

*Case Presentation*  
**THYMOMA**

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NO CONFLICT OF INTEREST

# History

- 35 year old, African male
- Background history  
HIV (+) on HAART ; CD4 =847 & VL = LDL
- No family history of any malignancies
- Non smoker
- Business owner

# History

Presented to Internal Medicine with a six month history of:

- progressive dyspnoea (currently NYHA grade III)
- non productive cough
- pleuritic chest pain
- weight loss (>10% body weight)
- dysphagia
- Visual disturbances: diplopia

# Special Investigations

**XRAY: PA**



**XRAY: LAT**



# Special Investigations

## Bloodwork

- FBC + Diff
- UAE
- CMP
- Cardiac markers (myoglobin,CK)
- LFTs

} Within  
normal limits

## Echo-cardiogram

- Large, solid tumor anteriorly in the position of the thymus
- RV compression, encasing the LV
- Infiltrates the RA & LA
- RV & RA dilatation
- TR
- Cor Pulmonale
- Encasing aortic arch, brachiocephalic vein, right caroid artery and some pulmonary veins
- EF: 66%



# Differential Diagnosis



## Benign vs Malignant ?

### Malignant Picture

- ? Thymic origin  
(Thymoma, Thymic carcinoma, Carcinoid)
- ? Primary Lung cancer
- ? Lymphoma (Hodgkin/Non Hodgkin)
- ? Germ cell tumors  
(Seminoma/Non seminoma/Mixed germ cell)
- ? Mesothelioma

# Histological diagnosis

- *Pleural biopsy via thoracoscopy (unresectable lesion)*

## Description

- The pleural membrane shows a nested and vaguely lobulated proliferation, characterized by sheets of rounded to **polygonal tumor cells** displaying moderate, pale eosinophilic cytoplasm and ovoid vesicular nuclei with small multiple nucleoli. **Numerous small reactive lymphocytes** are intermingled amongst the tumor cells.
- There **is minimal** nuclear **atypia**
- Immunohistochemistry
  - AE1/AE3: Strongly and diffusely positive
  - LCA: highlights reactive lymphocytes**
  - CD5: highlights reactive T-cells
  - Ziehl-Neelsen stain is negative for acid fast bacilli

