



# Zeldzame Thoracale Tumoren

*tumor voorste mediastinum*

Monique Hochstenbag

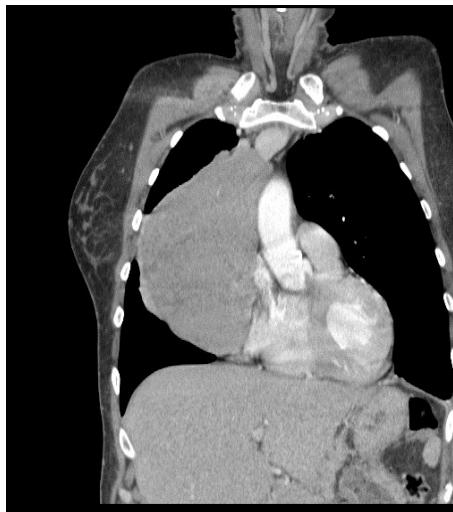
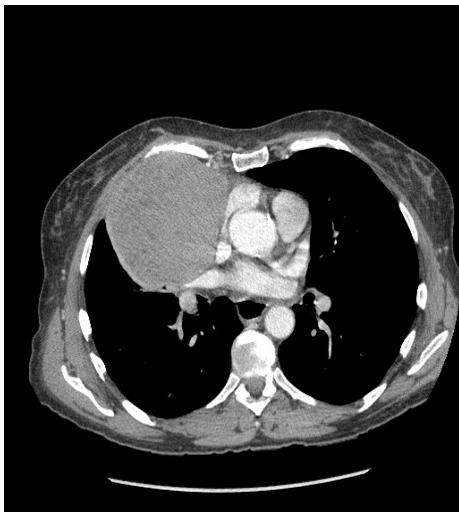
OncoZon Januari 2018

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- No Disclosures

# Proces voorste mediastinum

***Man 41-jaar***

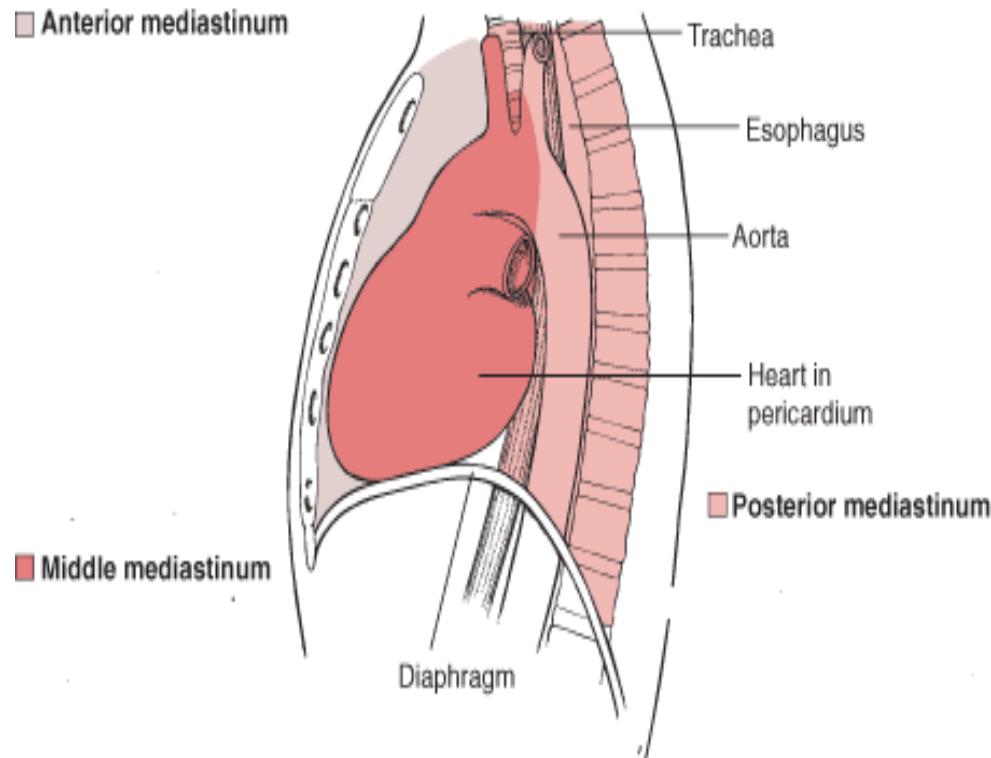
- Drukkend gevoel op de borst, moeheid, verminderde inspanningstolerantie



# Mediastinum

## Voorste mediastinum

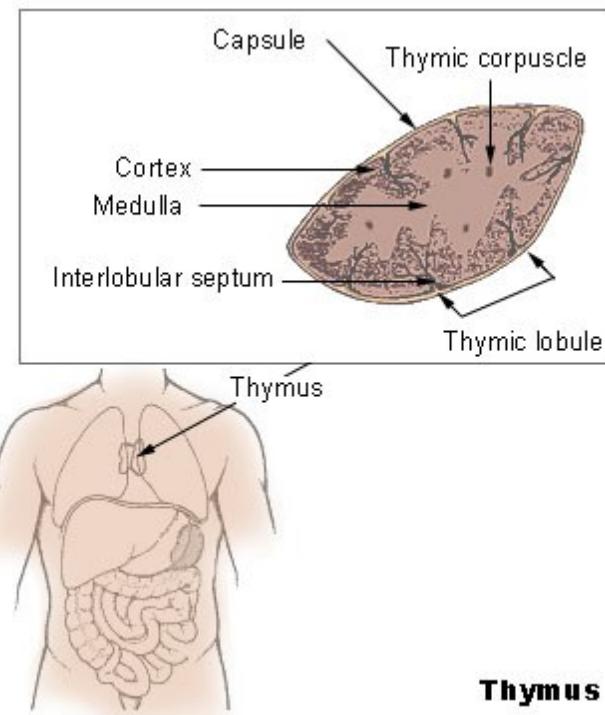
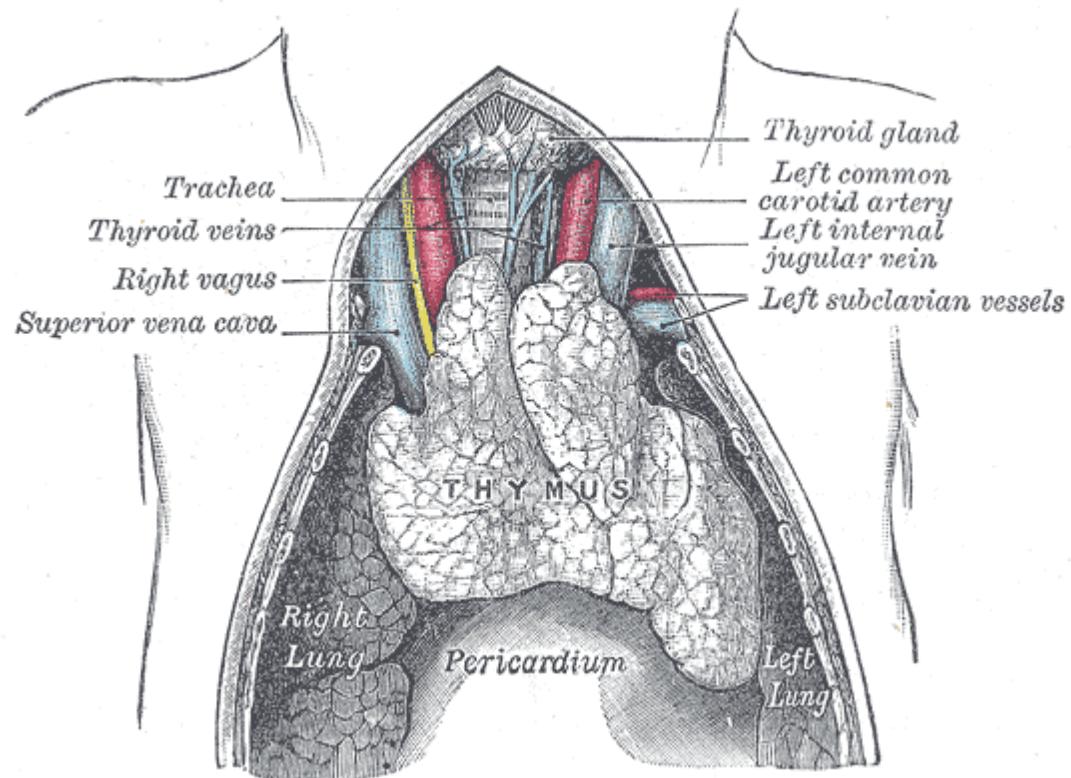
- Thymus
- Lymfklieren



