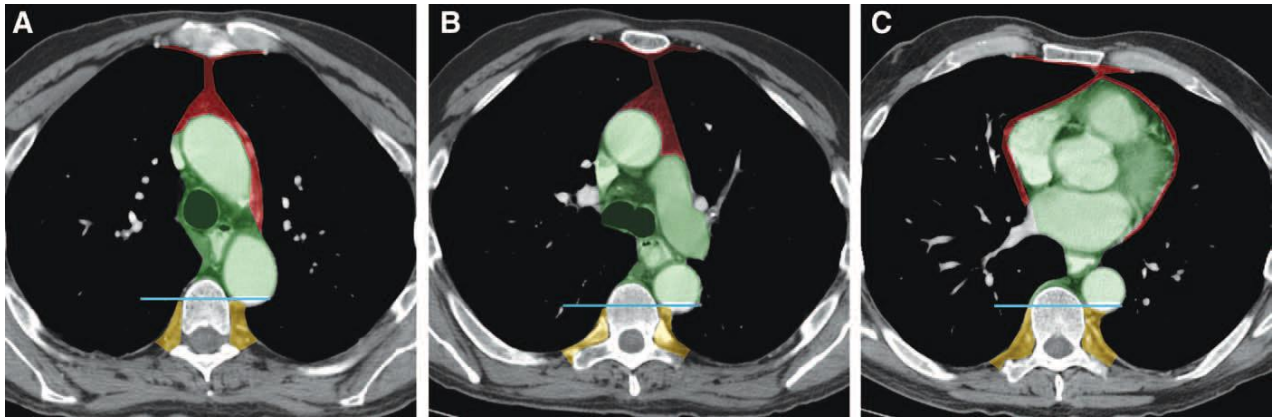
paravertebral



Carter BW. A modern definition of mediastinal compartments. JTO 2014; 9 (suppl.2) S97-101

prevascular

visceral



paravertebral

Carter BW. A modern definition of mediastinal compartments. JTO 2014; 9 (suppl.2) S97-101

Thymic epithelial tumors: surgery

- mediastinal compartments
- **TNM classification**
- surgery: from maximally invasive to minimally invasive
- conclusions

Thymomas

- 30 – 60 years, ♂ = ♀
- 50% of anterior mediastinal tumors
- 50% symptomatic — myasthenia gravis
  dyspnea, cough, retrosternal pain
- myasthenia gravis — 60-70 % thymic hyperplasia
  10-20 % thymoma
- paraneoplastic syndrome

TNM classification

T descriptor

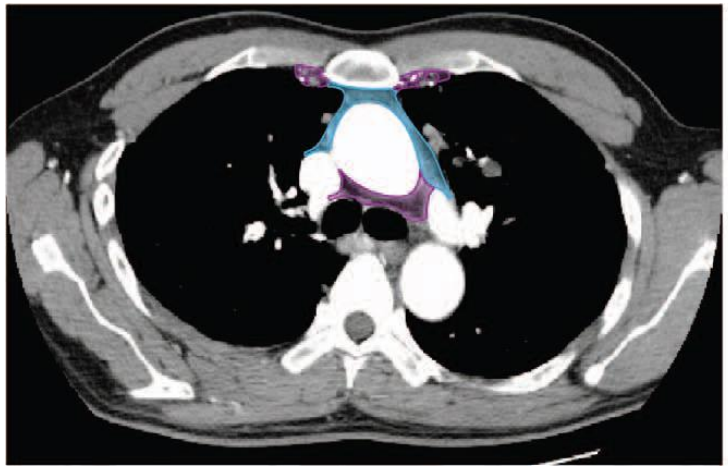
T1a	Encapsulated or unencapsulated with or without extension into mediastinal fat
T1b	Extension into mediastinal pleura
T2	Pericardium (partial or full thickness)
T3	Lung, brachiocephalic vein, superior vena cava, chest wall, phrenic nerve, hilar (extrapericardial) pulmonary vessels
T4	aorta, arch vessels, main pulmonary artery, myocardium, trachea, or esophagus

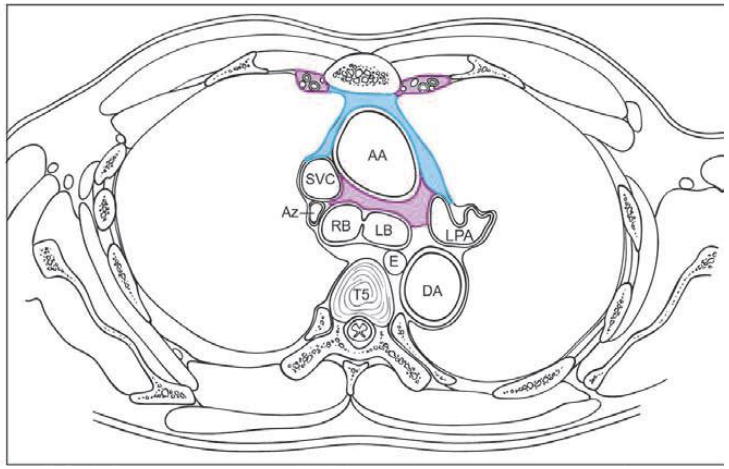
Nicholson A. The IASLC/ITMIG thymic epithelial tumors staging project: proposals for the T component for the forthcoming (8th) edition of the TNM classification of malignant tumors. JTO 2014; 9 (suppl. 2): S73-80

N descriptor

anterior region
N1

deep region
N2



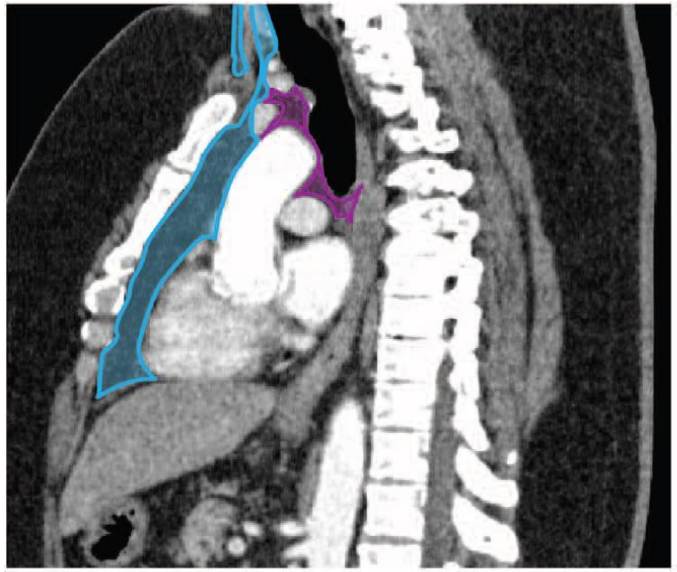


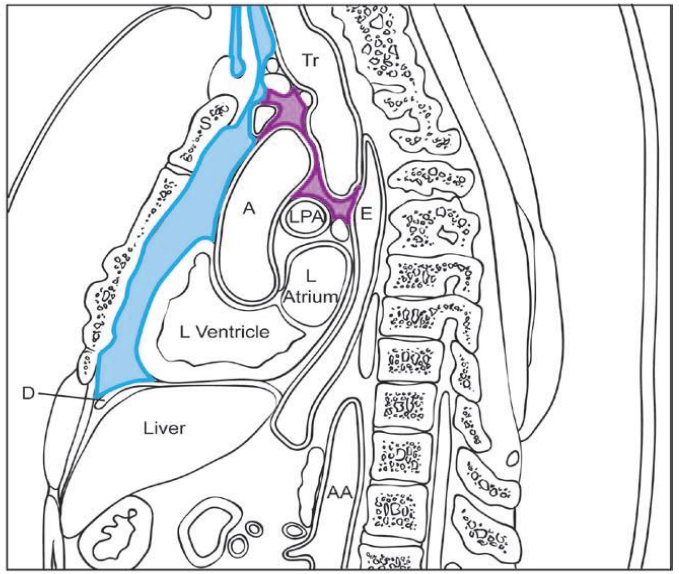
Bhora FY. The IASLC/ITMIG thymic epithelial tumors staging project: a proposed lymph node map for thymic epithelial tumors in the forthcoming (8th) edition of the TNM classification of malignant tumors. JTO 2014; 9 (suppl. 2): S88-96

N descriptor

anterior region
N1

deep region
N2





Bhora FY. The IASLC/ITMIG thymic epithelial tumors staging project: a proposed lymph node map for thymic epithelial tumors in the forthcoming (8th) edition of the TNM classification of malignant tumors. JTO 2014; 9 (suppl. 2): S88-96

TNM classification

N descriptor

N0	No nodal involvement
N1	Anterior (perithymic) nodes
N2	Deep intrathoracic or cervical nodes

M descriptor

M0	No metastatic pleural, pericardial, or distant sites
M1a	Separate pleural or pericardial nodule(s)
M1b	Pulmonary intraparenchymal nodule or distant organ metastasis

Kondo K. The IASLC/ITMIG thymic epithelial tumors staging project: proposals for the N and M components for the forthcoming (8th) edition of the TNM classification of malignant tumors. JTO 2014; 9 (suppl. 2): S81-7

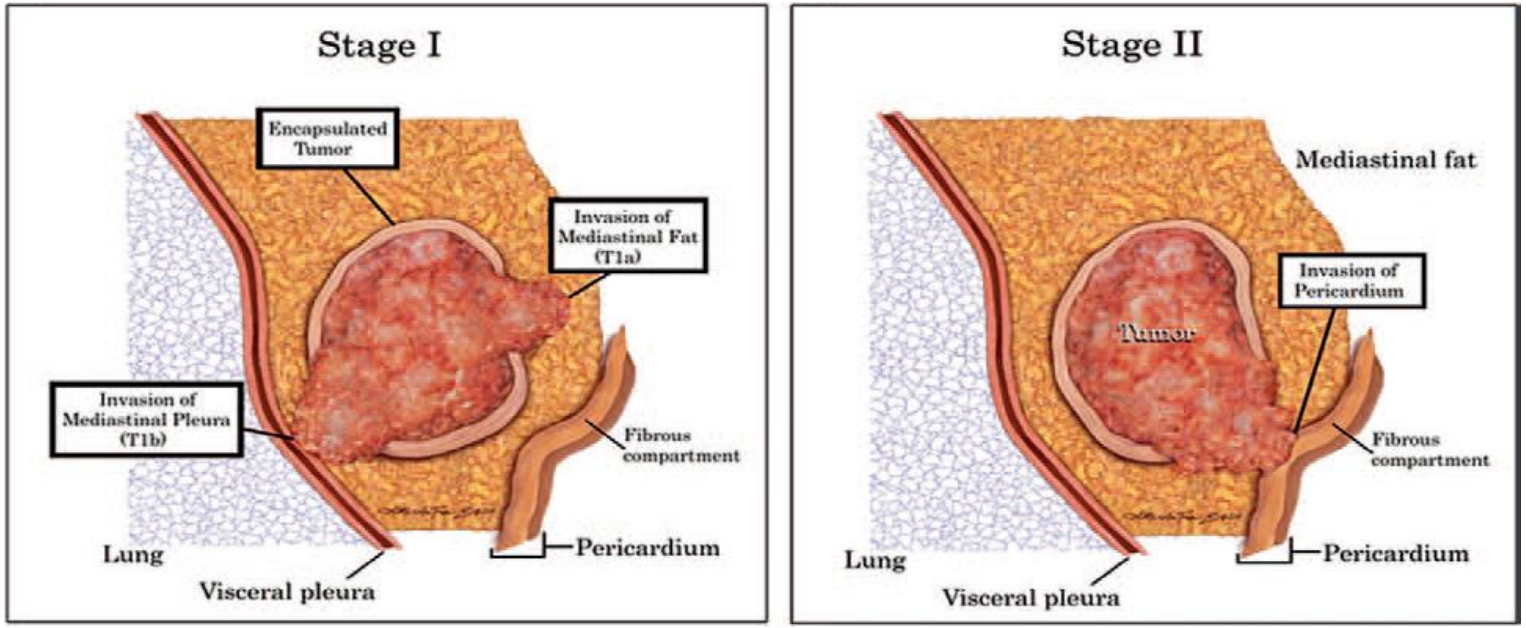
TNM classification

Stage grouping

Stage	T	N	M
I	T1	N0	M0
II	T2	N0	M0
IIIa	T3	N0	M0
IIIb	T4	N0	M0
IVa	T any	N1	M0
	T any	N0,1	M1a
IVb	T any	N2	M0,1a
	T any	N any	M1b