Morphology and IHC stains in keeping with an:  
**Thymoma (Type-B3)**



# WHO Classification of Thymomas

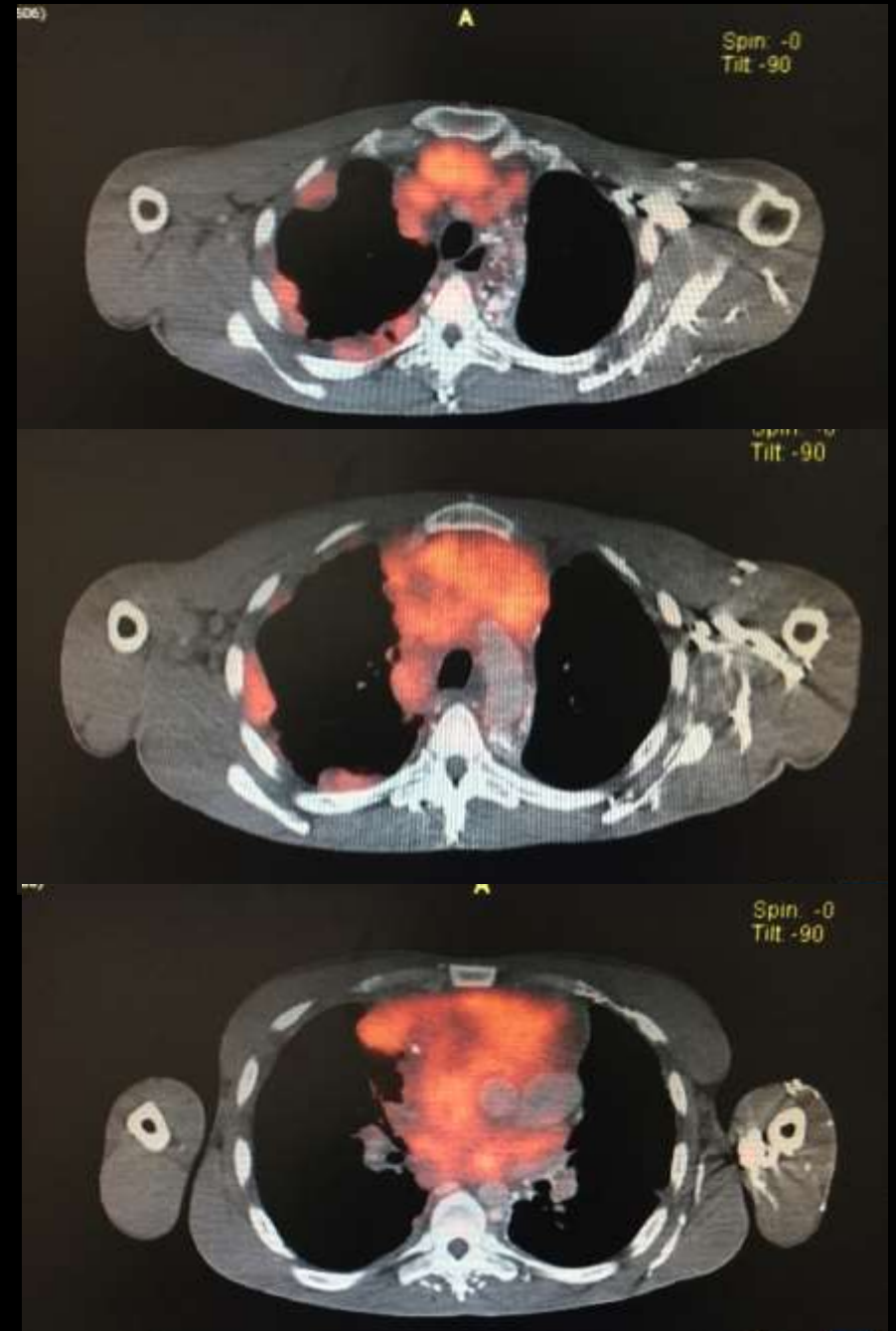
WHO TYPE	HISTOLOGIC DESCRIPTION
A	Composed of neoplastic oval or spindle-shaped epithelial cells without atypia or lymphocytes. More resemblance to <u>medullary</u> cells.
AB	Similar to type A, but with foci of lymphocytes ( <u>mixed</u> )
B1	Normal thymic <u>cortex</u> with areas similar to thymic medulla
B2	<u>Predominately cortical</u> . Heavy population of lymphocytes. Scattered atypical cells.
B3	Predominantly <b>polygonal epithelial</b> cells with <b>mild atypia</b> . <b>Few lymphocytes</b> . “Well differentiated thymic carcinoma.”
C	<u>Thymic Carcinoma</u> . Cytological atypia and a cyto-architecture resembling carcinoma that is distinctively unlike normal thymus tissue.



