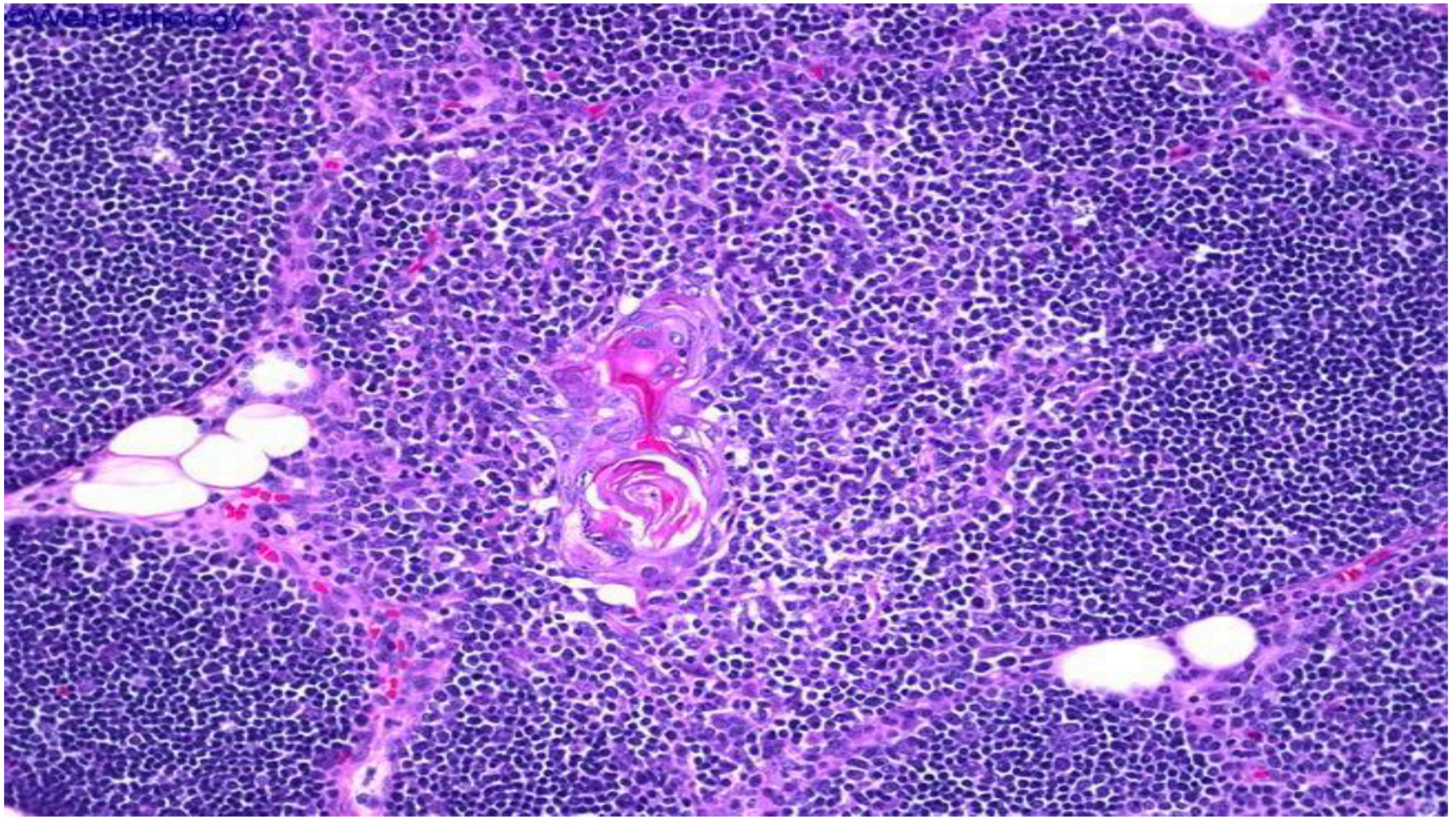

# radiotherapy for thymic tumors

Ioannis Georgakopoulos MD, PhD

Radiation Oncologist

# the thymus

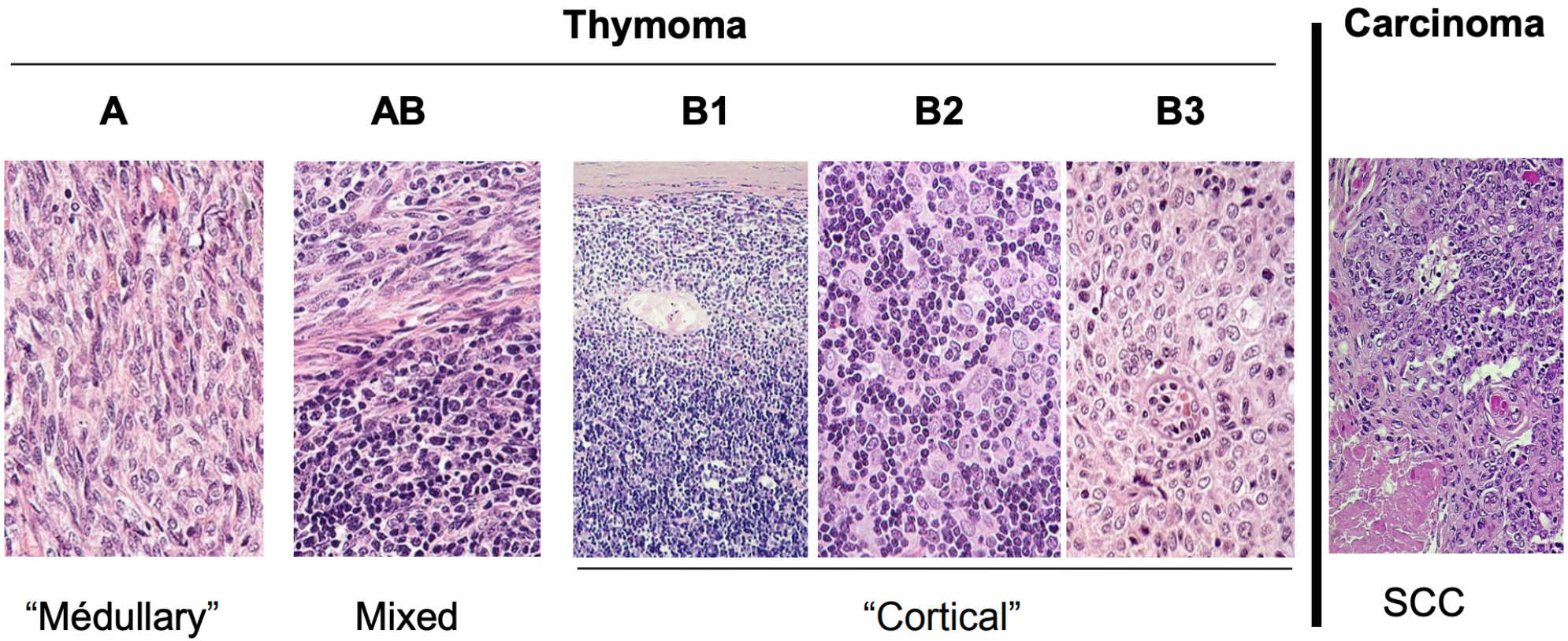


# Masaoka – Koga staging system

Akira Masaoka
1930-2014

| stage | Definition |
|---|---|
| **I** | grossly & microscopically completely encapsulated tumor |
| **IIa** | microscopic transcapsular invasion |
| **IIb** | macroscopic invasion into thymic or surrounding fatty tissue<br>or grossly adherent to but not breaking through mediastinal pleura or pericardium |
| **IIIa** | macroscopic invasion into neighboring organs without invasion of great vessels |
| **IIIb** | macroscopic invasion into neighboring organs with invasion of great vessels |
| **IVa** | pleural or pericardial dissemination |
| **IVb** | lymphogenous or hematogenous metastasis |