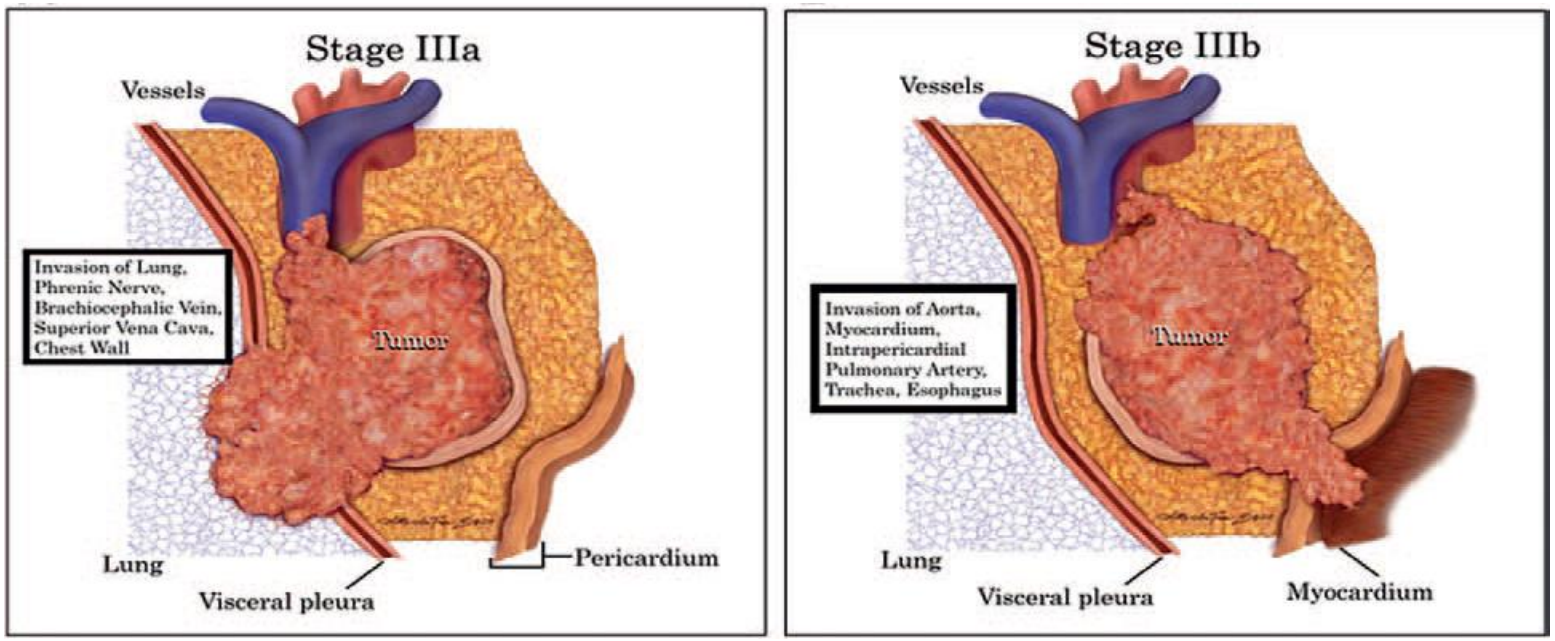
Detterbeck FC. The IASLC/ITMIG thymic epithelial tumors staging project: proposal for an evidence-based stage classification system for the forthcoming (8th) edition of the TNM classification of malignant tumors. JTO 2014; 9 (suppl. 2): S65-72

TNM classification



Detterbeck FC. The IASLC/ITMIG thymic epithelial tumors staging project: proposal for an evidence-based stage classification system for the forthcoming (8th) edition of the TNM classification of malignant tumors. JTO 2014; 9 (suppl. 2): S65-72

TNM classification



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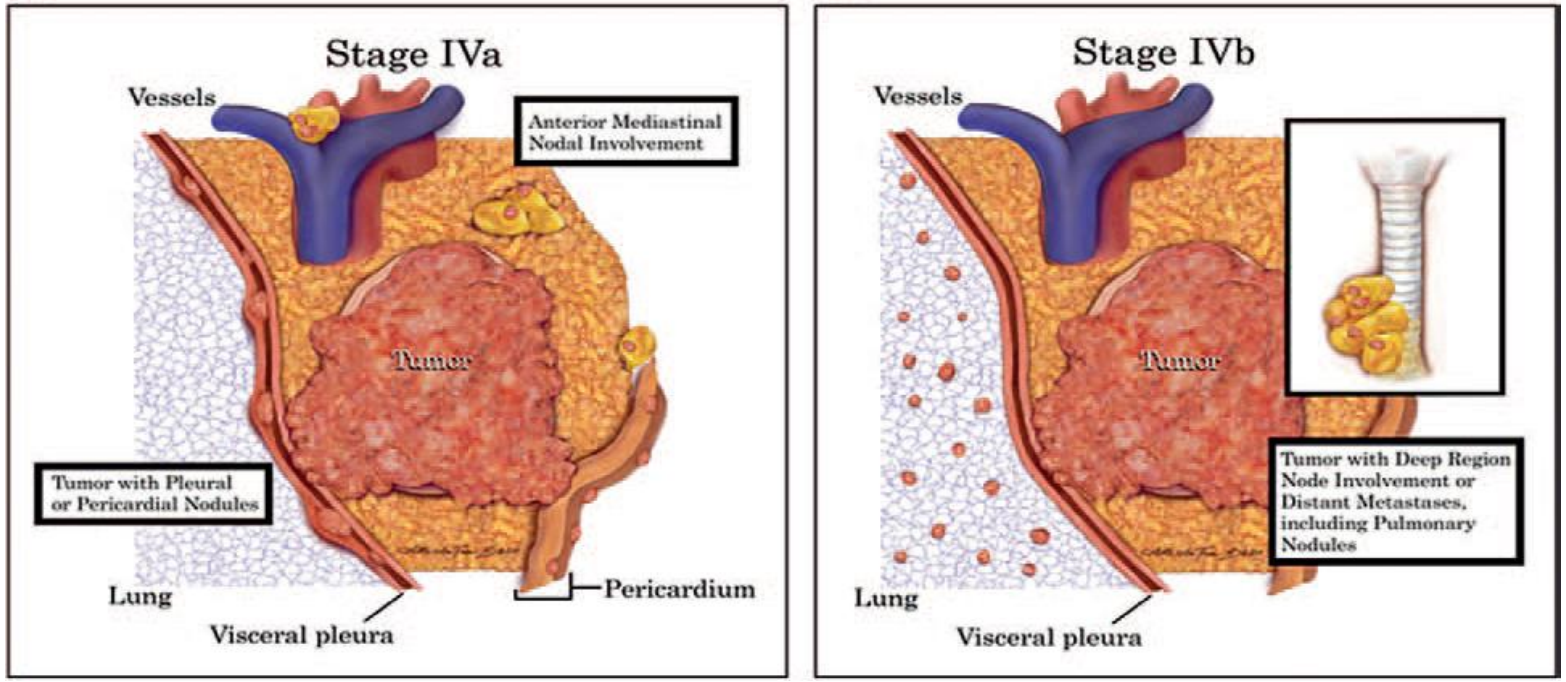
TNM classification



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Thymic epithelial tumors: surgery

- mediastinal compartments
- TNM classification
- **surgery: from maximally invasive to minimally invasive**
- conclusions

Thymoma - surgical treatment

complete resection!

keep the capsule intact! ***(resectable – no biopsy)***

➢ stage I	resection	excellent long-term survival recurrences 2-12%
➢ stages II, IIIa-b	resection + PORT	
➢ stages IVa-b	chemotherapy, radiotherapy, surgery	