# Special Investigations

## FDG PET/CT SCAN

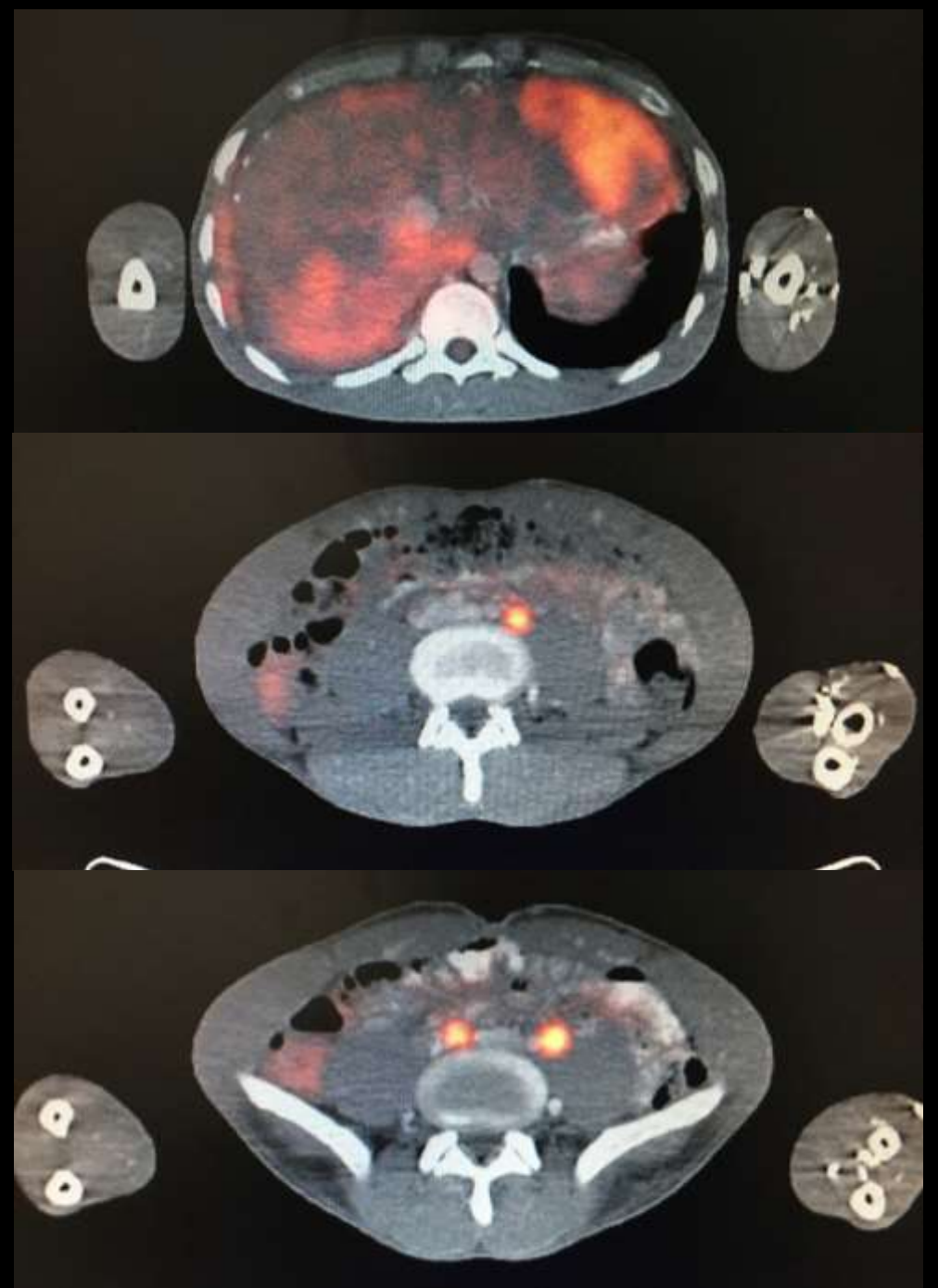
- Macro-lobulated **mediastinal soft tissue mass** with focal calcifications and areas of necrosis (SUV 7.04)
- Multiple **pleural based pulmonary nodules** Multiple matted **mediastinal lymph adenopathy**



# Special Investigations

## FDG PET/CT Scan (continued)

- **Hepatomegaly** with ill defined hypodense liver lesions (SUV 8.23)
  - Largest: 53 X 37mm (segment 8)
- Multiple, matted **celiac and para-aortic** lymph adenopathy (SUV 8.23)
  - Largest: 13.6mm
- **Encasement** of descending abdominal aorta , celiac trunk, SMA and right renal artery
- **Aorto-caval node**, 22mm, **IVC infiltrated** (L1) (SUV 7.18)



# Masaoka Staging System

Stage	Description
I	Macroscopically completely encapsulated, with no microscopic capsular invasion.
II	a Macroscopic invasion into surrounding mediastinal fatty tissue or mediastinal pleura b Microscopic invasion into the capsule
III	Macroscopic invasion into surrounding organs
IV	a Pleural or pericardial implants/dissemination b <b>Lymphogenous or hematogenous metastases</b> ←

# Radiation Oncology Referral

Patient was referred as an **EMERGENCY** for SVC obstruction

## ON EXAMINATION

### *General*

- ECOG PS = 3 on a wheelchair
- Acyanotic on nasal prong oxygen – saturation of 93%
- Dyspnoea at rest
- Temporal wasting
- No pallor
- No lymphadenopathy palpable
- Oedema of neck
- Distended neck veins

# Physical Examination

## *Systemic*

- **CNS:** awake and orientated (-) CN fallout ; (-) visual disturbances (-) obvious focal neurological signs.
- **CVS:** resting tachycardia, sinus rhythm, haemodynamically stable
- **RESP:** orthopnoea but able to lie flat for +/- 10min period , shallow breaths
- **ABDO:** distended abdominal veins , hepatomegaly

**Management Plan?**

# Important Points

- Extensive disease and performance status
- Acute symptoms
- Acute symptoms need to be addressed ASAP!
- Future treatment options need to be taken into account.



