

A Clinico-Radio- Pathologic Conference

St. Luke's Medical Center

October 3, 2007

Dr. Cecil Z. Tady

“ A 66 year old female admitted on June 2007 for Difficulty of Breathing”

PROBLEM :

Difficulty of Breathing secondary to
severe Hypoxemia

Salient Features

S – Dyspnea since 3 months

No cough, colds or fever

- Breast CA Left

s/p MRM 2004

s/p Lumpectomy 2006

Taxol and Carboplatin treatment

- D-dimer 304 ng/ml

- 2-D echo normal

- Past Medical History :

History of Hypertension and Dyslipidemia

- Chest CT scan (10 days pta)

Pulmonary Nodules

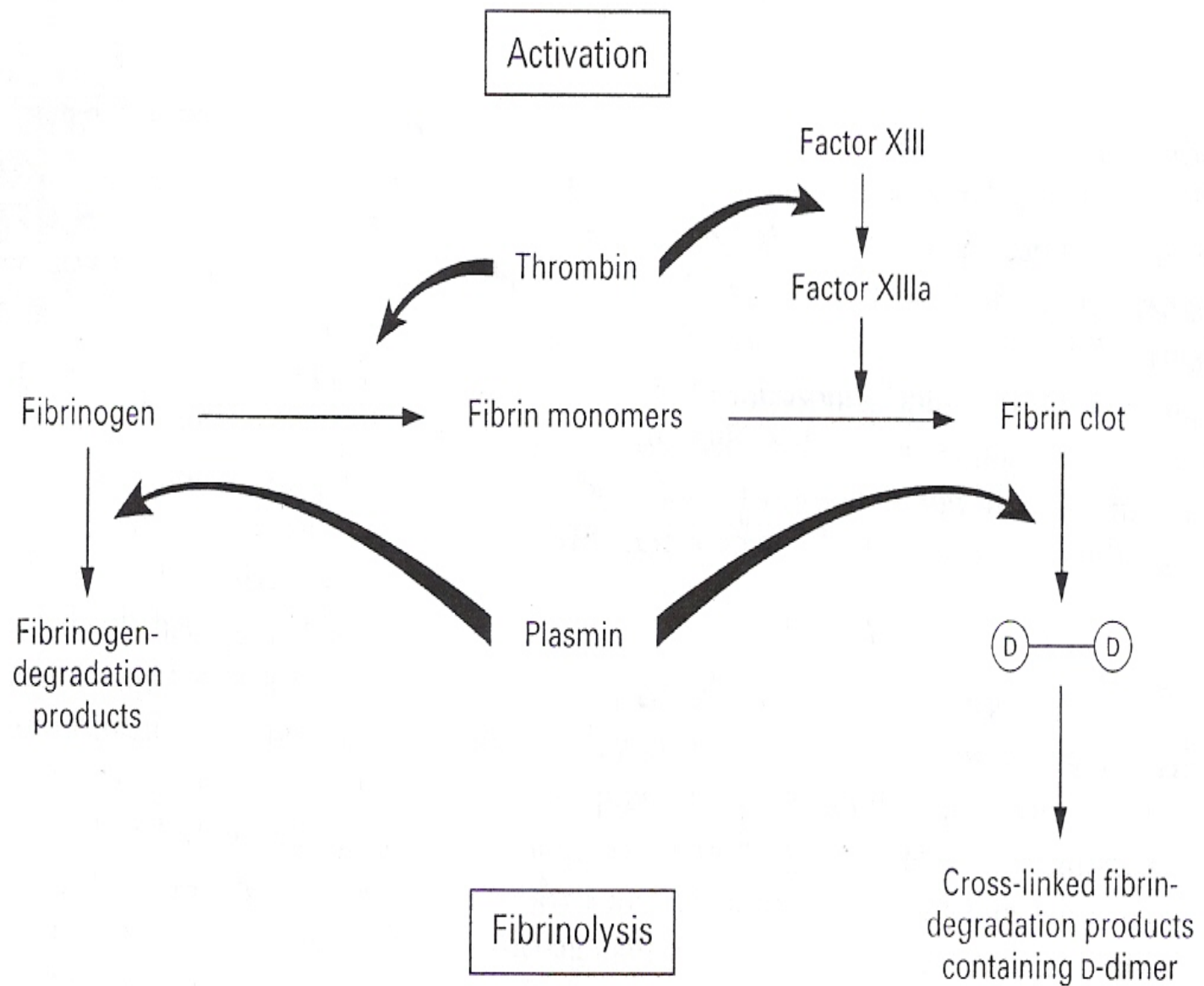
- Duplex Venous Scan

Negative

- Treated with LMWH → with hematoma and thrombocytopenia

Salient Features

- O - conscious, coherent, on O2 face mask at 10 lpm
 - BP = 110/70 HR = 120
 - RR = 24 Temp = 37°C
 - pallor
 - crackles left base
 - heart unremarkable
 - no edema, (+) hematoma left leg
 - ABG's :
 - ph = 7.51 pCO2 = 28.3
 - pO2 = 103.2 HCO3 = 22.8
 - CXR : unremarkable
 - 12 L ECG : sinus bradycardia with ST-T wave changes, suggestive of injury to inferior wall



Hypoxemia is secondary to
Disorders of any of the following :

1. Ventilation
2. Perfusion
3. Diffusion
4. Low F_{iO_2}

Differential Diagnosis

- Pulmonary Embolic Disorders :
 - Etiology :
 1. Venous Thromboembolism
 2. Tumor Embolism
 3. Tumor involvement of the vasculature
- Pulmonary Arterial Hypertension of Various etiologies :
 1. Idiopathic or Primary Pulmonary Hypertension
 2. Pulmonary Venous Hypertension 2' to Left Heart Disease