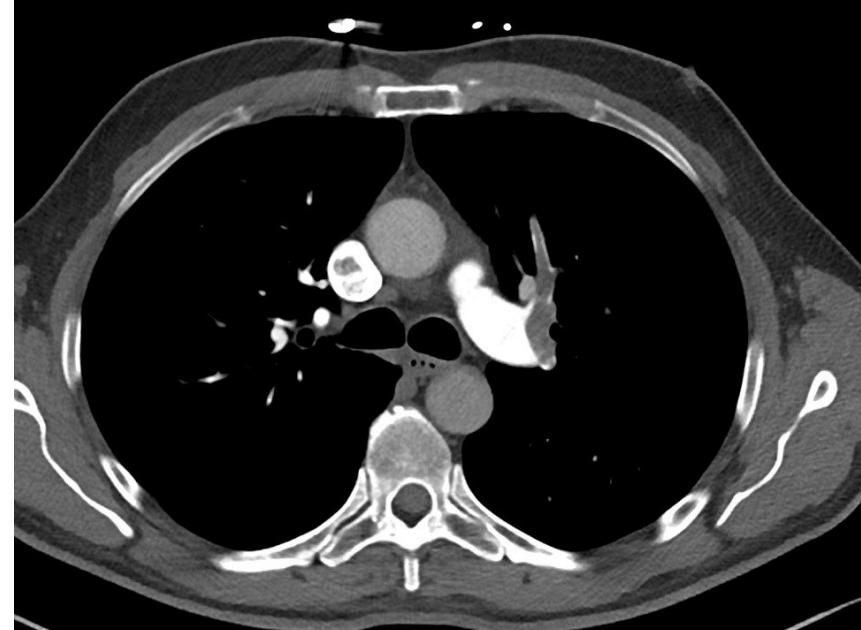
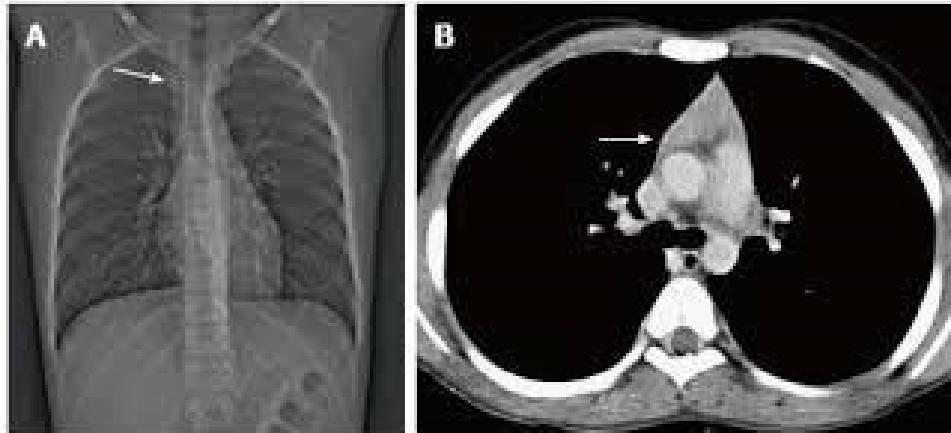


kalfszwezerik

# Thymus



# Thymus zichtbaar op CT-thorax

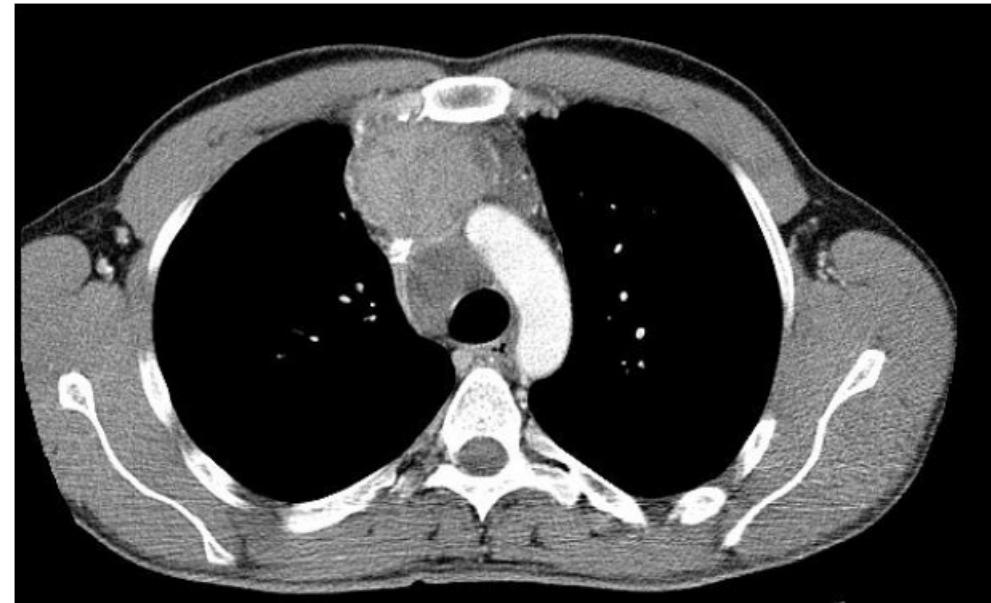


# Thymus zichtbaar op CT-thorax

Leeftijd	Zichtbaar op CT scan
< 30 jaar	100 %
30 – 49 jaar	73 %
> 49 jaar	17 %

# Tumor voorste mediastinum de 4 T's

- Thymoma
- Teratoma
- Terrible Lymfoma
- Thyroid



# Thymoom

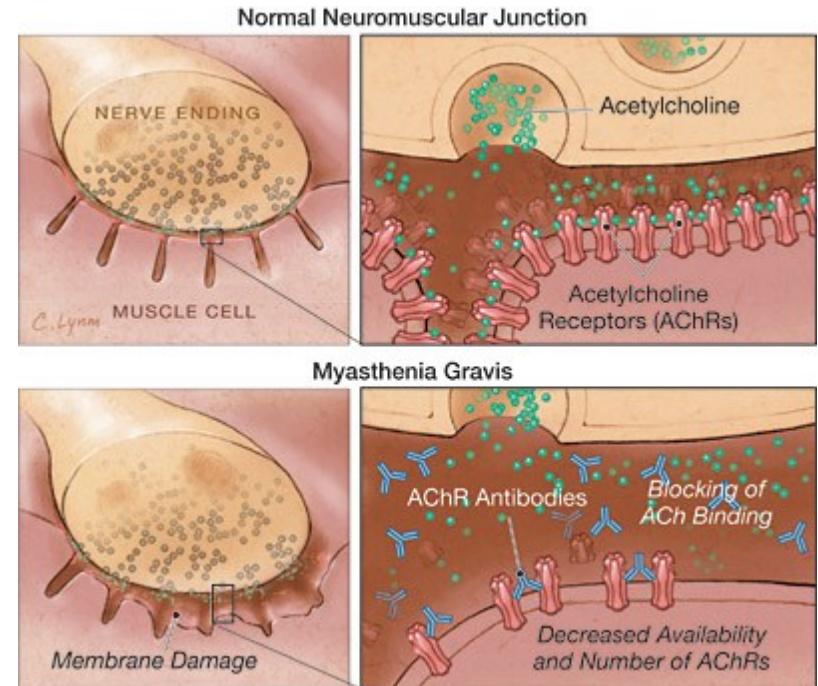
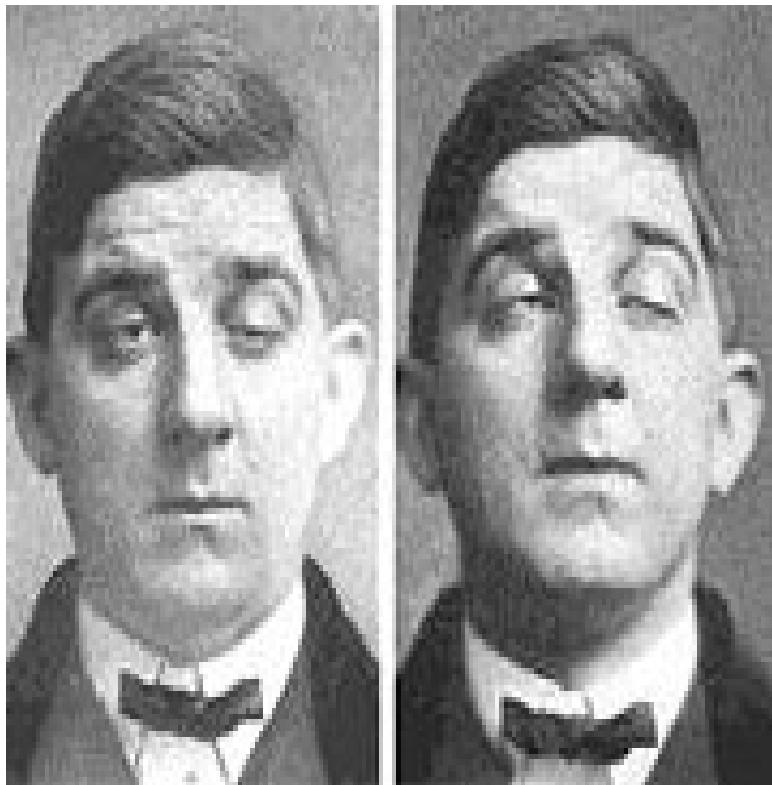
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- Meest voorkomende tumor in het voorste mediastinum
- geslacht (man=vrouw)
- leeftijd (40-60 jaar)
- Klachtenpatroon (50% asymptomatisch)
- paraneoplastische syndromen (30%-50%) MG
- 50 patienten per jaar in NED