# Important Points

**Tumor invasiveness (disease stage)**  
10 year, disease-free survival rates

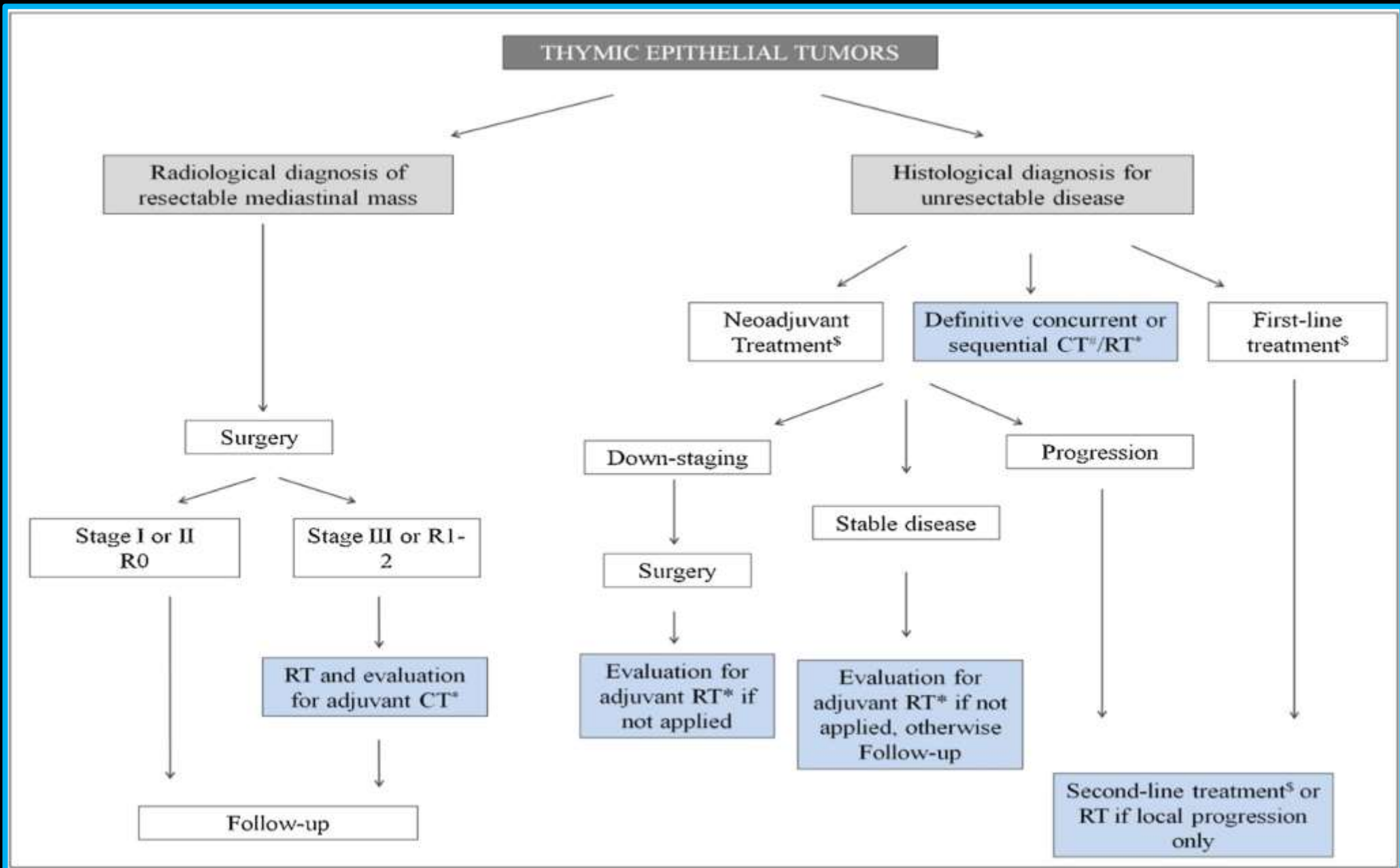
Stage I 92%

Stage II 87%

Stage III 60%

★ Stage IV 35% ★

Significant!



**Reference:** Scorsetti et al. Thymoma and Thymic Carcinomas. Crit Rev Oncol Hematol. 2016 Mar;99:332-50

# Management Plan

1) Address the acute, life threatening symptoms

**Radiotherapy**

2) Offer the patient **chemotherapy**

3) Assess the patient's **response** to chemotherapy

Good response – consider radical radiotherapy

Poor response – palliative radiotherapy when appropriate

4) Address **paraneoplastic** syndromes

5) **Palliative care** team from the get-go!