Differential Diagnosis

- Ventilatory Disorders
 - COPD
 - Asthma
- Interstitial Disorders
 - Interstitial Lung Disease (infection, autoimmune, drug induced etc)
- Chemotherapy-Related Complications
 - Cyclophosphamide, Methotrexate, 5-FU, Doxorubicin

There are four basic types of tumor involvement of pulmonary vessels :

1. Large tumor emboli occluding either the main pulmonary arteries or large segmental branches
2. Generalized lymphatic involvement
3. Pure microscopic tumor emboli involving the small arteries and arterioles
4. Combination of 1,2 and 3

The Mechanism of Pulmonary Hypertension in these cases are :

1. Mechanical obstruction of pulmonary flow by intravascular tumor or associated emboli
2. Obstruction of pulmonary flow by obliterative endarteritis
3. Vasoconstriction associated with microemboli

“ In about 25% of local recurrences, the cancer cells in the recurrent tumor have acquired the ability or have the opportunity to spread distantly. Leading to an increased risk of death from metastatic disease ”

“ An increase in distant metastases after the diagnosis of local recurrence has been documented in both breast conservation and post-mastectomy setting ”

NEJM June 7, 2007

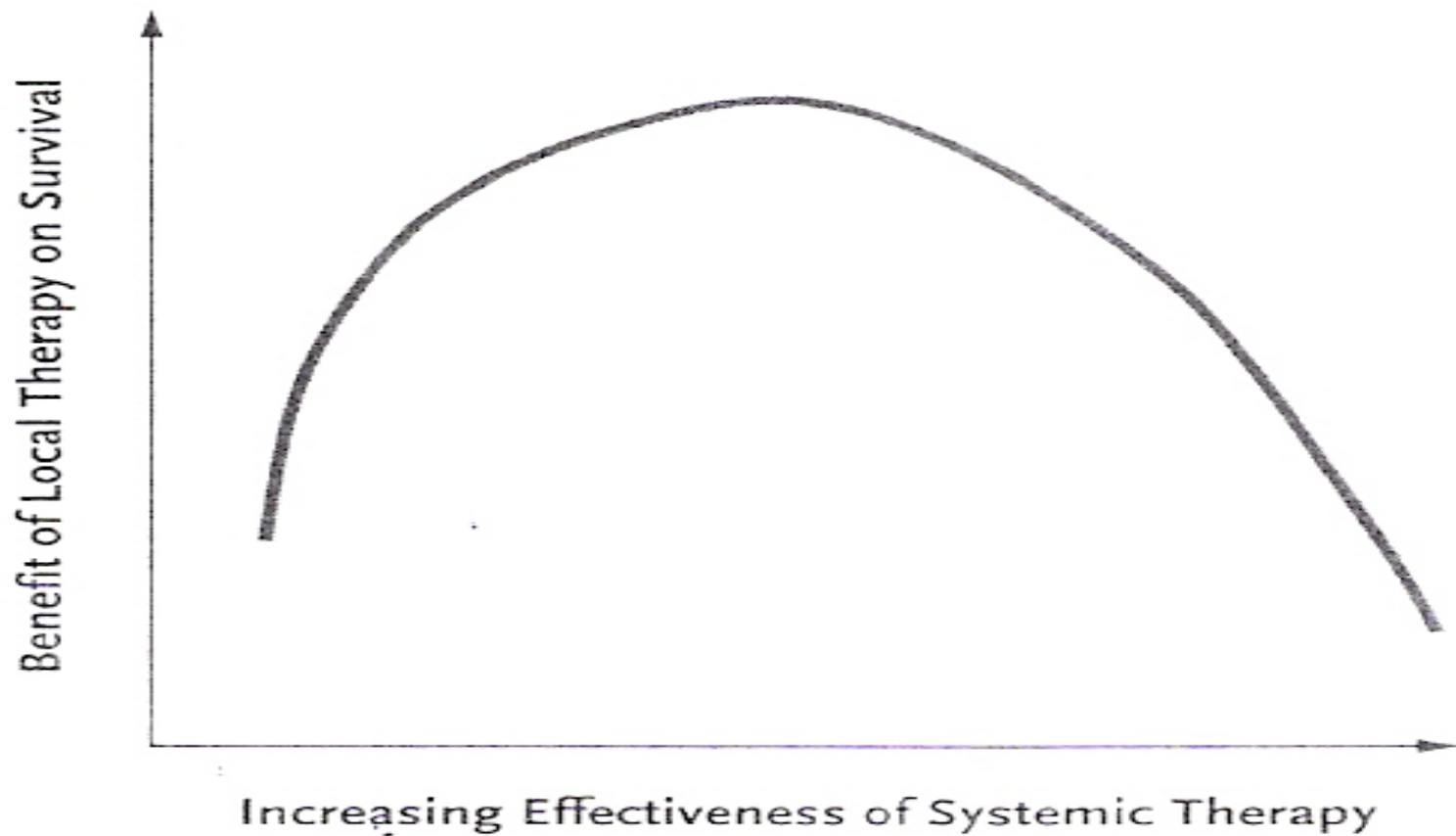


Figure 2. Hypothetical Benefit of Local Tumor Control on Survival with Increasing Effectiveness of Systemic Therapy.

- In autopsied series of women who died of disseminated breast CA, 83% had pulmonary lymphangitic spread

Connolly et al; Clin Radiol, 1999

Primary Consideration

- Tumor involvement of the Pulmonary Vessels
 - Lymphangitic carcinomatosis of the lungs, with or without tumor emboli
 - Multiple Pulmonary Nodules 2' to Metastasis
- Coronary Artery Disease (Acute MI)
 - R/O Metastasis to the pericardium

Thank You
Have a Nice Day