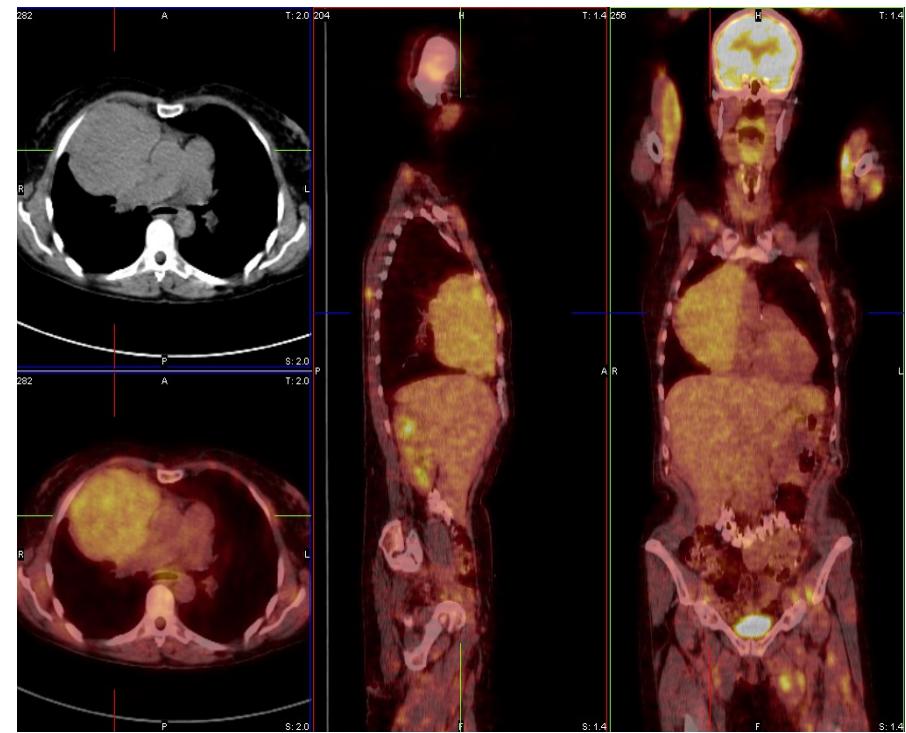
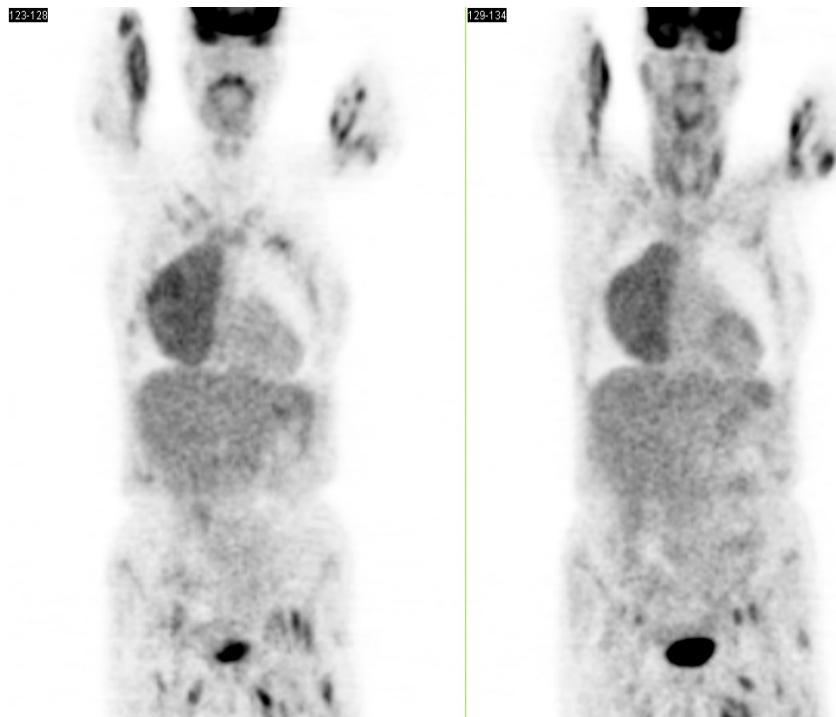
# Biochemische merkers

- α-foetoproteine en β-humaan chorion- gonadotropine ( $\beta$ -HCG):
  - Non-seminoom:
    - 80% verhoogd  $\beta$ -HCG
    - 80%-85% verhoogd α-foetoprotein
  - Seminoom:
    - 3-17 %  $\beta$ -HCG maar niet boven de 100 ng/ml,
    - nooit een verhoogd α-foetoprotein.
  - $\beta$ -HCG boven 500 ng/ml, start chemotherapie zonder weefsel biopsie.
  - Markers zijn negatief voor teratoom
- acetylcholine receptor antilichamen
  - thymoom.

# Myastenia Gravis



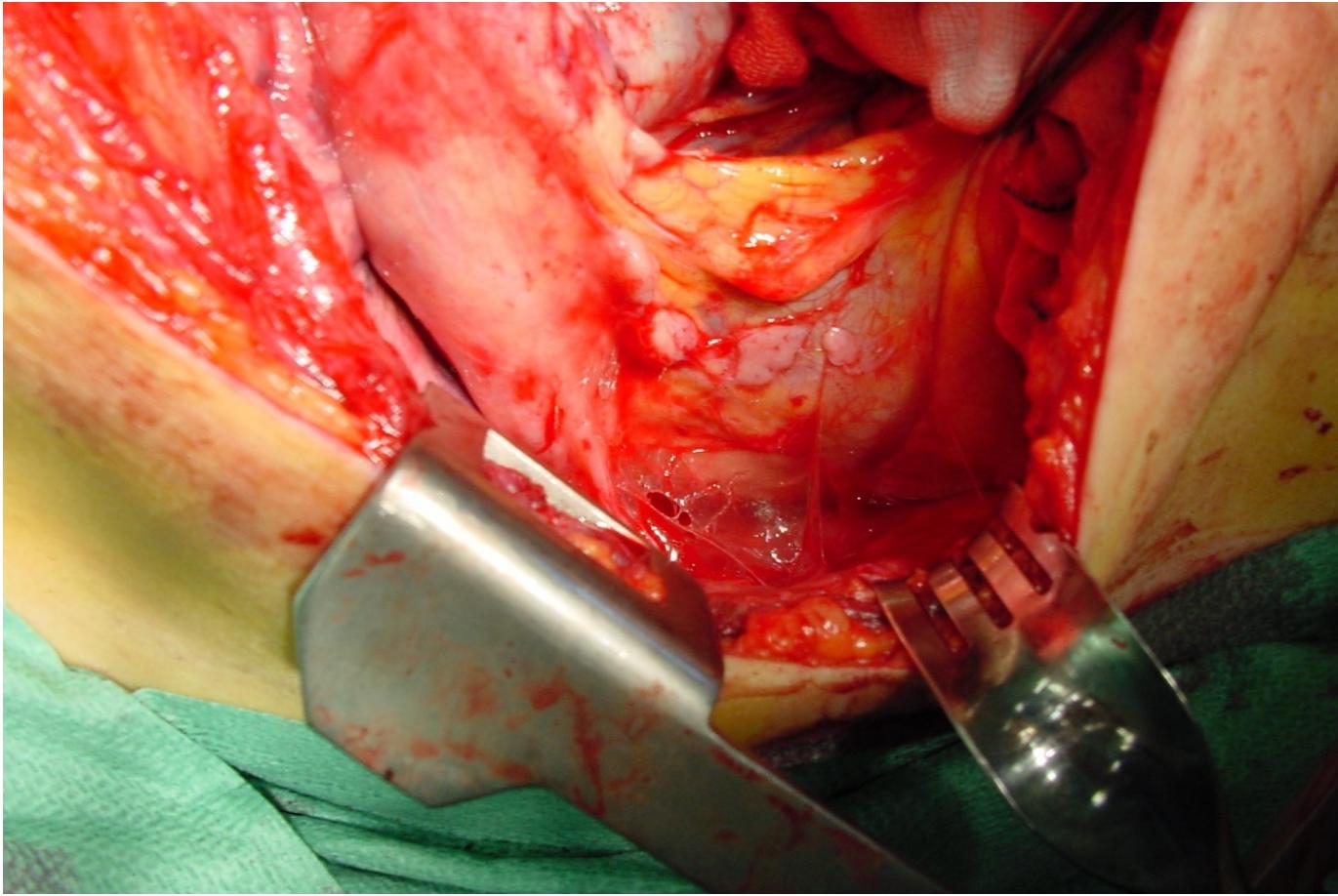
# PET-scan



# Invasieve diagnostiek

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- Biopsie alleen geïndiceerd bij primair irresectabele tumor
- Biopsie van een klinisch stadium I en II thymoom moet vermeden worden.
- Sporadische resectie klein lymfoom afwegen tegen “spill” bij thymoom-biopsie