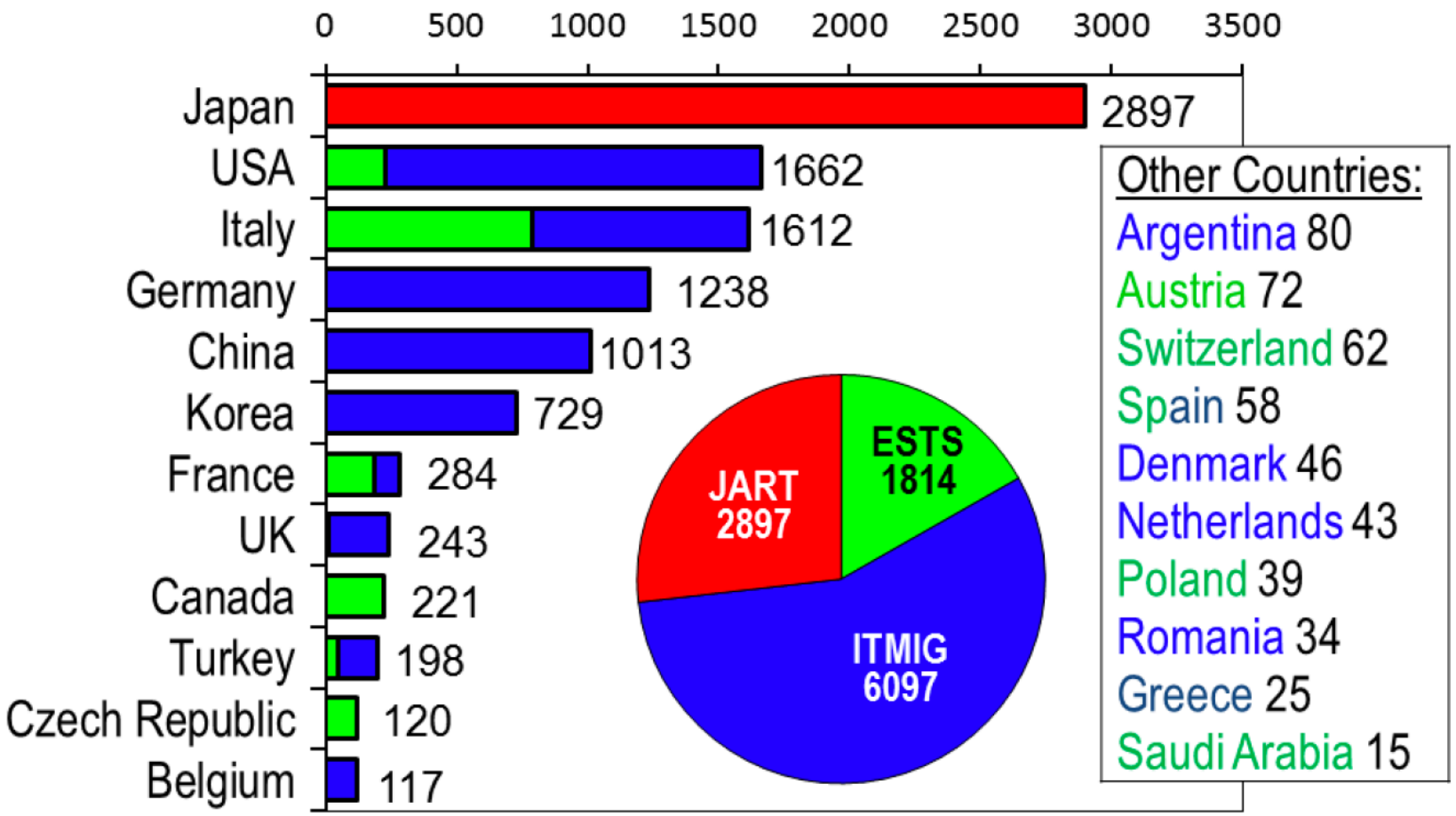
# WHO histopathologic classification



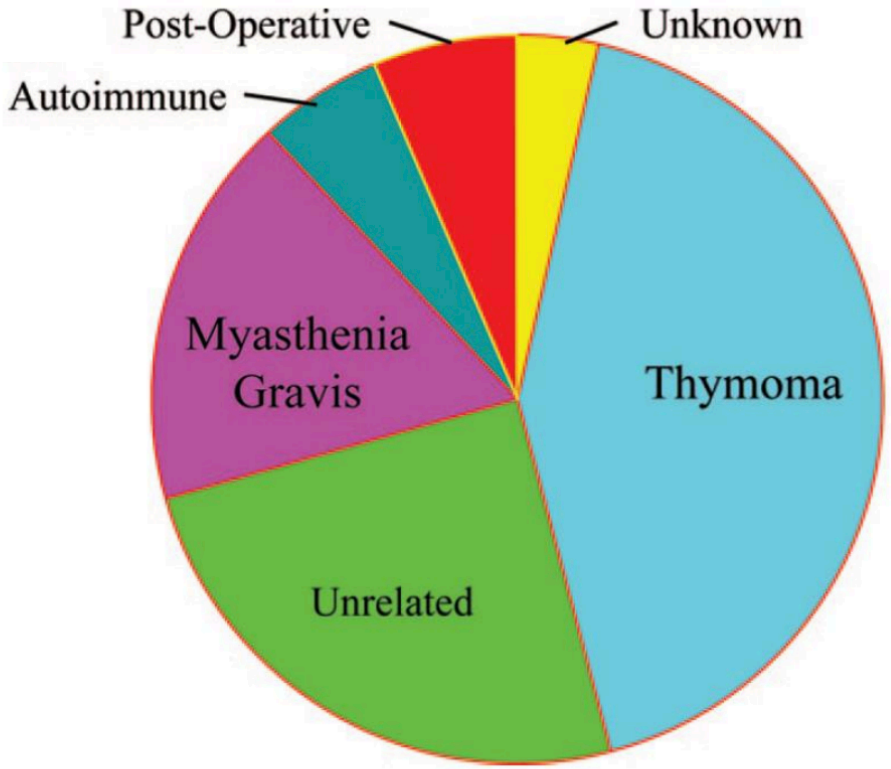
# histopathologic classification
# WHO 2015

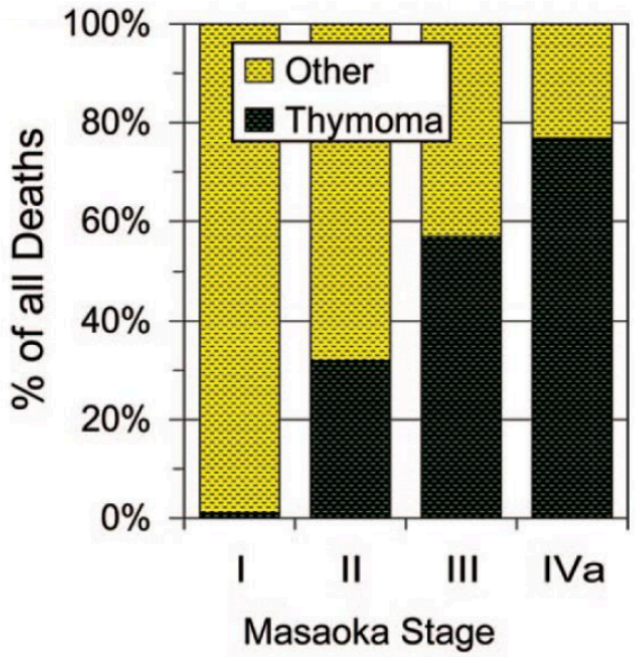
| type | pathological features | invasiveness % | 10y DFS % |
|---|---|---|---|
| **A** | occurrence of bland, spindle shaped epithelial cells (at least focally); paucity or absence of immature (TdT+) T cells throughout the tumor | 10 – 40 | 100 |
| **AB** | occurrence of bland, spindle shaped epithelial cells (at least focally); abundance of immature (TdT+) T cells focally or throughout tumor | 30 – 40 | 100 |
| **B1** | thymus-like architecture and cytology: abundance of immature T cells, areas of medullary differentiation (medullary islands); paucity of polygonal or dendritic epithelia cells without clustering (i.e.<3 contiguous epithelial cells) | 45 – 50 | |
| **B2** | increased numbers of single or clustered polygonal or dendritic epithelial cells intermingled with abundant immature T cells | 65 - 70 | 85 |
| **B3** | sheets of polygonal slightly to moderately atypical epithelial cells; absent or rare intercellular bridges; paucity or absence of intermingled TdT+ T cells | 85 - 90 | 35 |
| **MNT** | nodules of bland spindle or oval epithelial cells surrounded by an epithelial cell-free lymphoid stroma | | |
| **metaplastic carcinoma** | biphasic tumor composed of solid areas of epithelial cells in a background of bland-looking spindle cells; absence of immature T cells | 90 - 95 | 15 |