invasive tumor, locoregional extension:
induction chemotherapy, surgery, PORT

Surgical approaches to prevascular (anterior) mediastinum

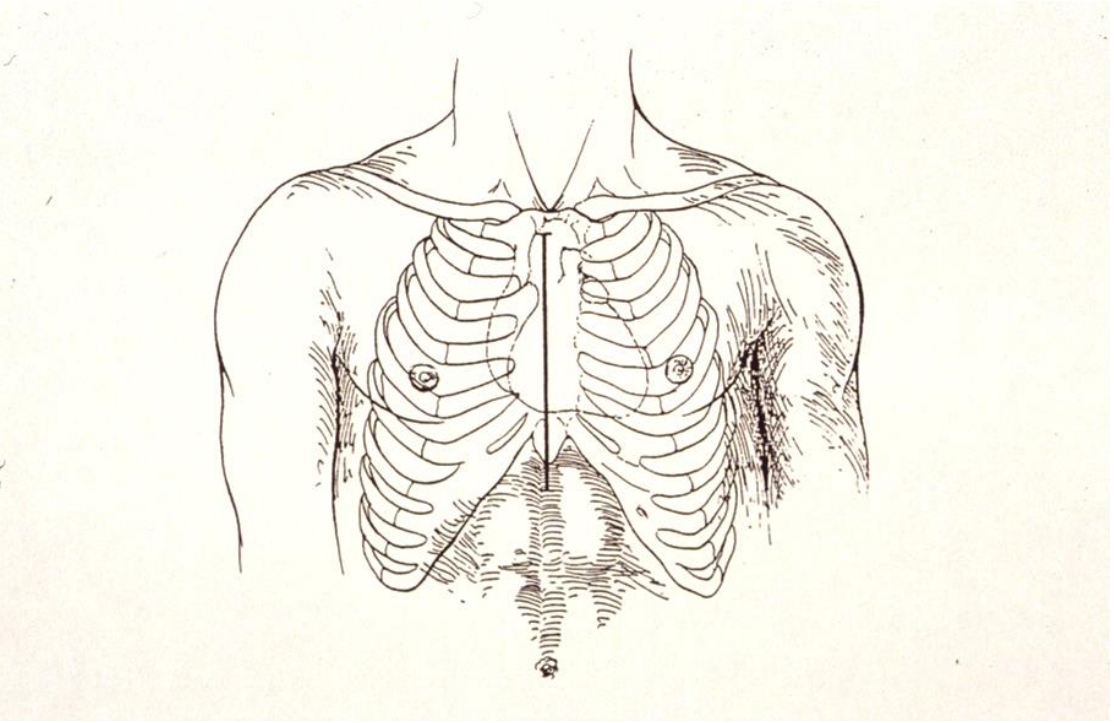
from maximally to minimally invasive

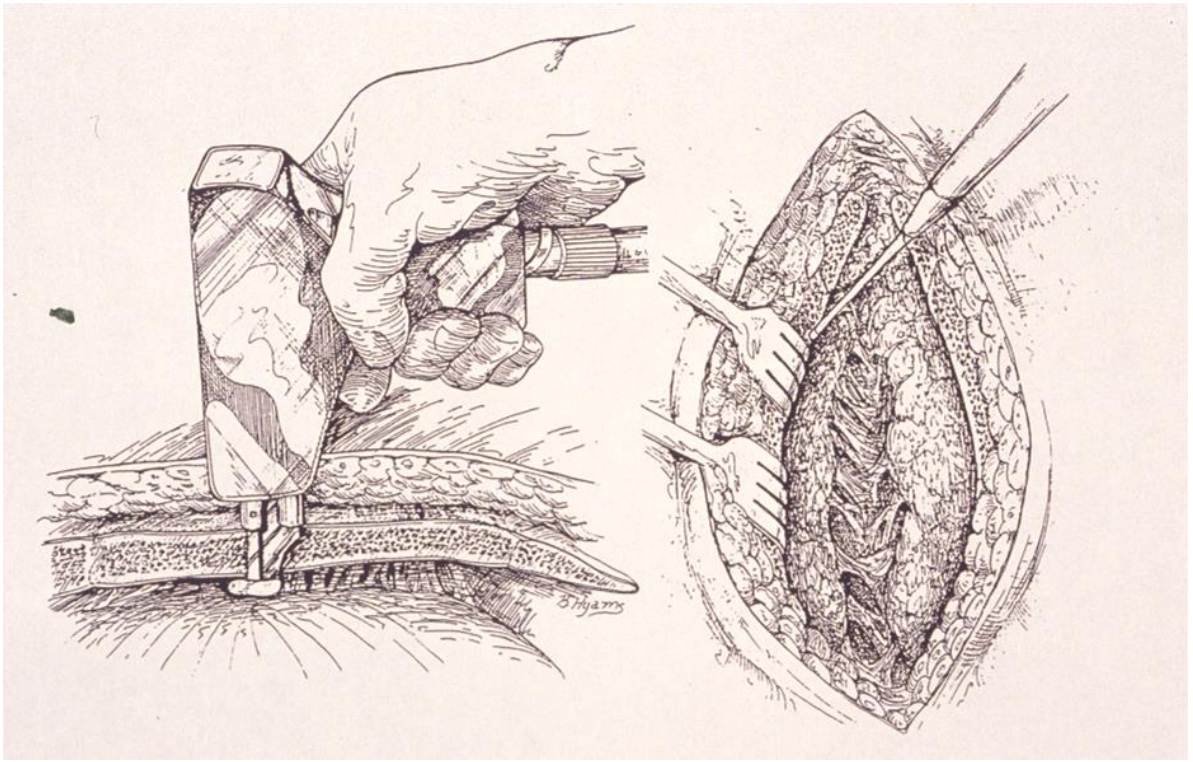
- sternotomy
- thoracotomy
- clam shell incision
- thoracoscopy (VATS)
- robotic surgery (RATS)

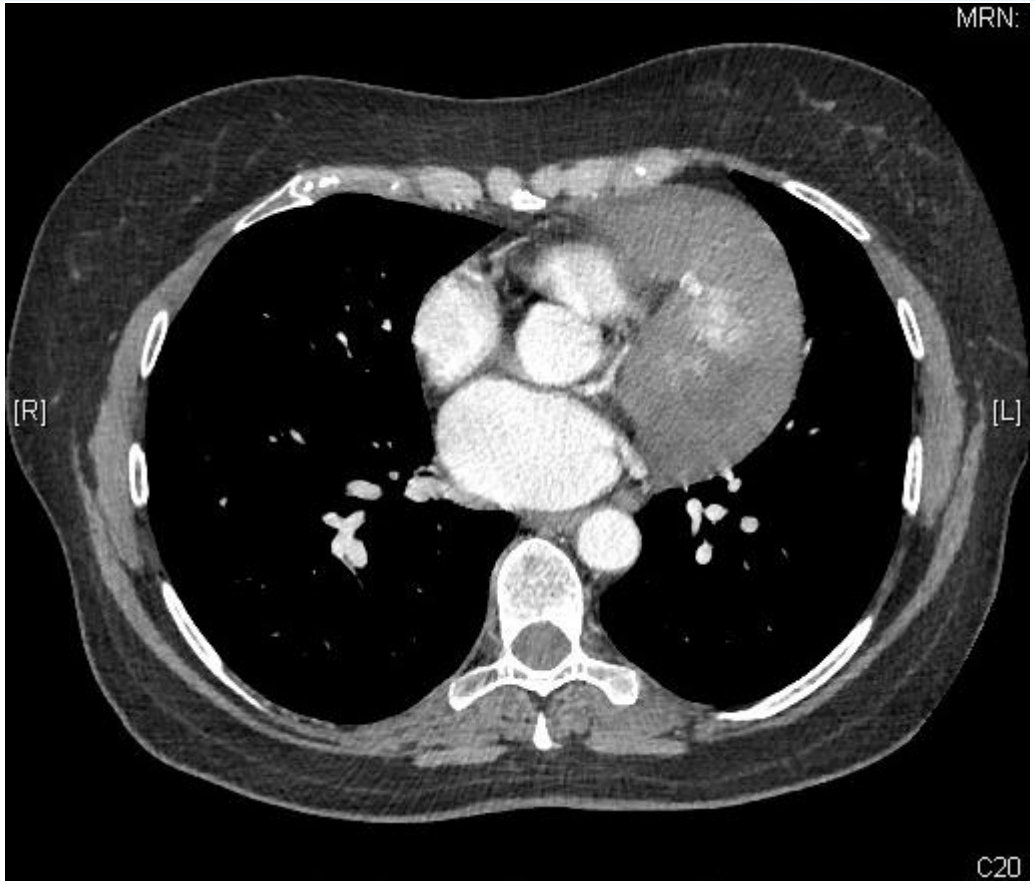
Surgical approaches to mediastinum

Median sternotomy

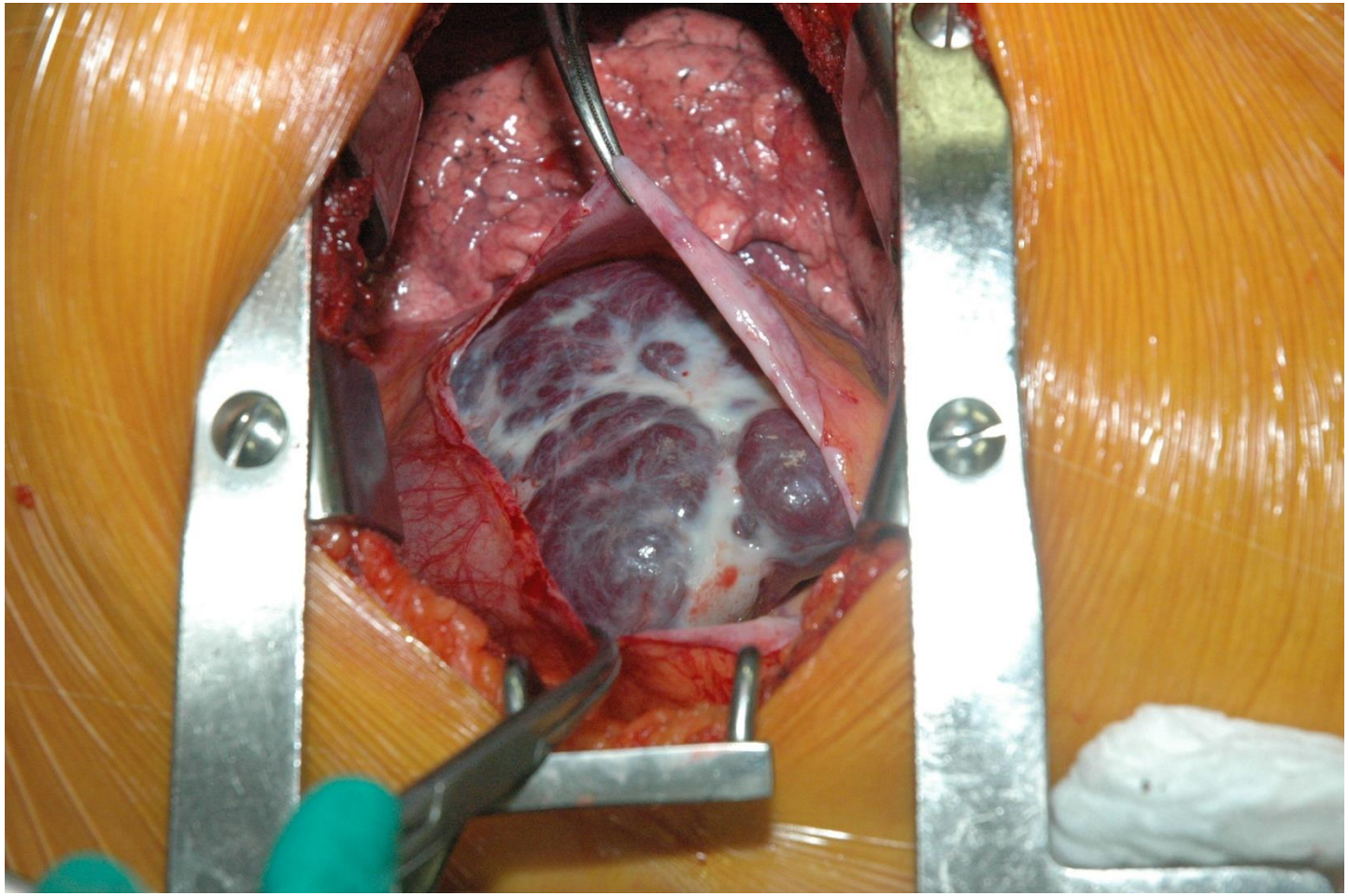
indication	cardiac surgery, pulmonary resection
	bilateral
	prevascular mediastinal tumors
anaesthesia	double lumen endotracheal tube
	thoracic epidural catheter