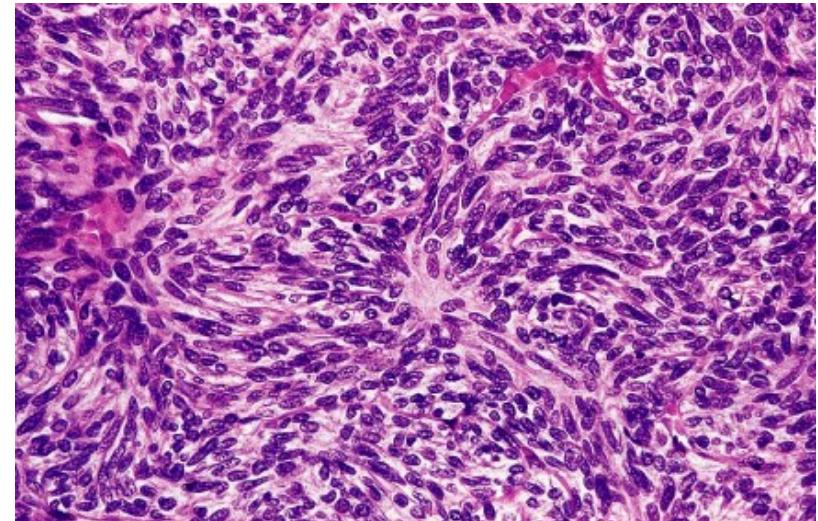
# Thymoom

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- Histologische classificatie
- Klinische classificatie

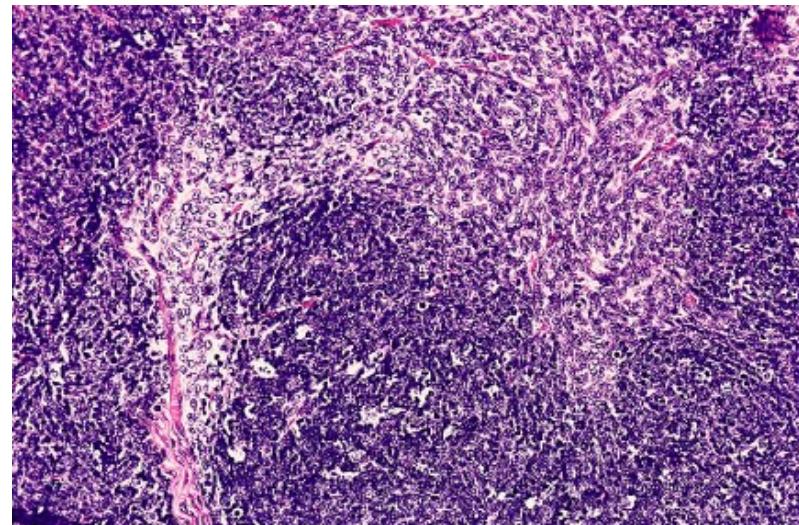
# Pathologische WHO classificatie

- Type A thymoma  
(spindle cell,  
medullary)
  - Epithelial cells  
spindle/ovoid shape
  - Few or no non-neoplastic  
lymphocytes



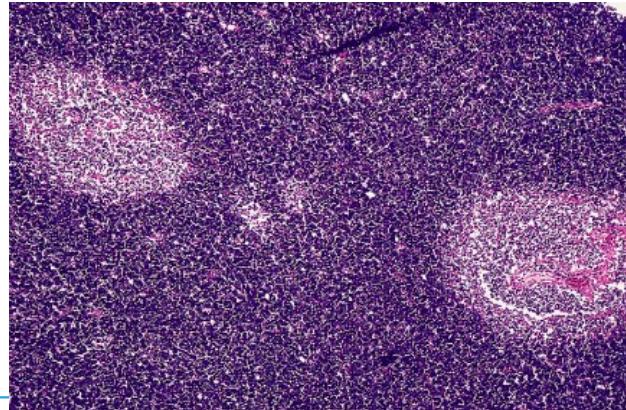
# Pathologische WHO classificatie

- Type AB thymoma (mixed)
  - A mixture of type A and B, usually with a sharp demarcation between the two



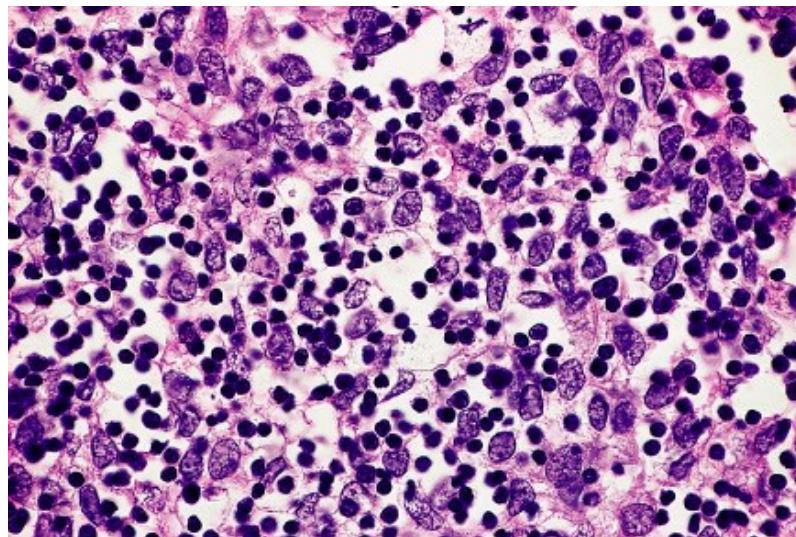
# Pathologische WHO classificatie

- Type B1 (lymphocyte rich or predominantly cortical)
  - Resembles normal thymus
  - Lymphocyte rich
  - Predominance of areas resembling cortex over those like medulla
  - Neoplastic epithelial cells have benign appearance



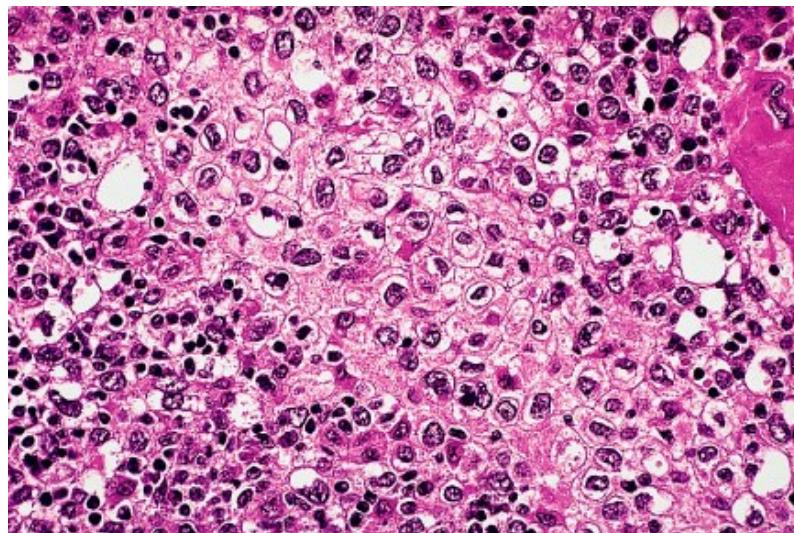
# Pathologische WHO classificatie

- Type B2 (cortical)
  - Like B1 but medullary component less obvious or absent
  - Epithelial elements more clearly neoplastic with enlarged vesicular nuclei and conspicuous nucleoli



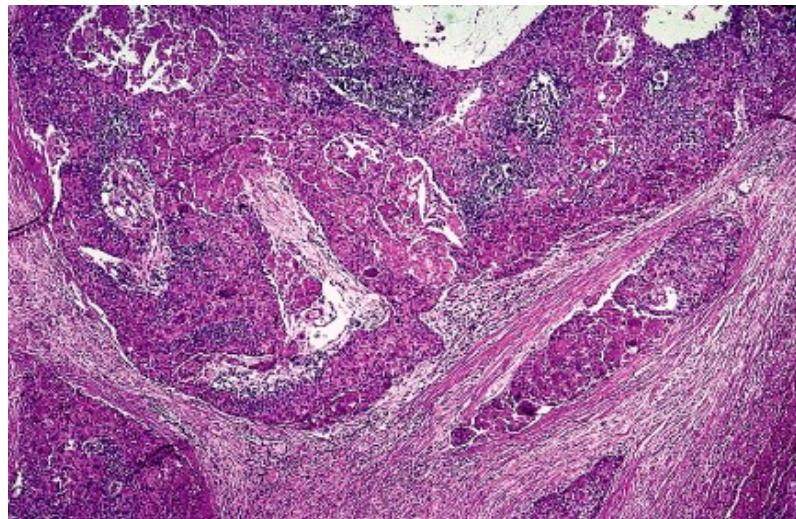
# Pathologische WHO classificatie

- Type B3 (epithelial, well differentiated thymic carcinoma)
  - Sheet-like pattern of epithelial cells with few or no lymphocytes
  - Nuclear atypia absent to moderate