# ITMIG/IASLC retrospective data 2014
## number of cases by country, 10808 cases



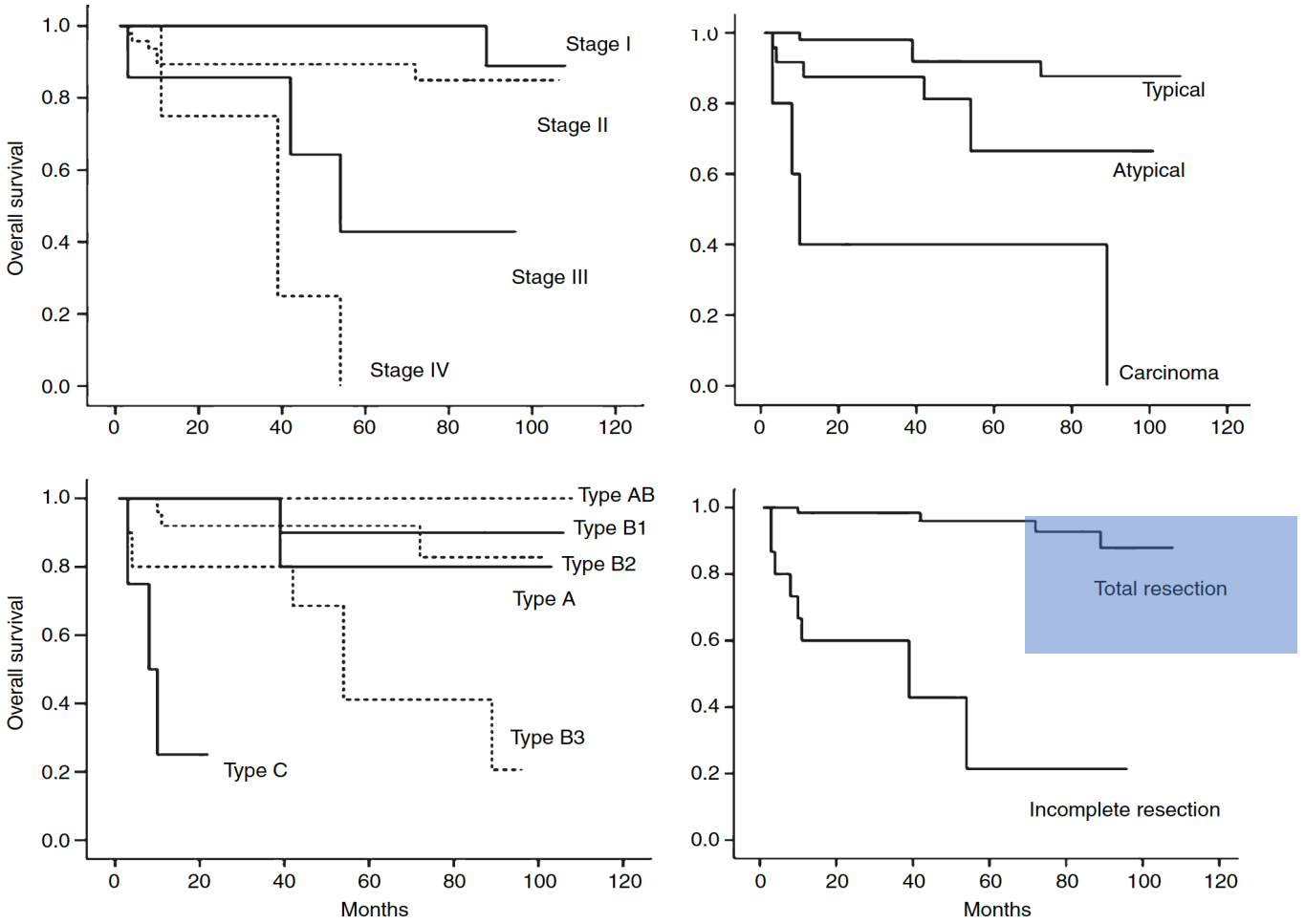
# prognosis of thymoma
## causes of death




Huang et al. *J Thorac Oncol* 2010

# most significant prognostic factor
# completion of surgical resection




Rossi et al. *Histopathology* 2008

# definition of resectability

"Computed Tomography Findings Predicting Invasiveness of Thymoma"

Marom et al. *J Thorac Oncol* 2011

"Preoperative Computed Tomography Findings Predict Surgical Resectability of Thymoma"

Hayes et al. *J Thorac Oncol* 2014

# definition of resectability
# MRI