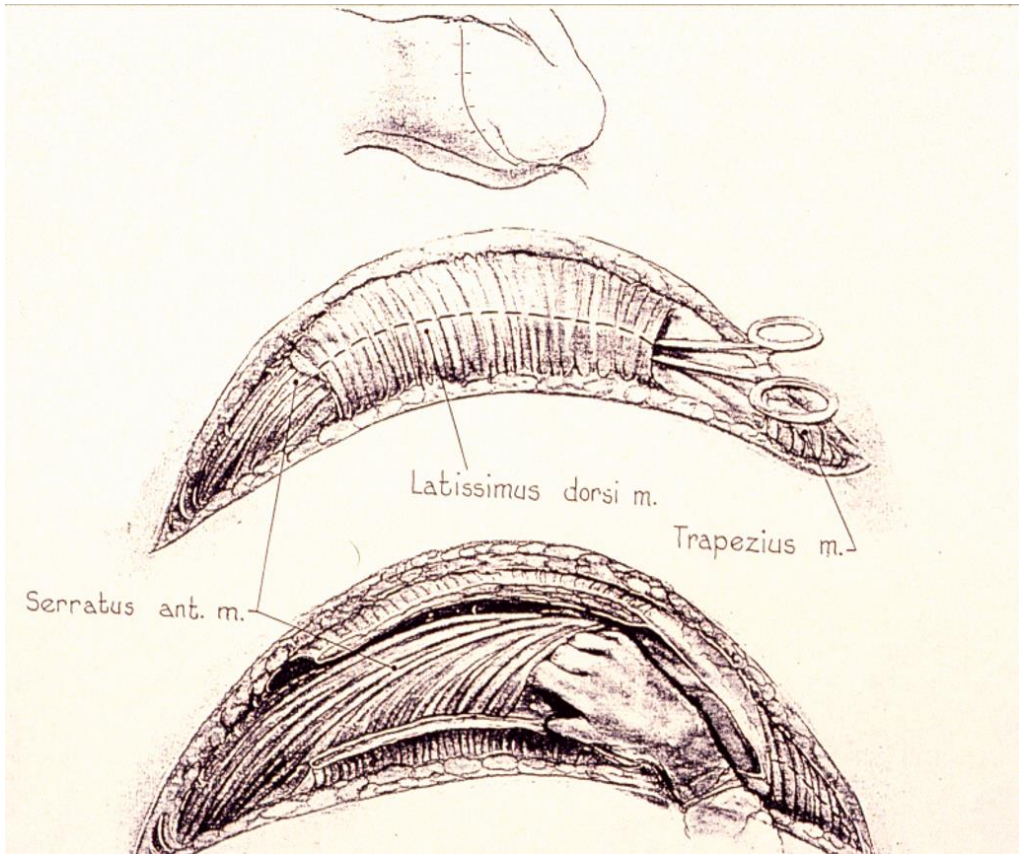


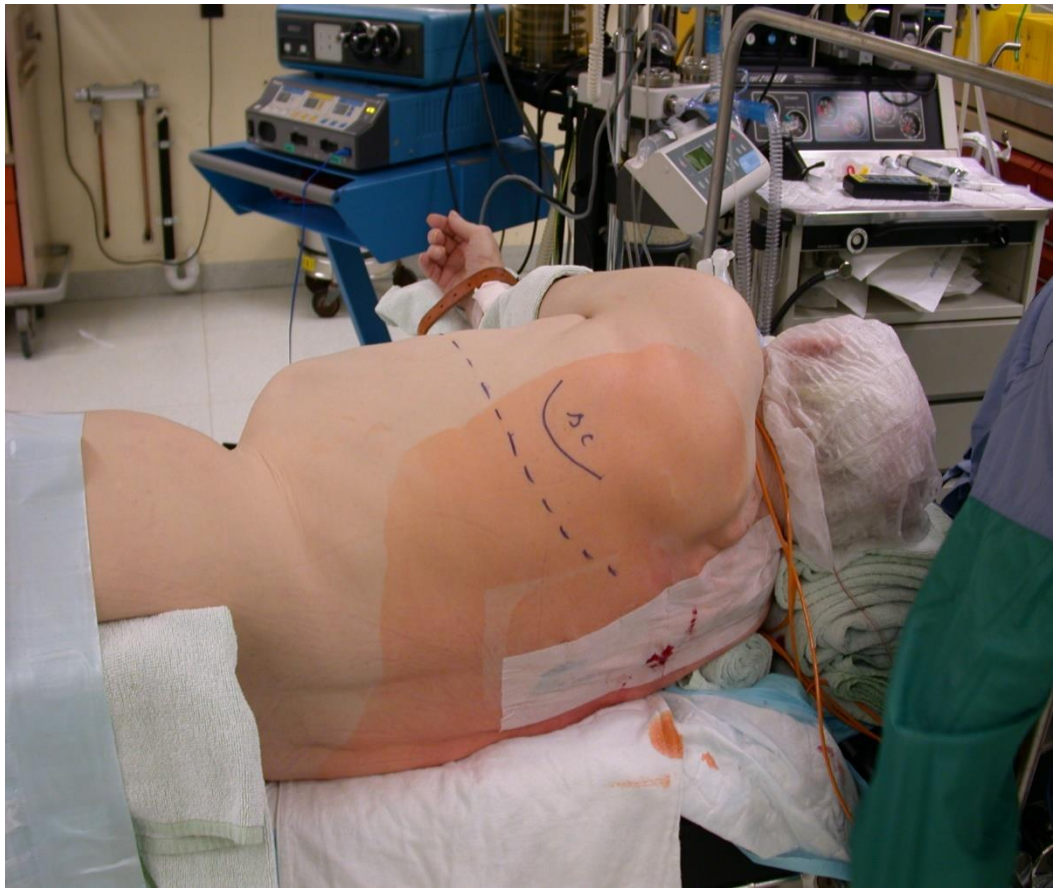
54-year-old ♀ cardiomyopathy
chest CT tumour 11cm
prevascular + visceral mediastinum