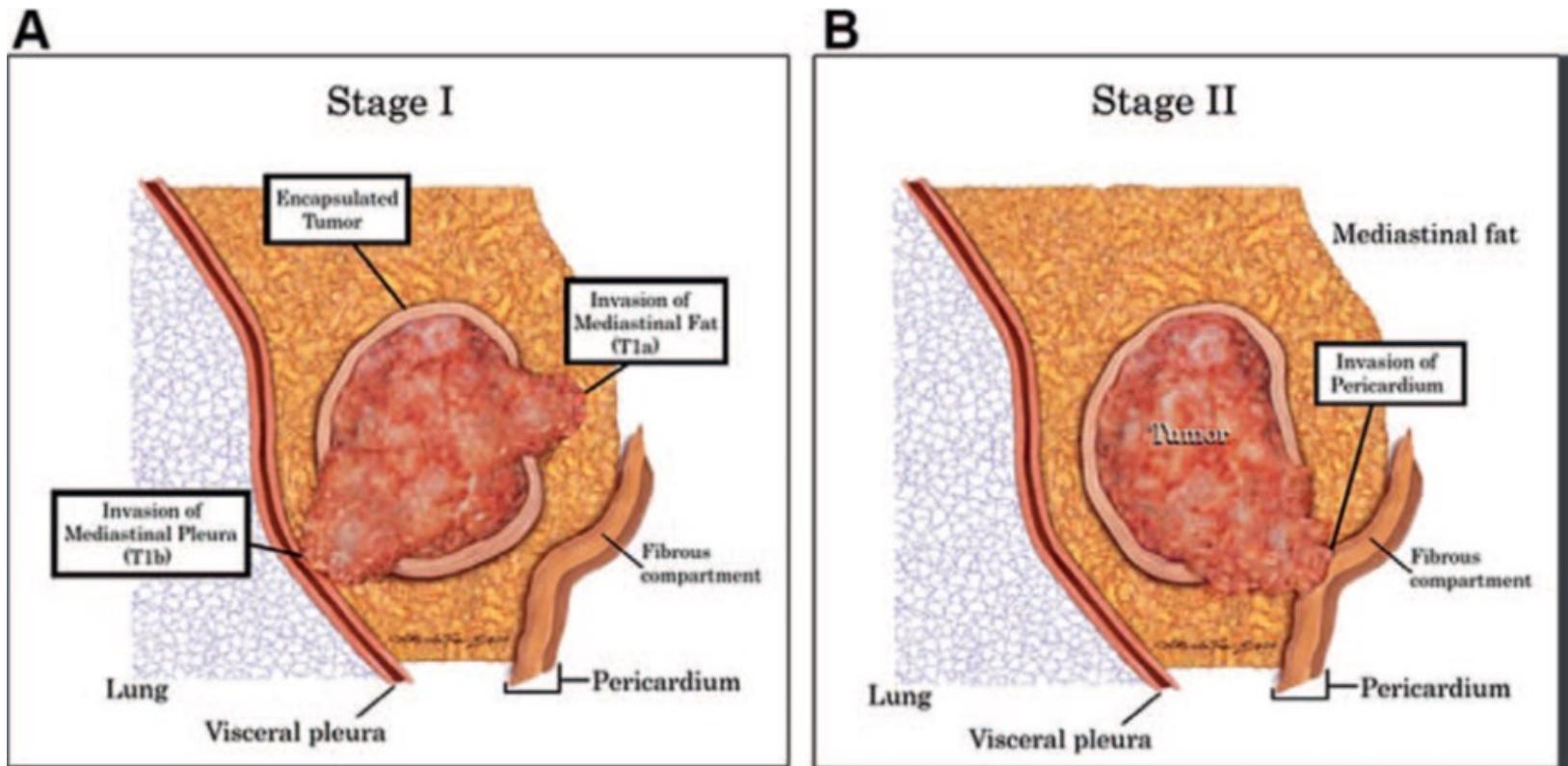


# WHO classification

- Type C (thymic carcinoma)
  - Clear-cut cytological atypia
  - Resembles carcinoma, not thymus