# Management: Radiotherapy

*Prescription:*

6Gy in 1 fraction

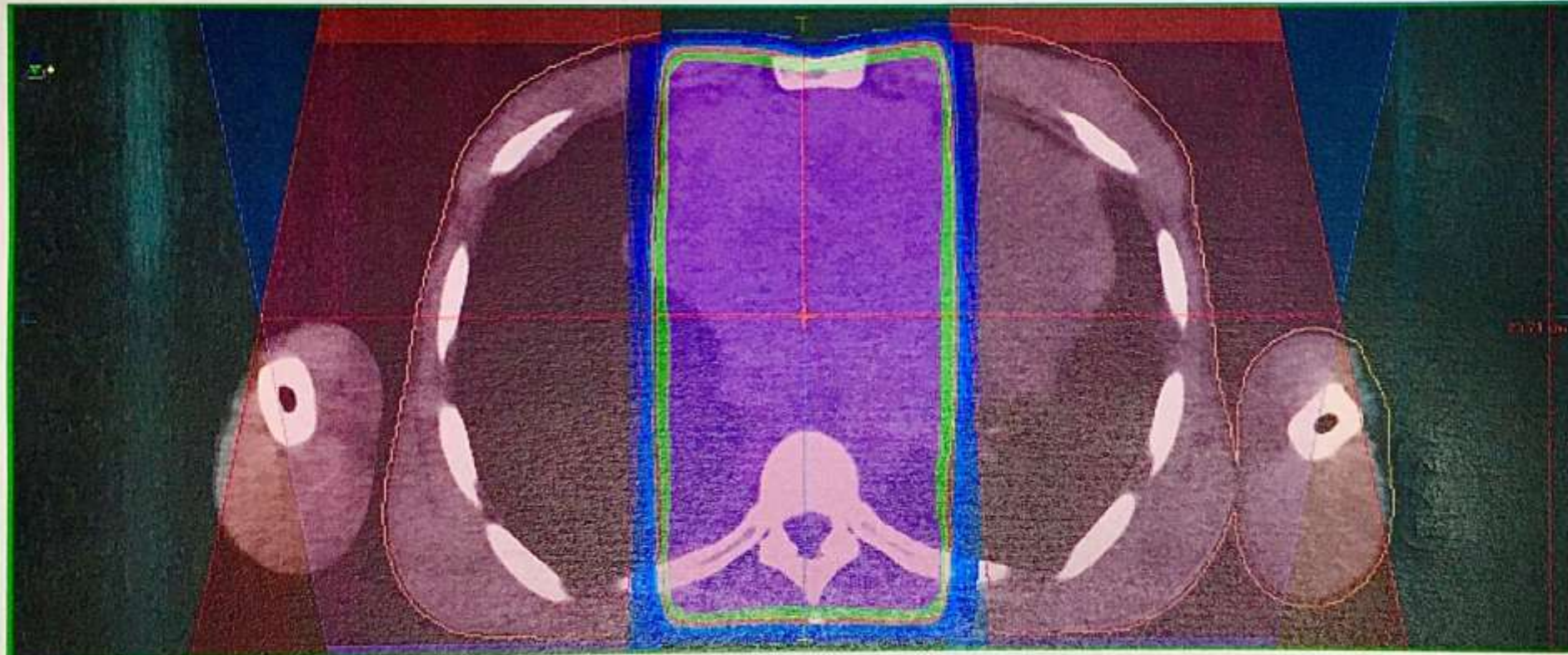
*Treatment plan:*

Modality: 3D-CRT; 10MV

Beam arrangement: AP/PA

Bulk of tumor encompassed by 100% of the dose

# Management: Radiotherapy



Color	Dose (Gy)
Yellow	8.000
Light Blue	6.780
Purple	6.000
Green	5.500
Red	5.000
Dark Blue	4.500
Blue	4.000
Light Blue	3.000
Dark Blue	2.000

Color	Structure Name
Yellow	patient

Treatment Plan (isodose distribution)

✓ Tolerance doses acceptable

# Treatment Response

- Followed up, post radiotherapy  
Improved PS, respiratory symptoms and pain control
- Declined further treatment

# Discussion

- 1) Thymoma accounts for 20% of all mediastinal tumors
  - In your setting, are Thymomas frequently diagnosed?
  - When patients are diagnosed, how do they present? What stage?
  
- 2) 45% of patients who have a Thymoma also have Myasthenia Gravis.
  - In your setting, how is this managed/treated?
  
- 3) The management of Thymoma includes a Multidisciplinary Team.
  - What is your approach to a patient with advanced disease?
  
- 4) Is there a the role for TARGETED AGENTS in the management of Thymoma?  
(EGFR inhibitors, KIT inhibitors, VEGF inhibitors)

# References

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- NCCN Thymoma and Thymic Carcinoma v2.2019



THANK YOU!