pathology: cavernous haemangioma

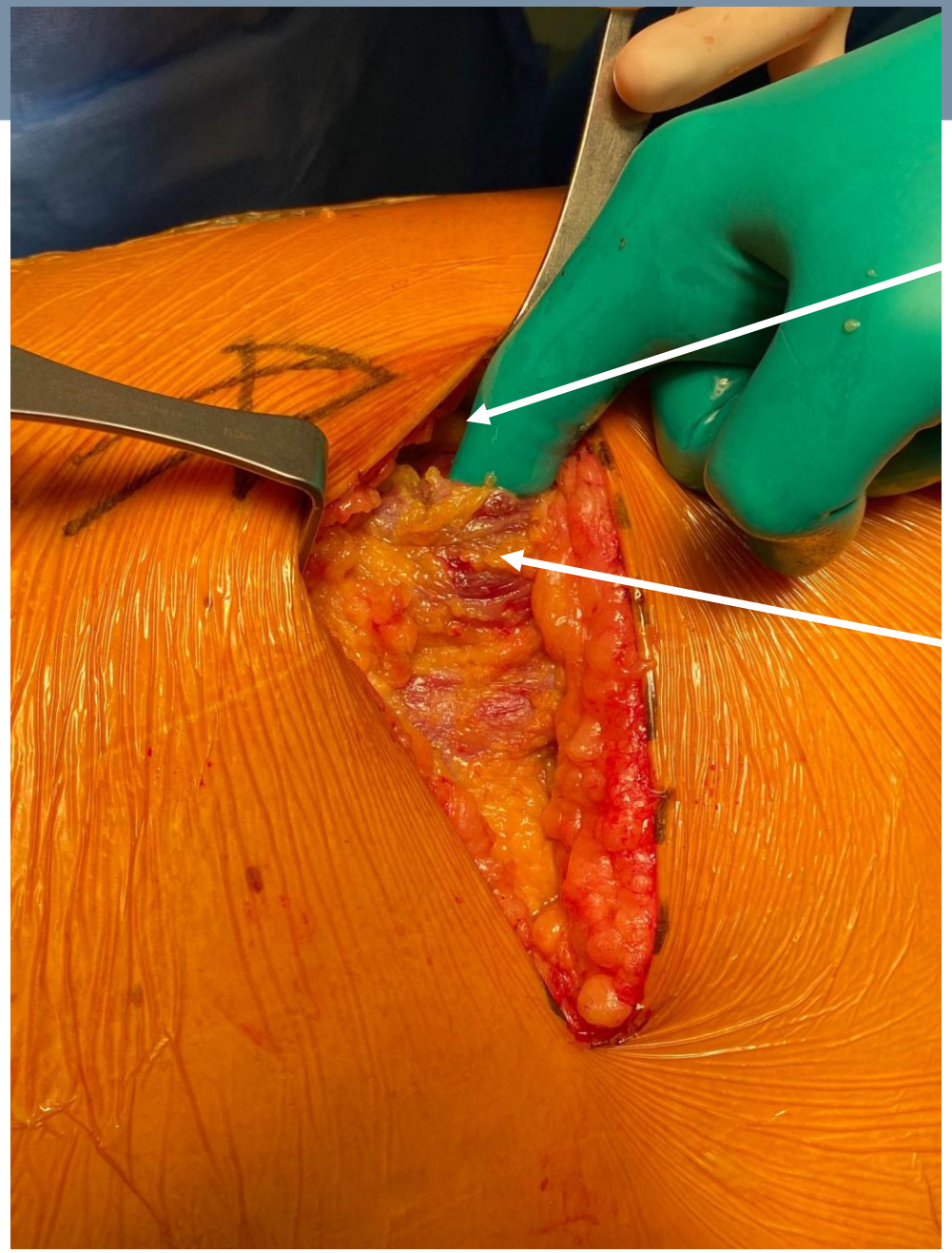
posterolateral thoracotomy





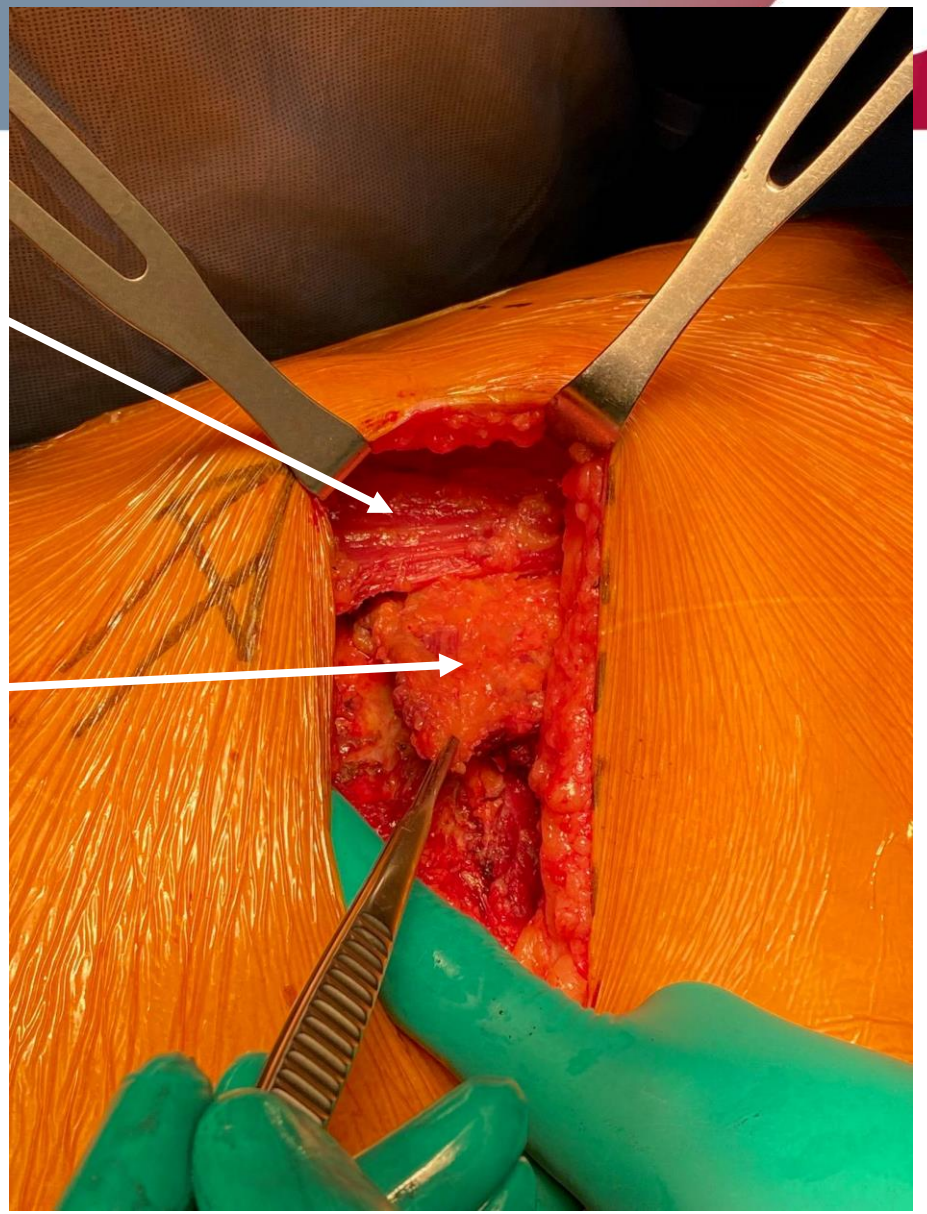
anterolateral thoracotomy

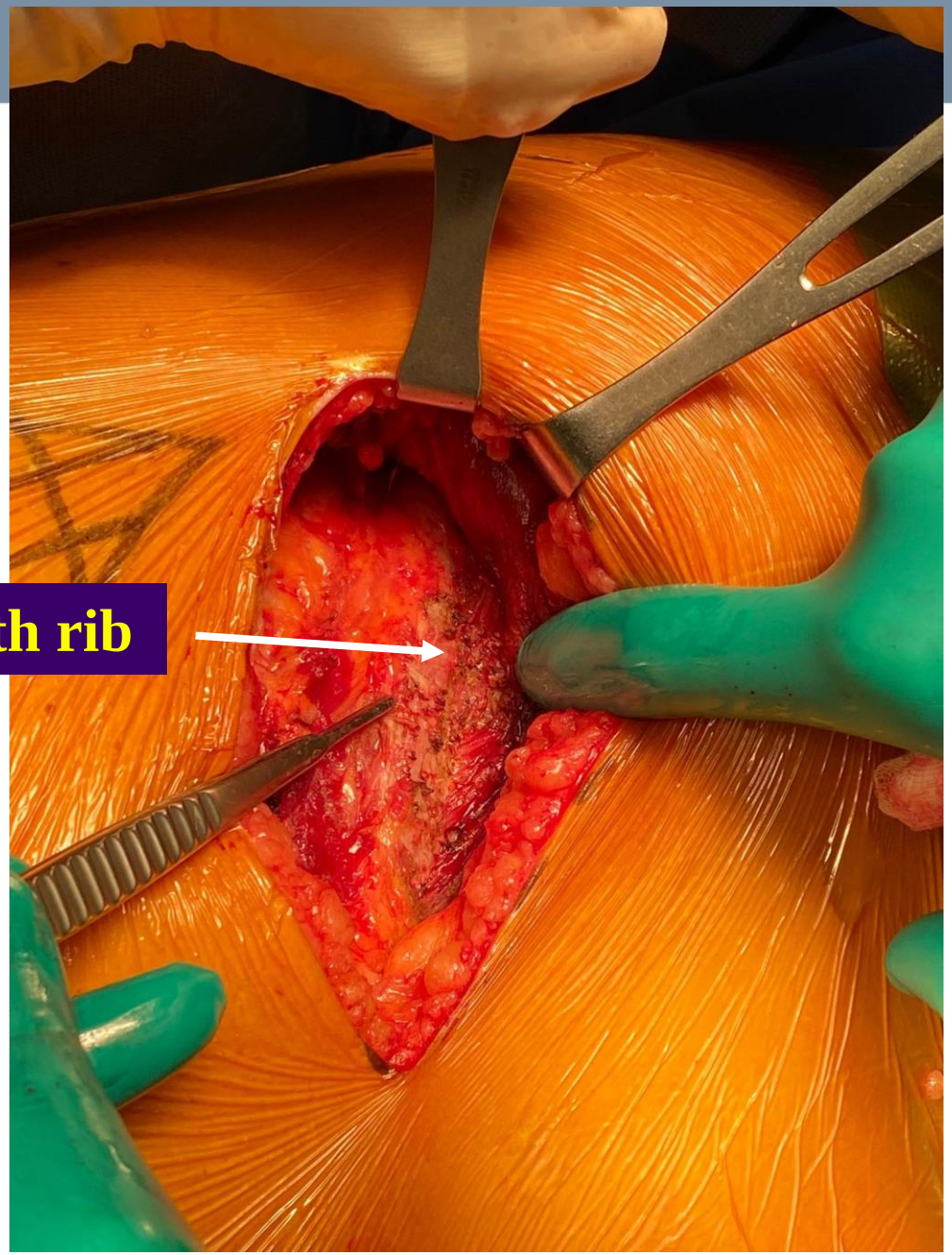
anterolateral thoracotomy

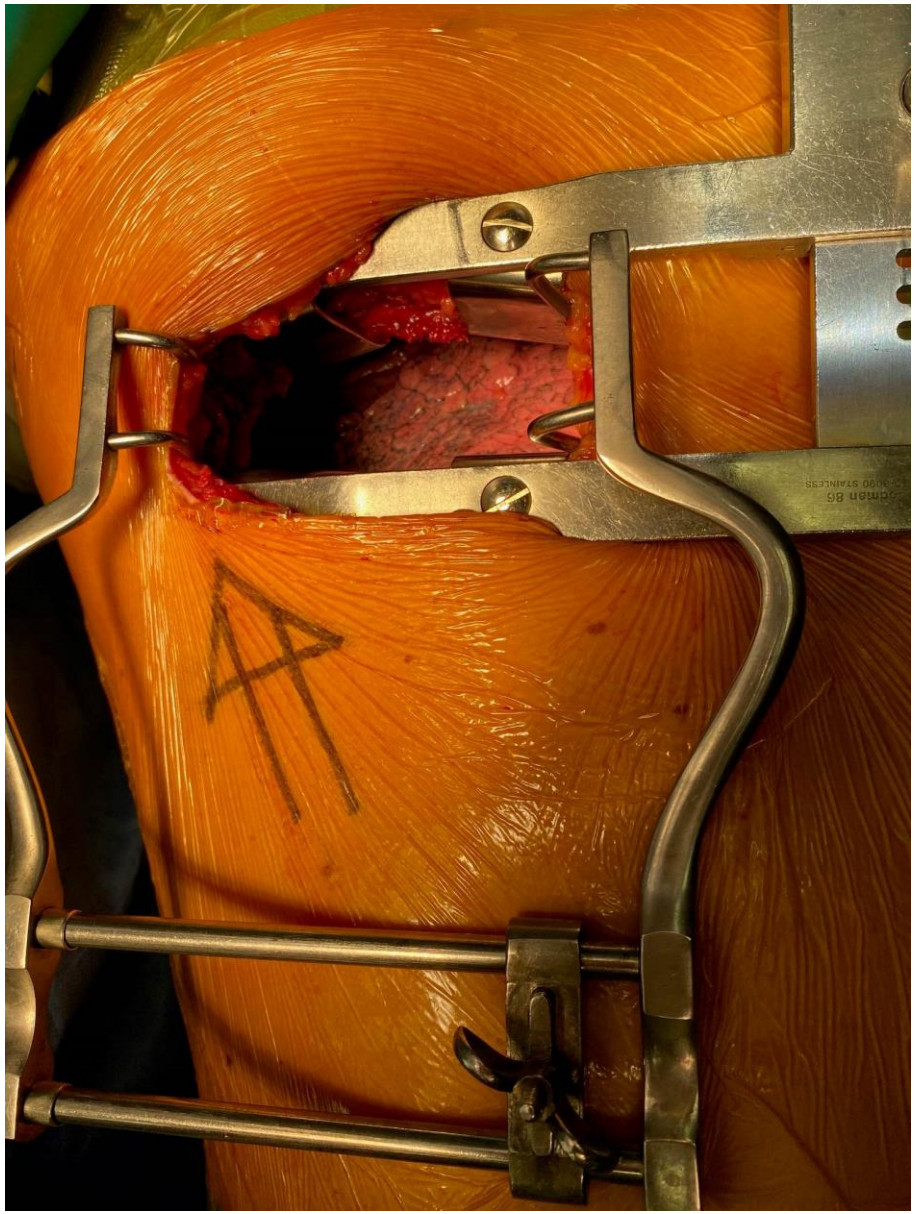


m. latissimus dorsi

m. serratus anterior

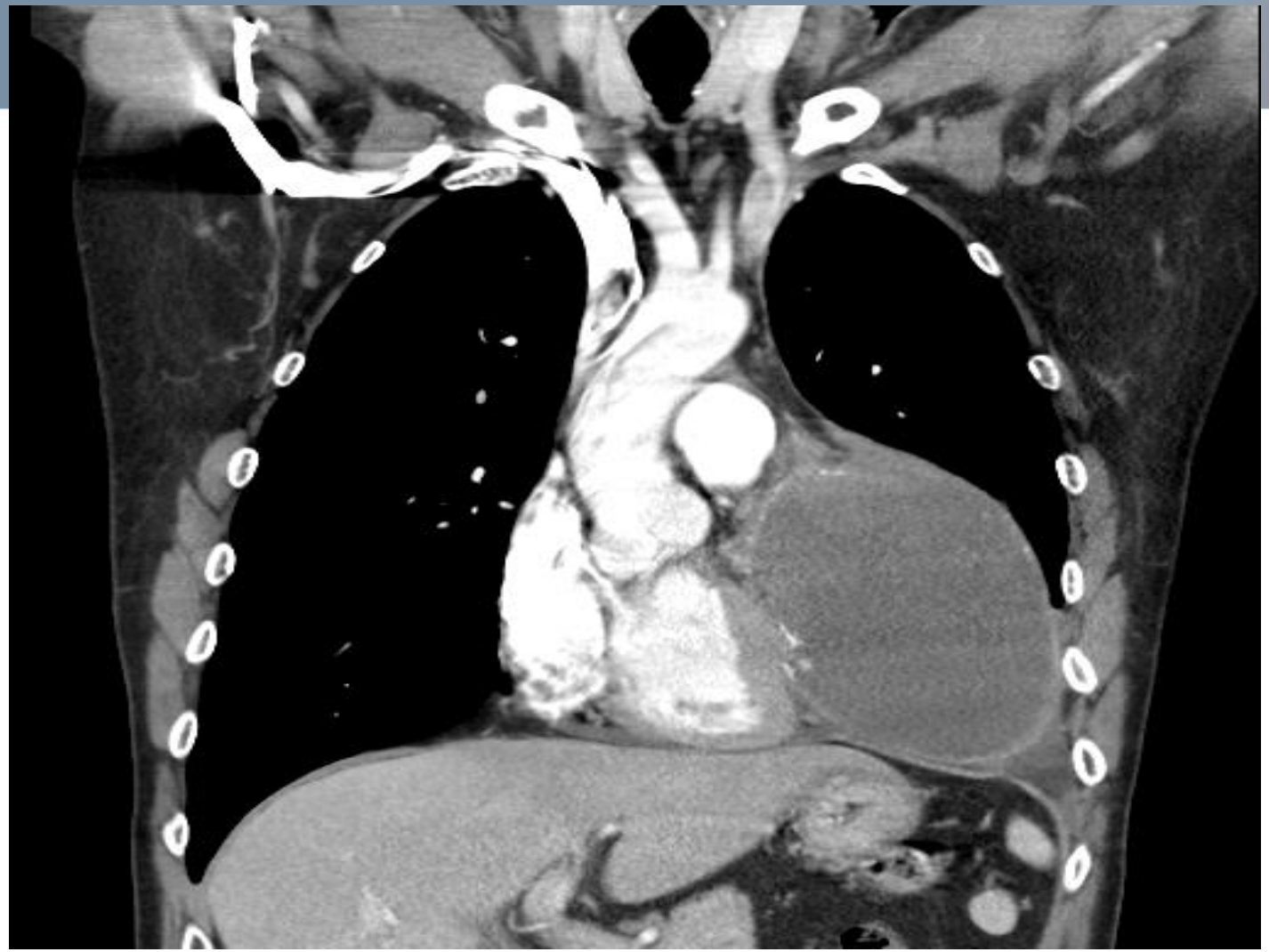



5th rib



anterolateral thoracotomy

54-year-old ♂ chest pain, cough
chest CT : large tumor mediastinum – L hemithorax



54-year-old ♂ chest pain, cough
chest CT : large tumor mediastinum – L hemithorax