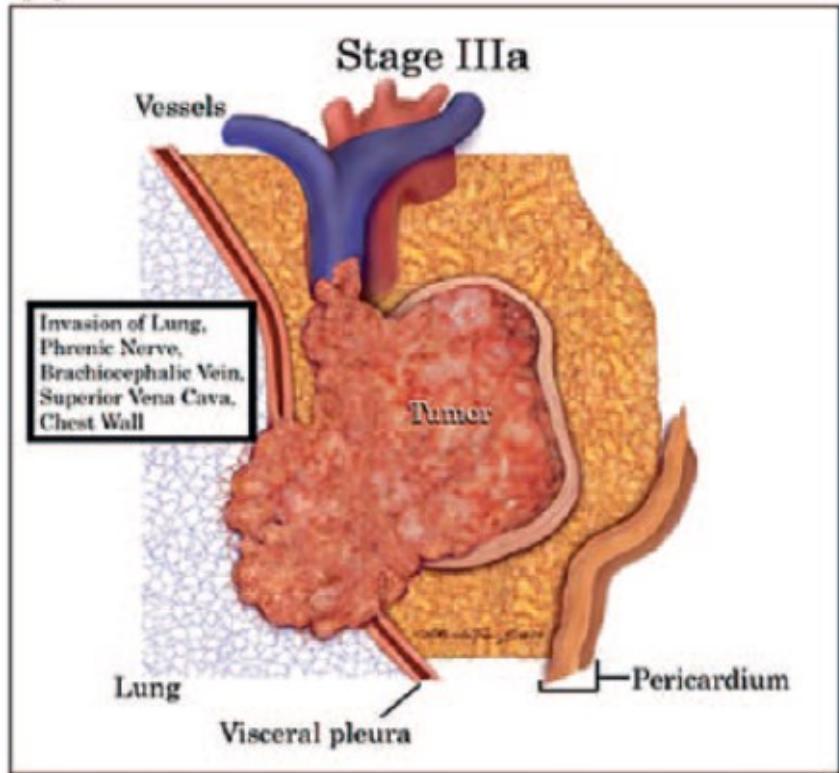


# Masaoka/TNM stadiering

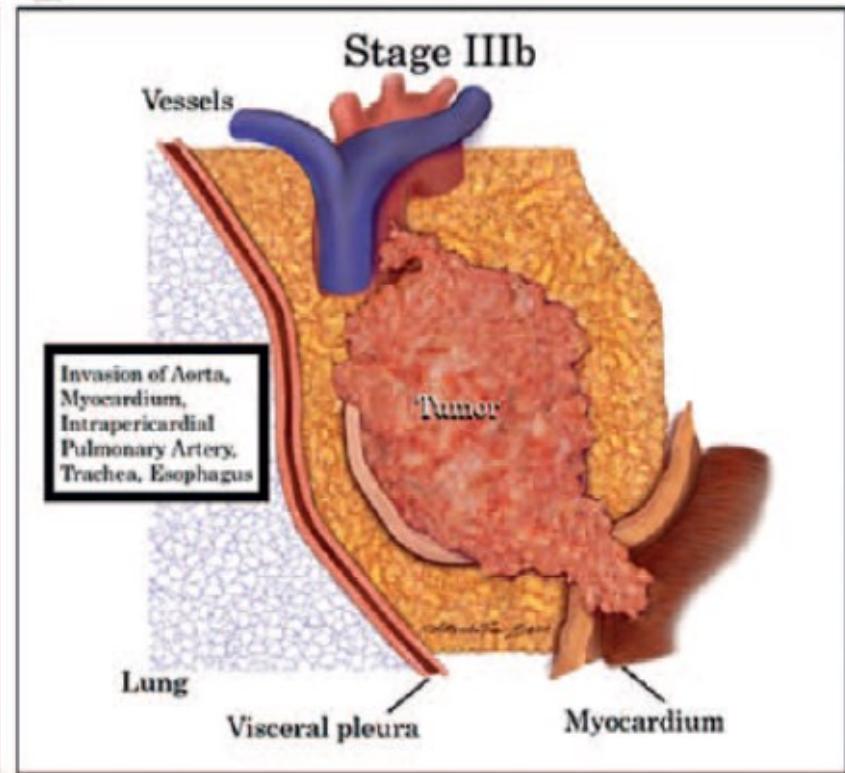


# Masaoka/TNM stadiering

A

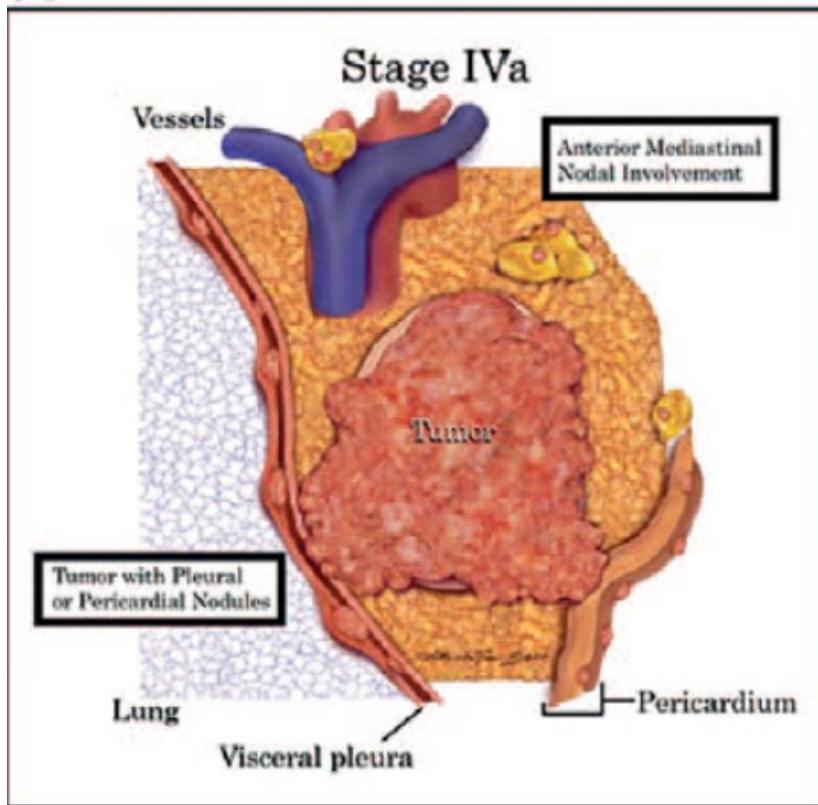


B

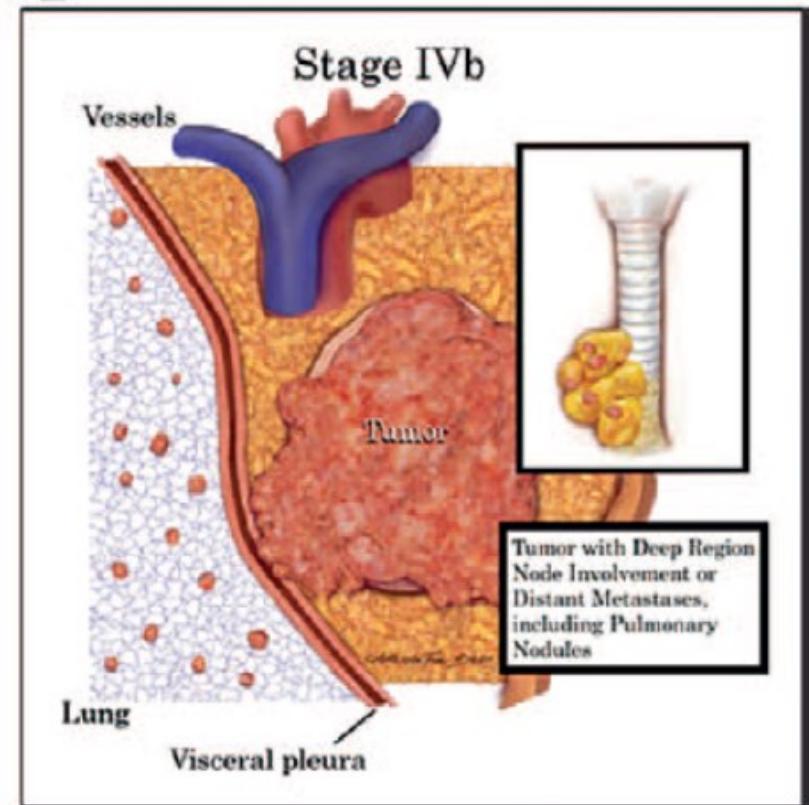


# Masaoka/TNM stadiering

A



B



**Table 1.** Histological subtypes of thymic epithelial tumours: relative frequency, frequency of myasthenia gravis and correlation with stage

	Relative frequency	Myasthenia gravis	Masaoka stage				
			I	II	III	IVA	IVB
Type A	12% (3%-26%)	15% (0%-35%)	60%	31%	8%	<1%	<1%
Type AB	28% (15%-43%)	20% (5%-42%)	67%	26%	6%	1%	1%
Type B1	18% (6%-53%)	40% (5%-69%)	50%	37%	9%	3%	1%
Type B2	26% (8%-41%)	50% (23%-73%)	32%	29%	28%	8%	3%
Type B3	16% (3%-35%)	50% (25%-65%)	19%	36%	27%	15%	3%
Carcinoma	18% (1%-28%)	<5%	10%	10%	45%	15%	20%

# prognose

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- Histologische kenmerken
- Stadium
- Resectabiliteit

# Thymoom - overleving

## WHO classificatie

	invasief	10-year DFS
A	10-40%	100%
AB	30-40%	100%
B1	45-50%	85%
B2	65-70%	85%
B3	85-90%	35%
C		

Girard et al. Journal of thoracic oncology 2009; 119-126.

# Thymoom - overleving

## Masaoka

- I. Macro- noch microscopisch invasie
- II. Macosc. in mediastinale vet, microsc. in kapsel
- III. Macroscopisch in nabijgelegen orgaan
- IVa. Pleura- of pericardinvasie
- IVb. Lymfogeen of hematogeen gemetastaseerd

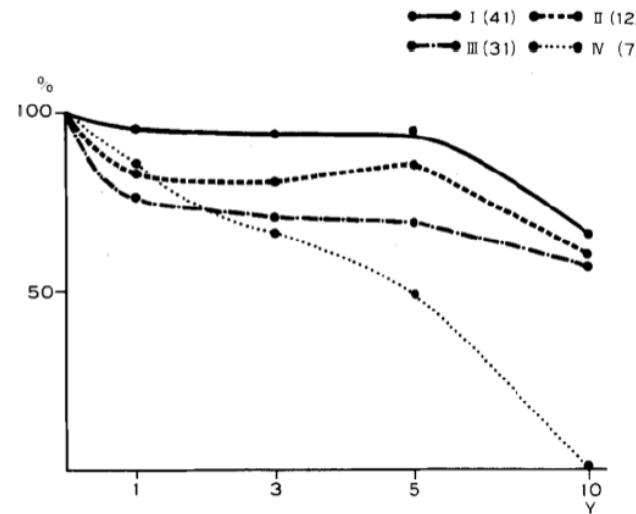


FIG. 5. Survival rates of each clinical stage.

Akira Masaoka, Cancer, 1981

# Thymoom - overleving

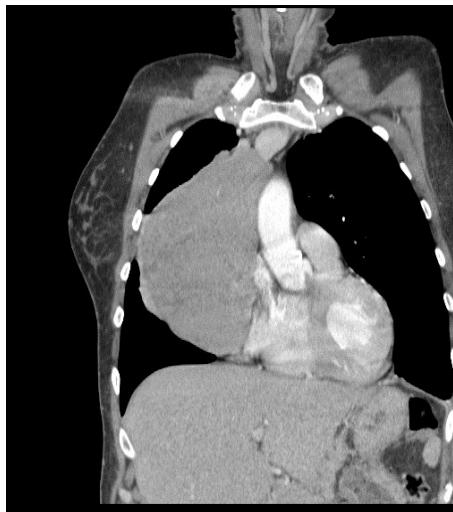
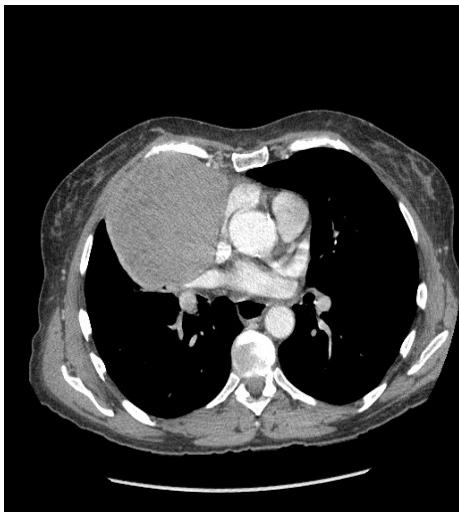


Maggi G et al. Ann Thorac Surg 1991; 51:152-6

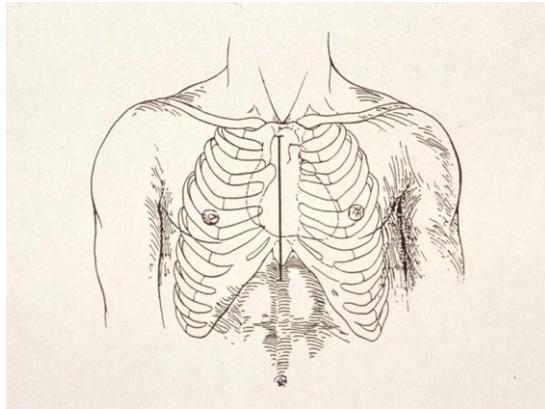
# Proces voorste mediastinum

***Man 41-jaar***

- Drukkend gevoel op de borst, moeheid, verminderde inspanningstolerantie

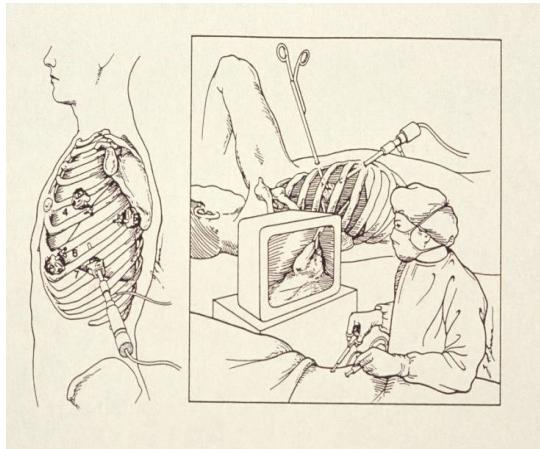
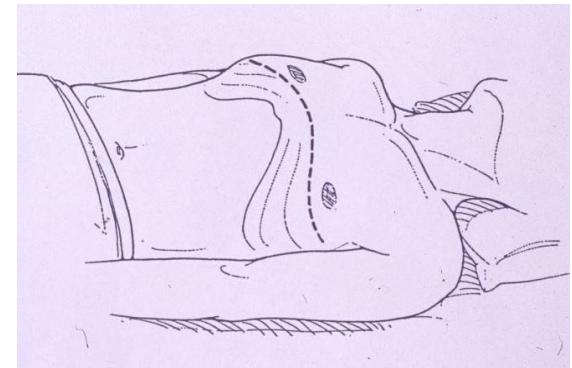