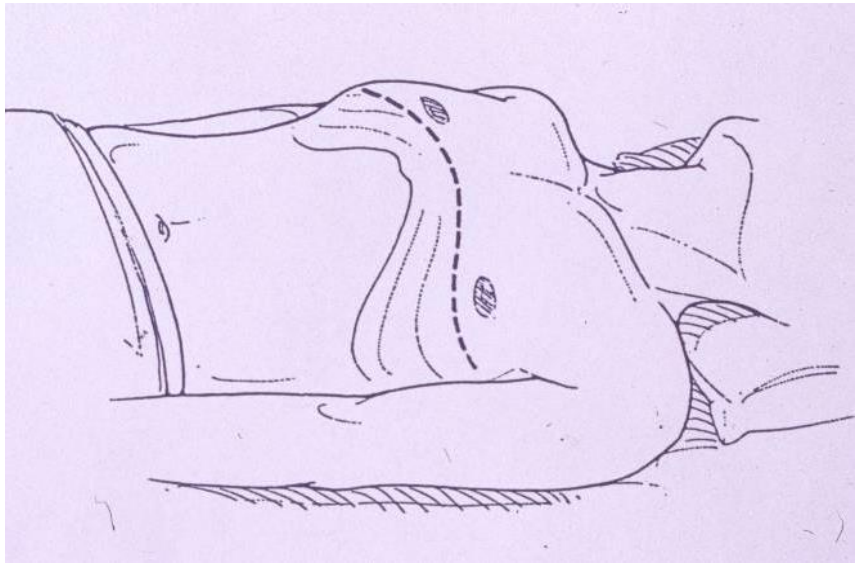
L thoracotomy
pathology: encapsulated thymoma B1

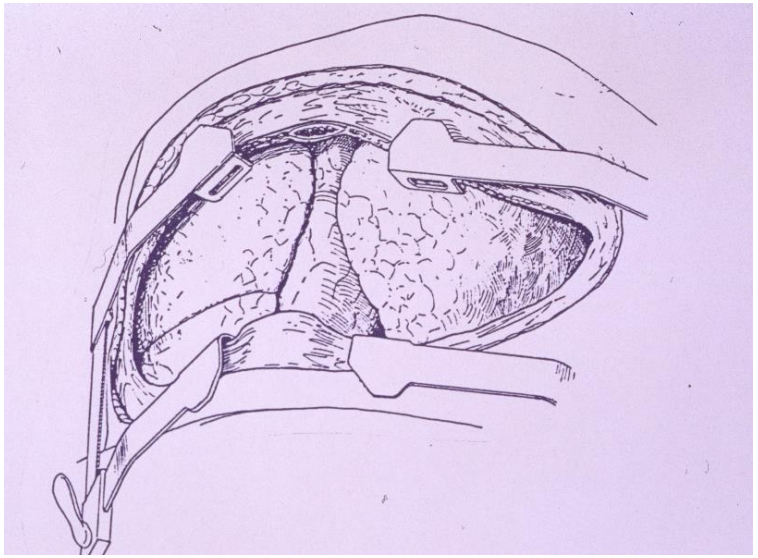
Surgical approaches to mediastinum

clam shell incision

bilateral anterior thoracotomy

approach to prevascular mediastinum
+ both pleural cavities





Prevascular tumor

61-year-old ♀

diffuse muscular complaints

incidentally found large prevascular tumor

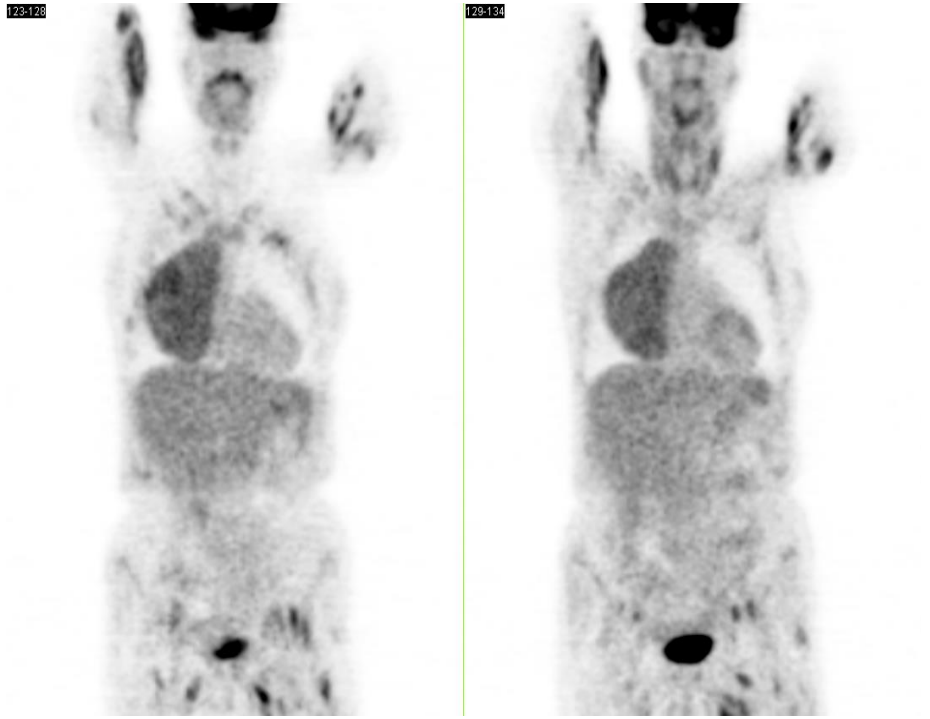
cardiac ultrasound: no invasion, hypertrophic left ventricle, good systolic function

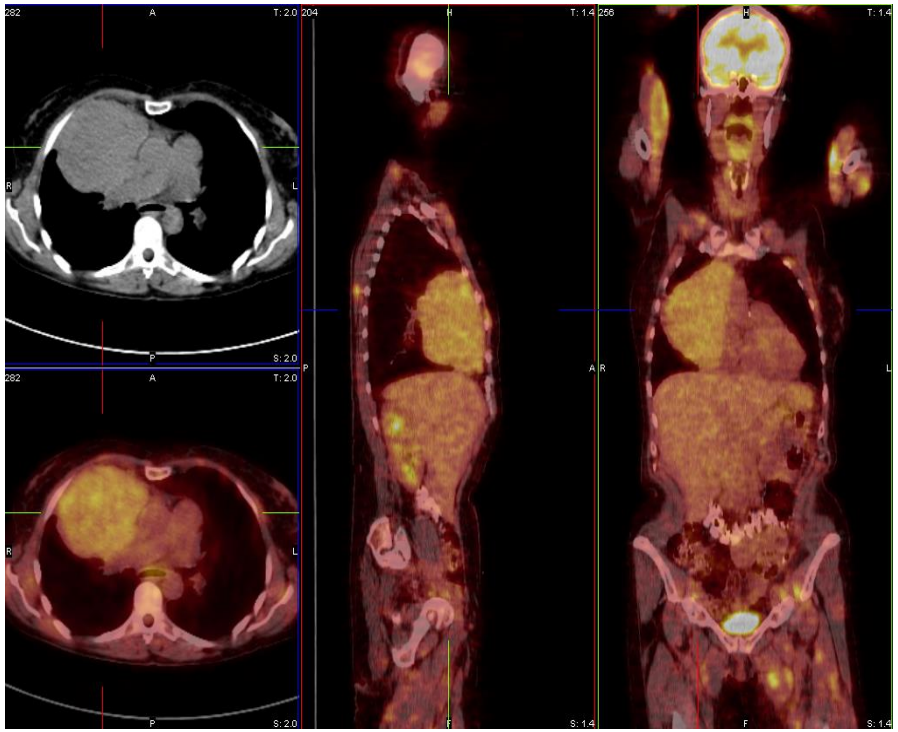
EMG: strongly suggestive of myasthenia

PET scan: slight uptake ant. mediastinal tumor

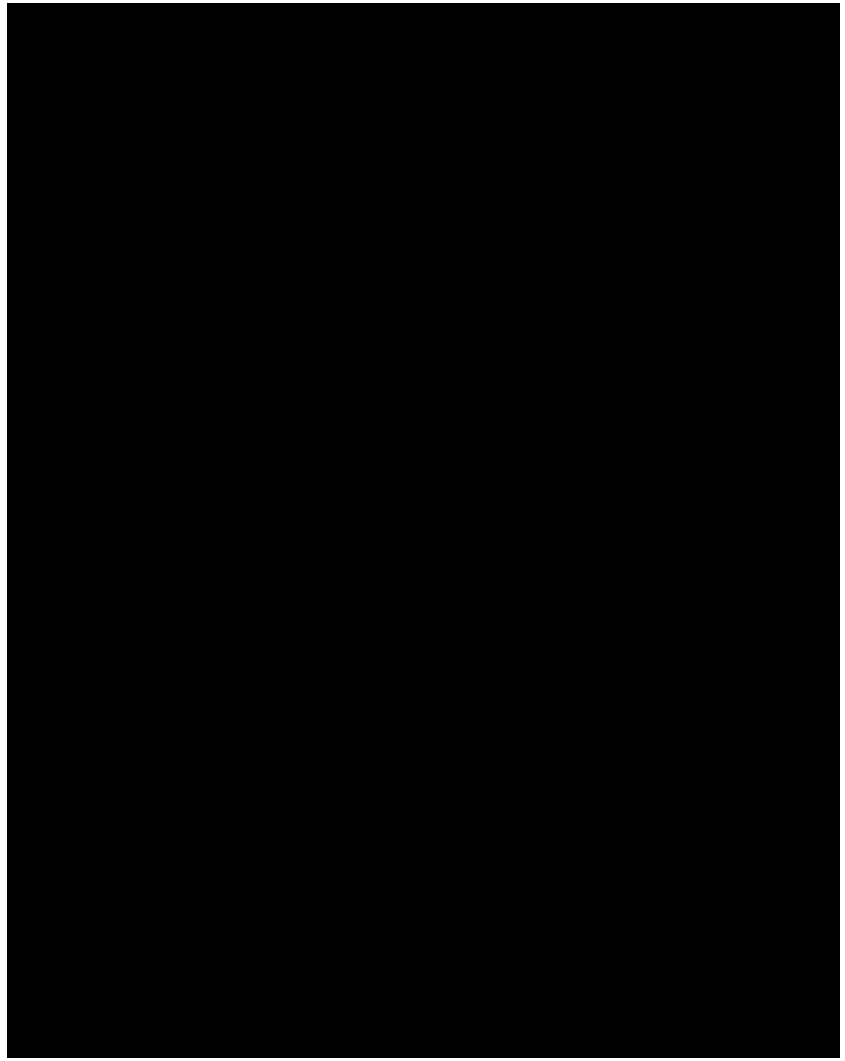
diffuse tracer uptake skeletal muscles: paraneoplastic?