# Thymectomy - benadering



median  
sternotomy

clam shell  
incision



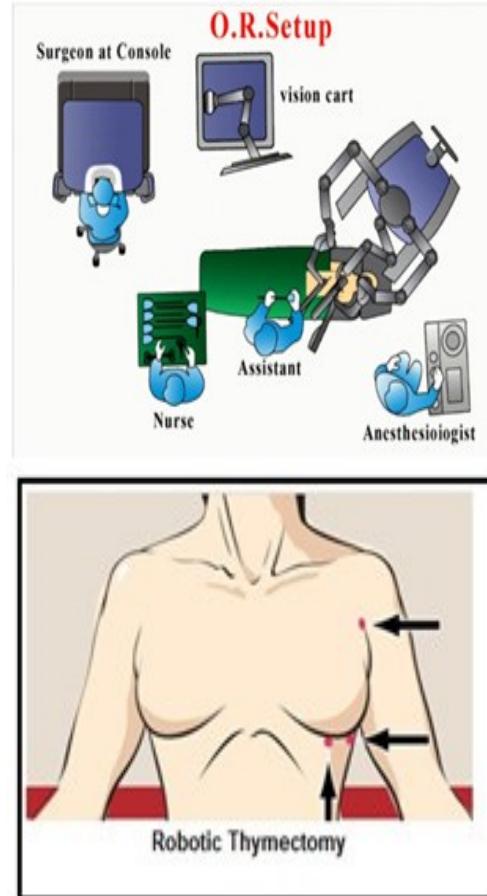
RATS  
da Vinci robotic  
system



# Robotic thymectomy



DaVinci Robotic System



# RATS







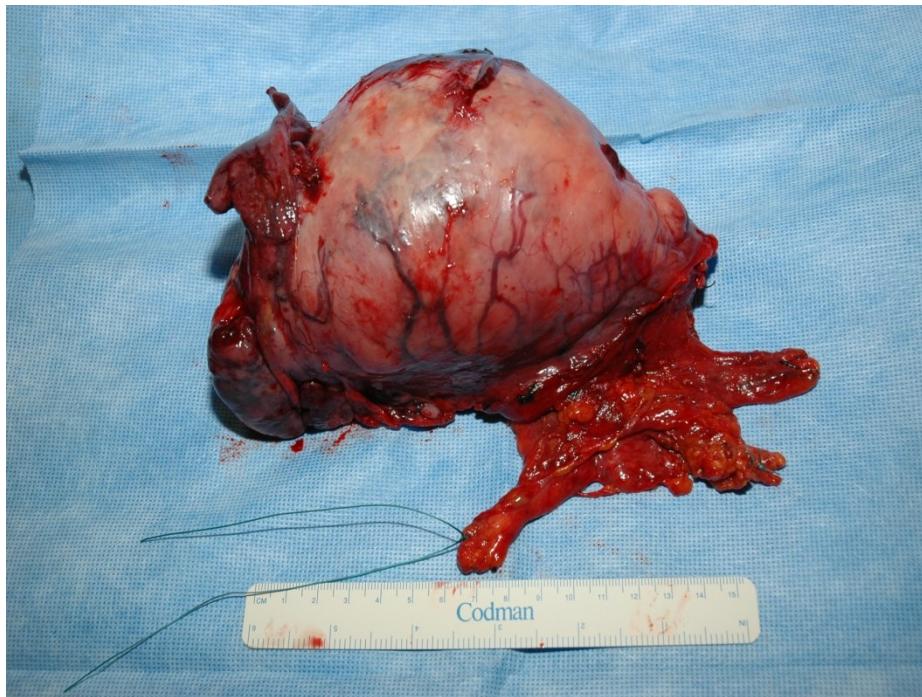
# Thymoom - resectie

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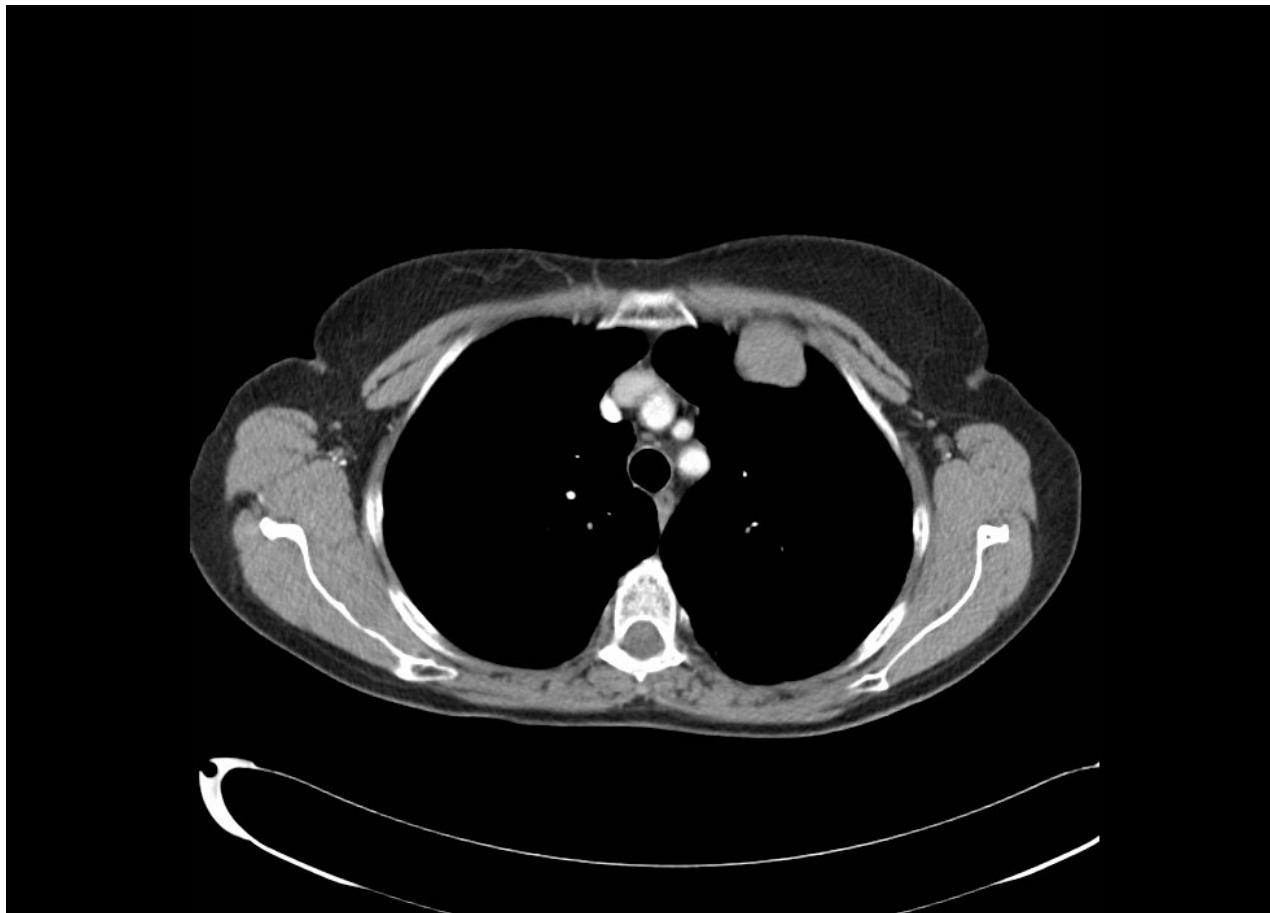
- complete resectie; delen nabijgelegen organen zo nodig meenemen
- openen pericard, uitbreiding bekijken
- N. frenicus altijd sparen
- debulking is beter dan open-dicht
- Altijd clips !

# Patient

pathologie: cortical thymoom; WHO type B2  
tumordoorgroei kapsel en pericard: stadium II



# CT scan 4 jaar later!



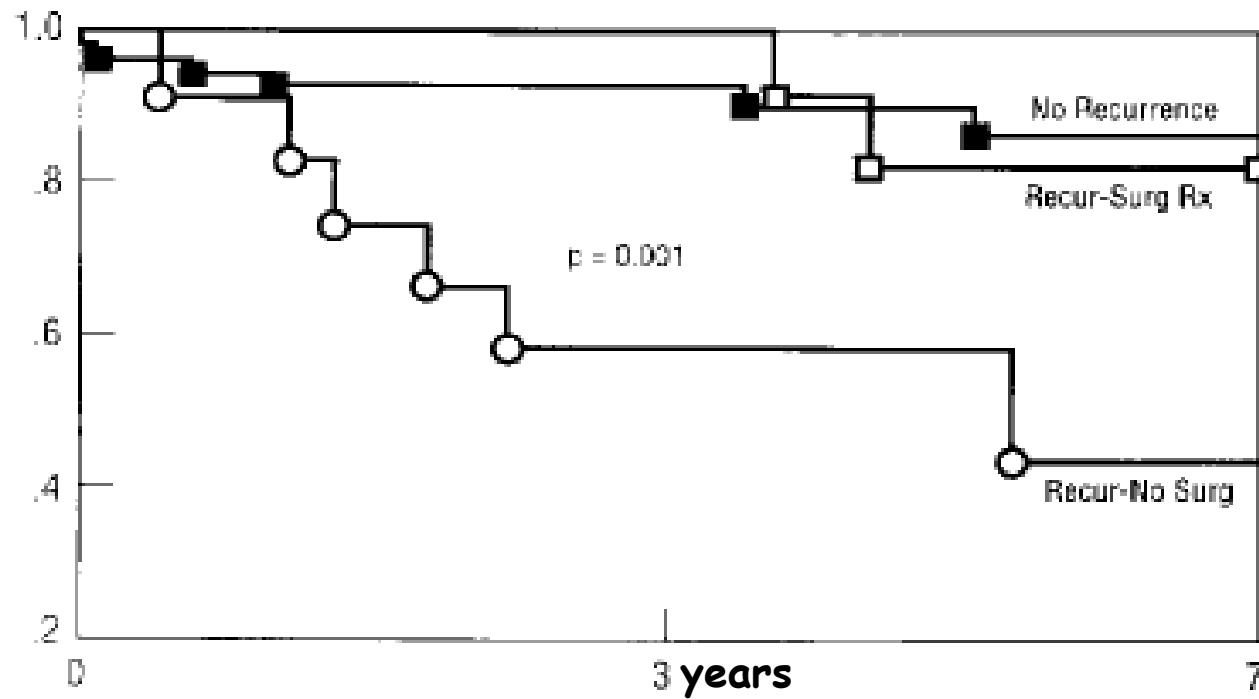
# Recidief thymoom

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- Tijdsinterval: lang
- 10-30 % na complete resectie
- Overleving na re-resectie onveranderd

Follow-up: 15 jaar

# Thymoom: behandeling recidief

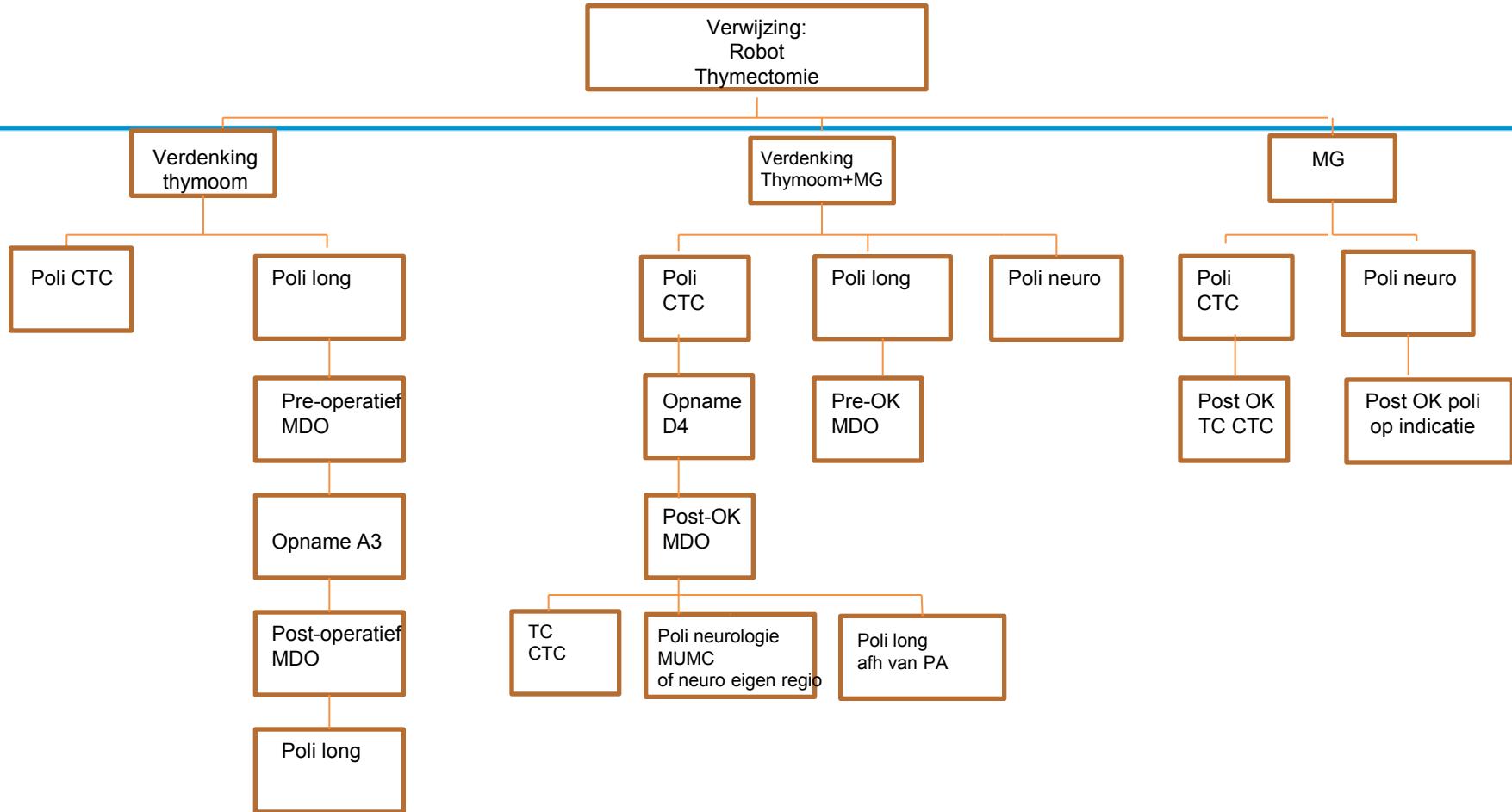


# MUMC

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- Jaarlijks 60 thymectomie middels robot
- Team:
  - prof. De Baets
  - Prof. Maessen
  - Dr. Hochstenbag

# Care pathway patients with mediastinal tumors MUMC



Follow up 15 year

# Toekomst

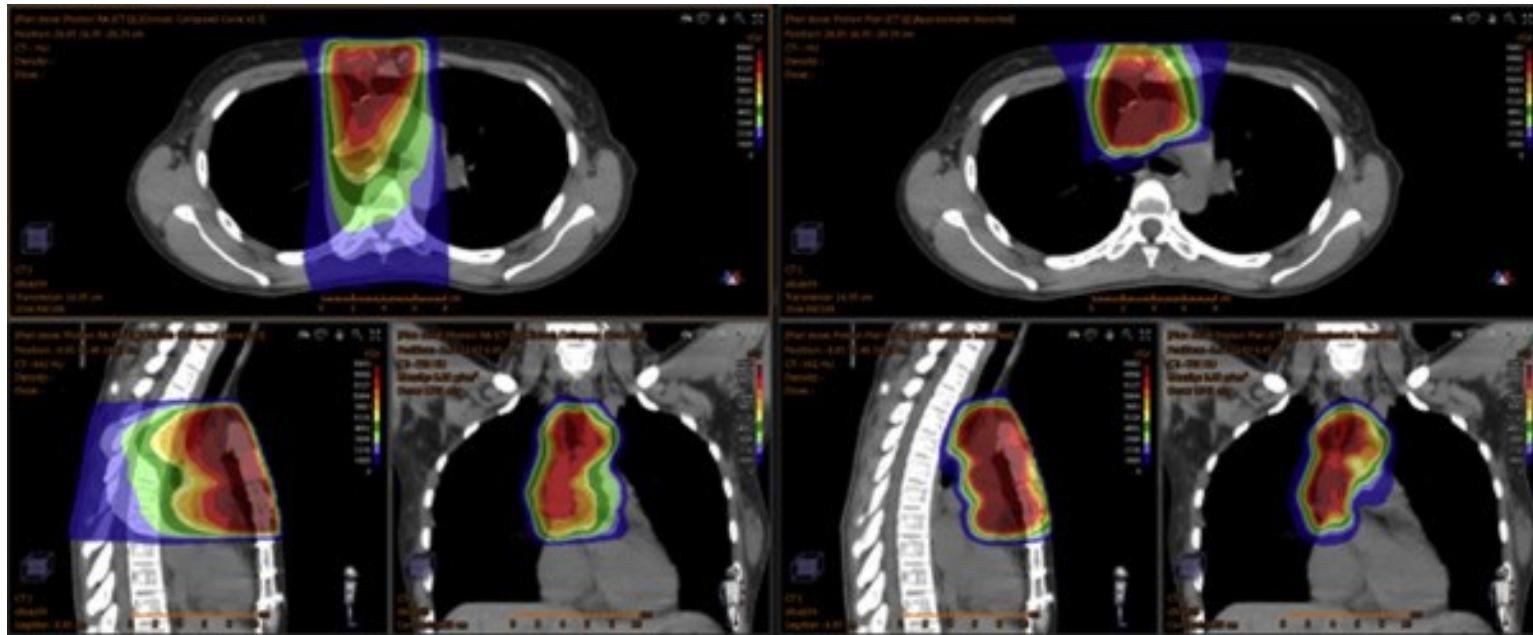
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*The future of cancer therapy*

Single-arm, multicentric, phase II study of nivolumab in patients  
with thymic carcinoma previously treated with chemotherapy  
**Nivothym trial**

# Protonen centrum



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**BEDANKT  
VRAGEN ?**

# Targeted therapie

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- Gefitinib
- Imatinib
  - RR 1-4%
- Erlotinib-bevacizumab
  - fase 2 trial, recidief thymoom
  - marginale activiteit