Paraneoplastic symptoms





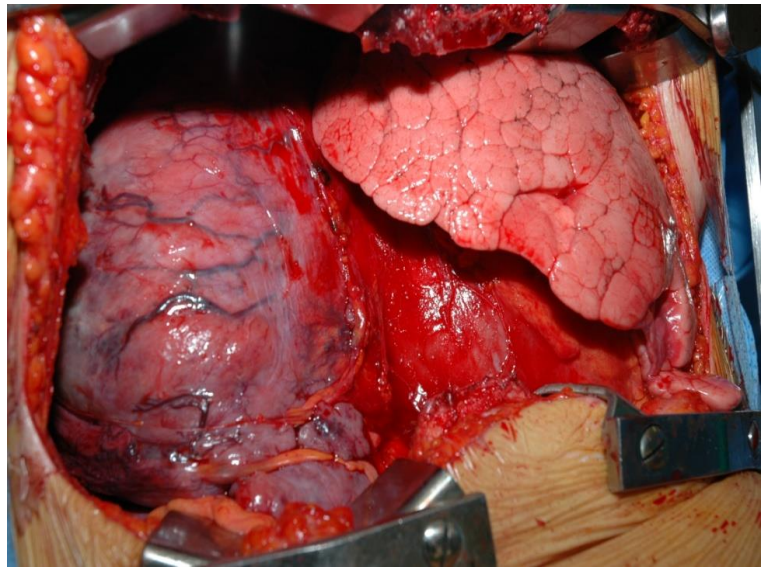
Paraneoplastic symptoms

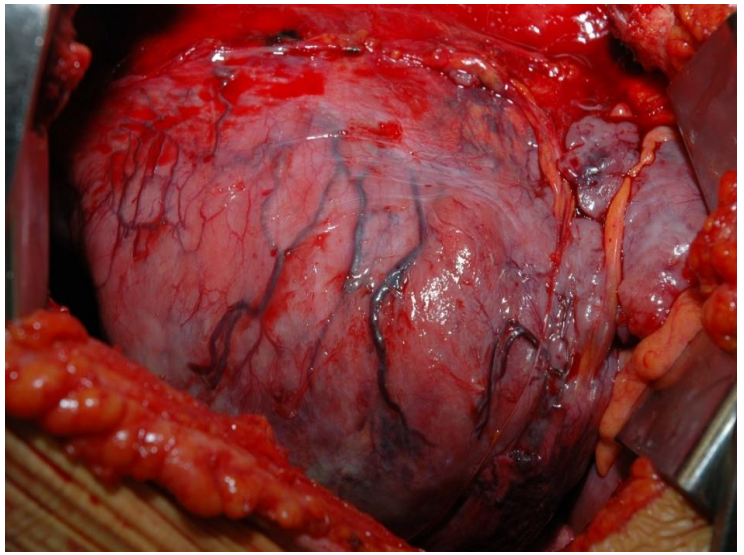


Prevascular tumor

61-year-old ♀

- transthoracic puncture: suggestive of cortical thymoma
- thymectomy by clam shell incision
- intrapericardial dissection; wedge excision R lung

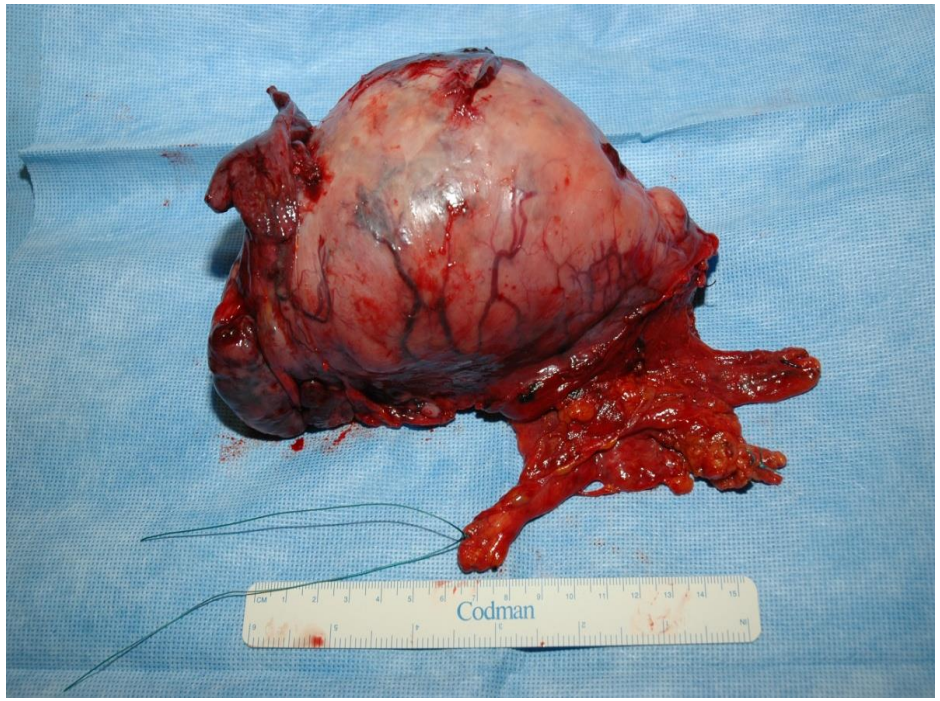




Prevascular tumor

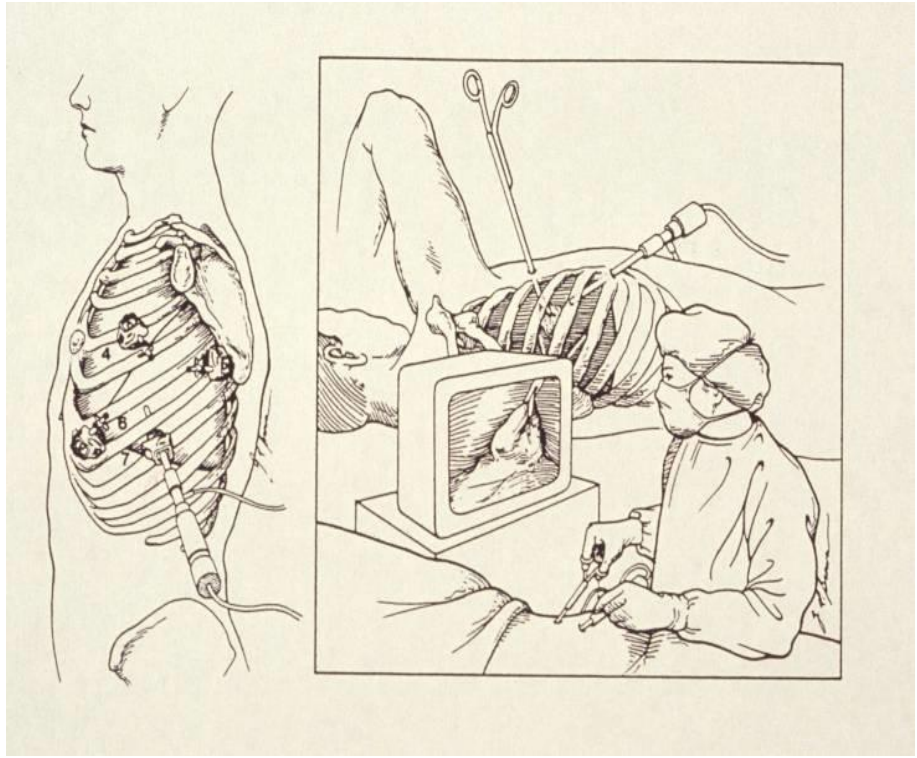
61-year-old ♀

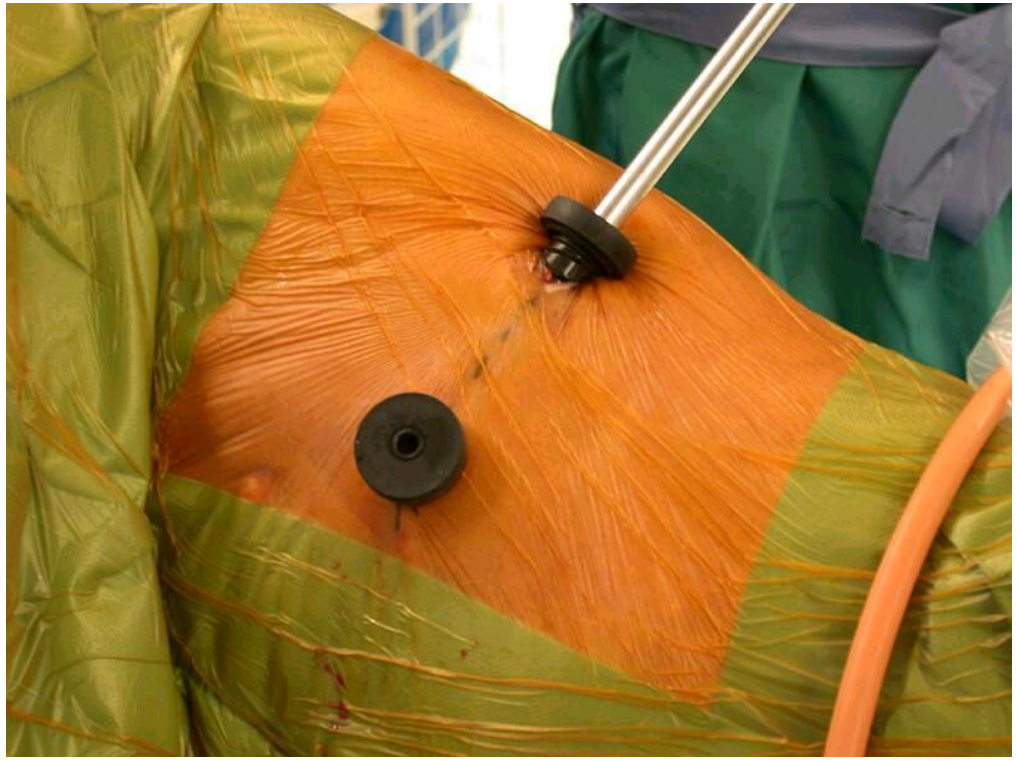
- pathology: cortical thymoma WHO B2; capsular invasion
- uneventful postoperative recovery
- PORT



Surgical approaches to mediastinum

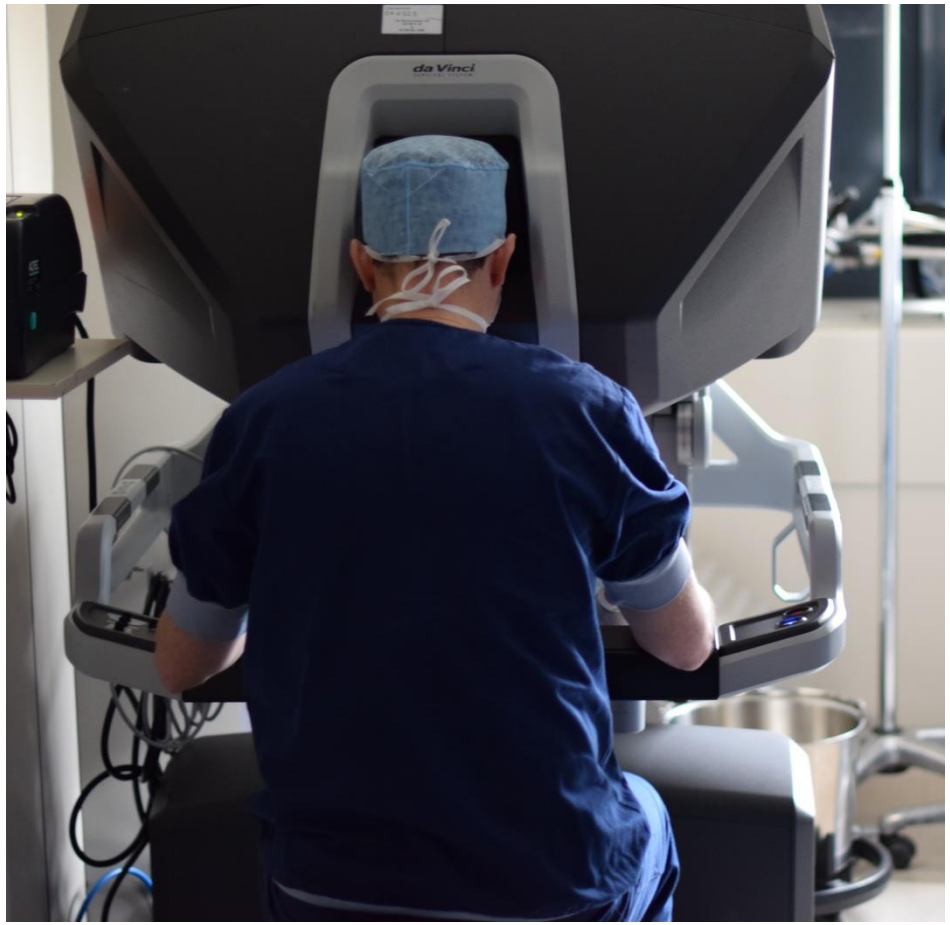
VATS (thoracoscopy)



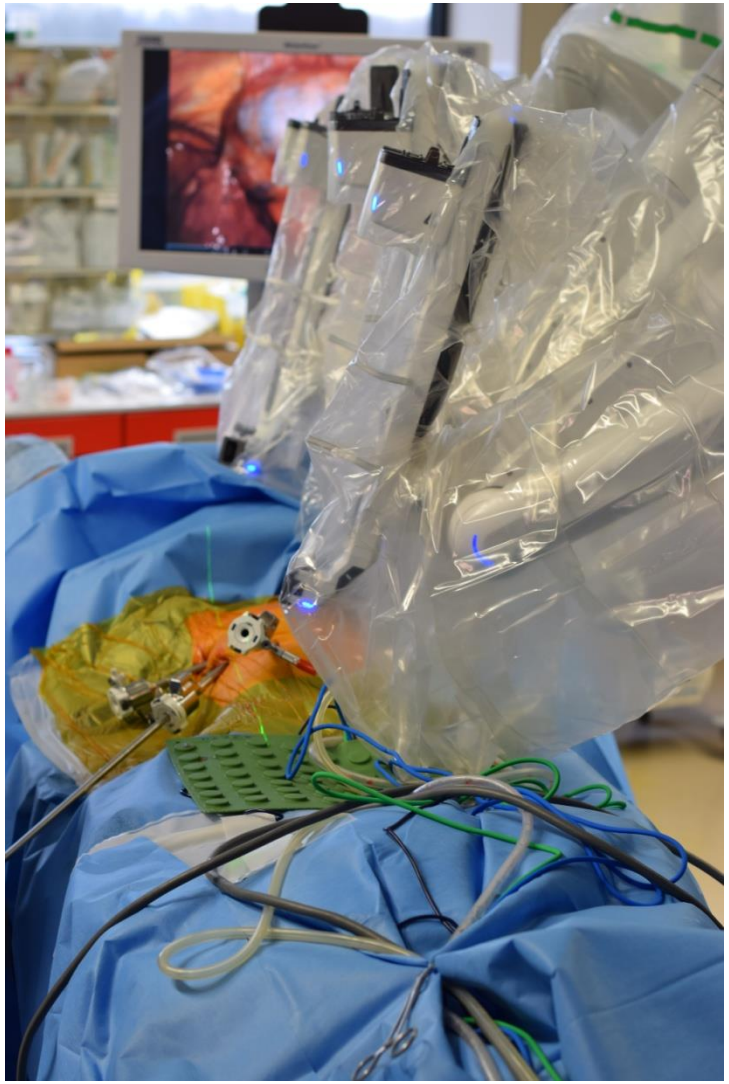


Surgical approaches to mediastinum

RATS (da Vinci robotic system)


da Vinci

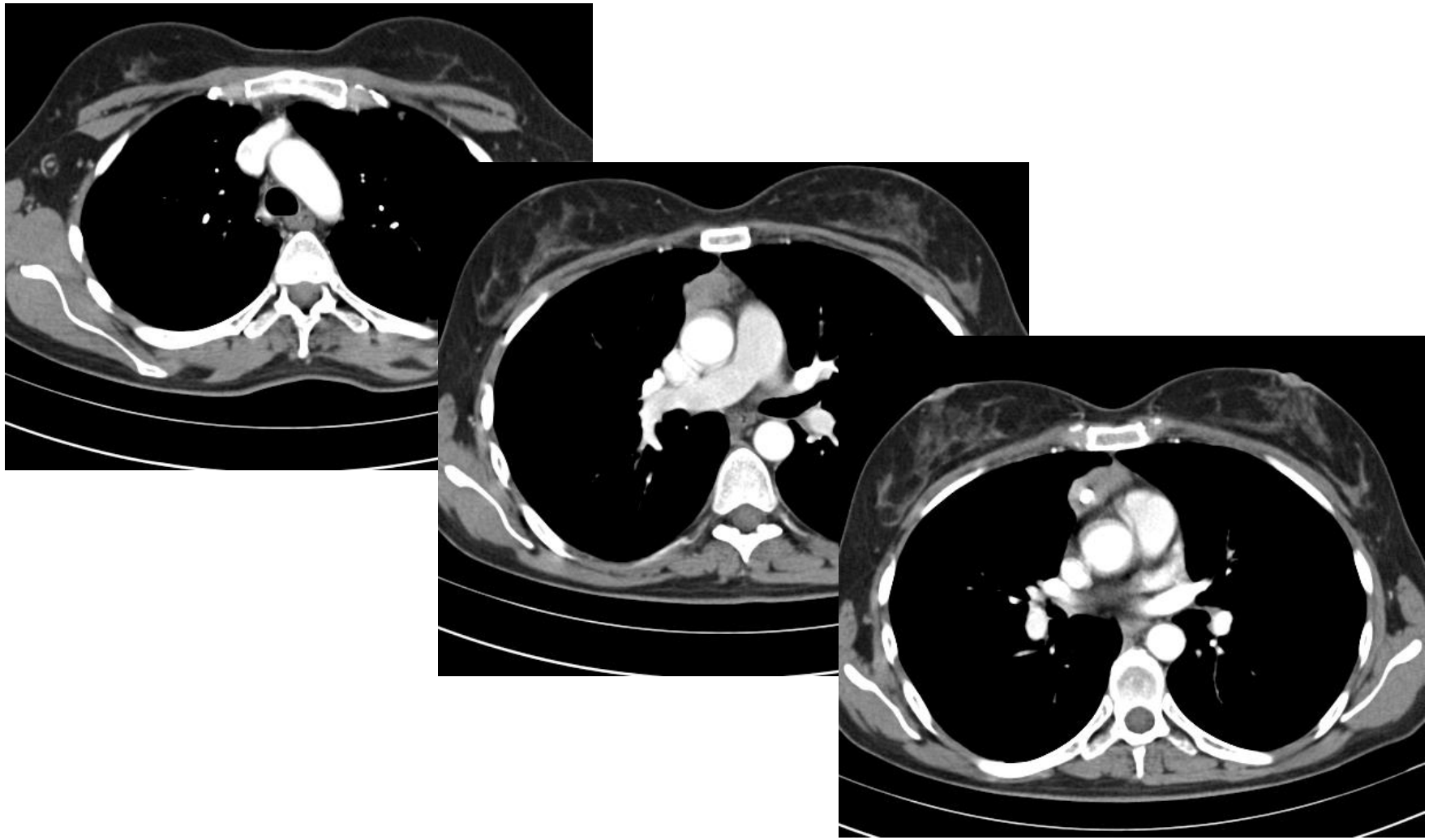

1
2
09:11



Robotic surgery

- 48-year-old ♀
- myasthenia gravis
- further examinations:
  - antibodies ACH receptor ↑ (12.0 nmol/L)
  - single-fibre EMG: confirmation myasthenia gravis
  - chest CT scan: prevascular mediastinal tumor

Robotic surgery



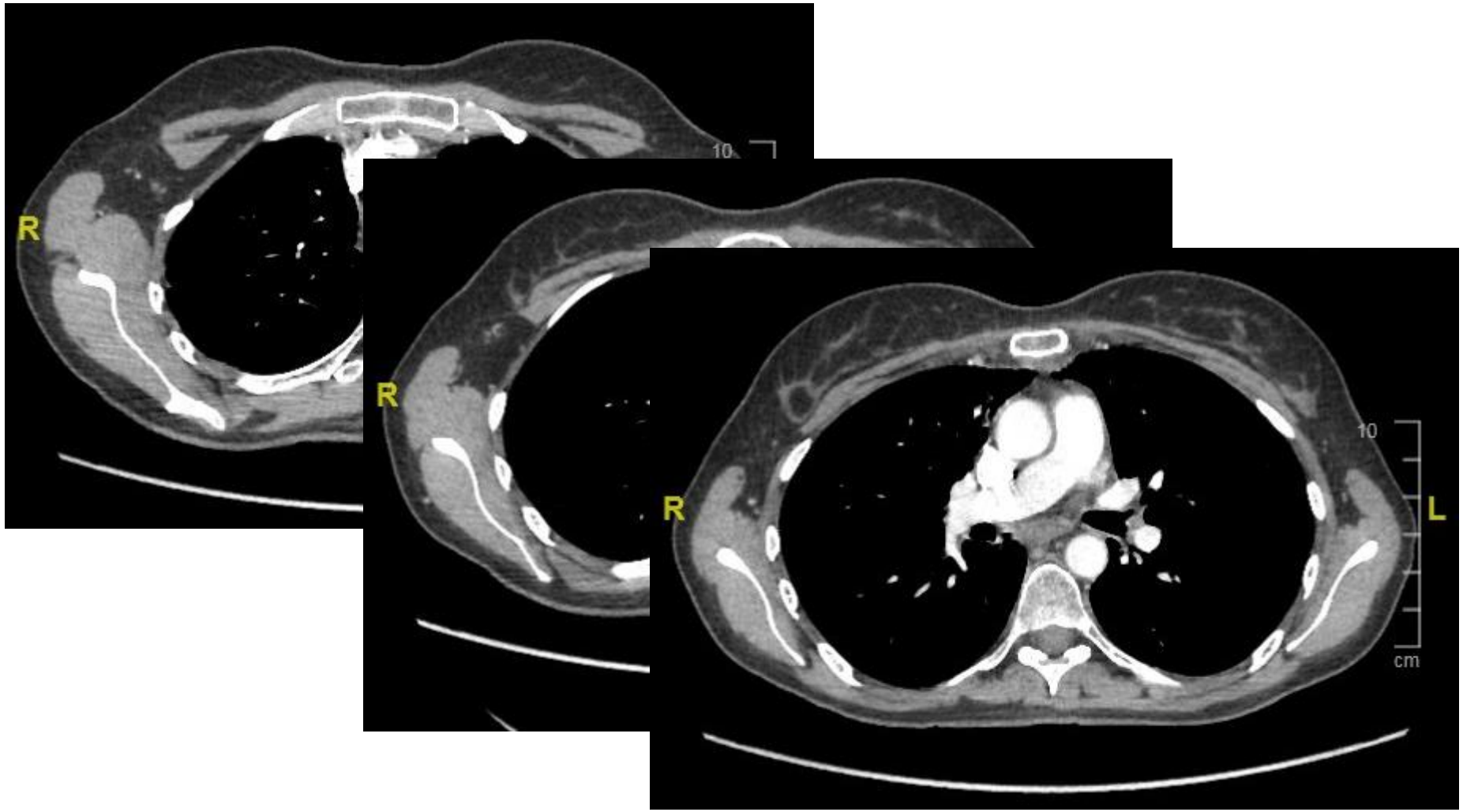
Robotic surgery

Robotic surgery

- pathology: thymoma B2 ø 7 cm; capsular invasion, clear margins
- postoperative course uneventful
- PORT 66 Gy

- follow-up chest CT: postoperative status, postirradiation fibrosis

Robotic surgery



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- surgery: from maximally invasive to minimally invasive
- **conclusions**

Surgical approaches to mediastinum - conclusions

Final aim is complete resection!

- mediastinal compartments – TNM classifcation
- incisions:

sternotomy	prevascular mediastinum
thoracotomy	visceral - paravertebral mediastinum
VATS, RATS	minimally invasive approaches
	thymectomy MG
	selected thymomas

adapt to patient and his specific lesion!