Γ΄ΠΑΘΟΛΟΓΙΚΗ ΚΛΙΝΙΚΗ ΙΑΤΡΙΚΗΣ ΣΧΟΛΗΣ
ΕΘΝΙΚΟΥ ΚΑΙ ΚΑΠΟΔΙΣΤΡΙΑΚΟΥ ΠΑΝΕΠΙΣΤΗΜΙΟΥ ΑΘΗΝΩΝ
ΔΙΕΥΘΥΝΤΗΣ: Καθηγητής Κων/νος Νικ. Συρίγος, MD, PhD, FCCP

# ΟΓΚΟΛΟΓΙΚΑ ΕΠΕΙΓΟΝΤΑ

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Νοσοκομείο «Σωτηρία»**

Ανδρας καπνιστής 62 ετών

Αναφέρει οίδημα προσώπου, τραχήλου από ημερών, άλγος στον θώρακα, ήπια δύσπνοια

Διόγκωση στις σφαγίτιδες

Θωρακικό επίφλεβο

# Συμπτώματα

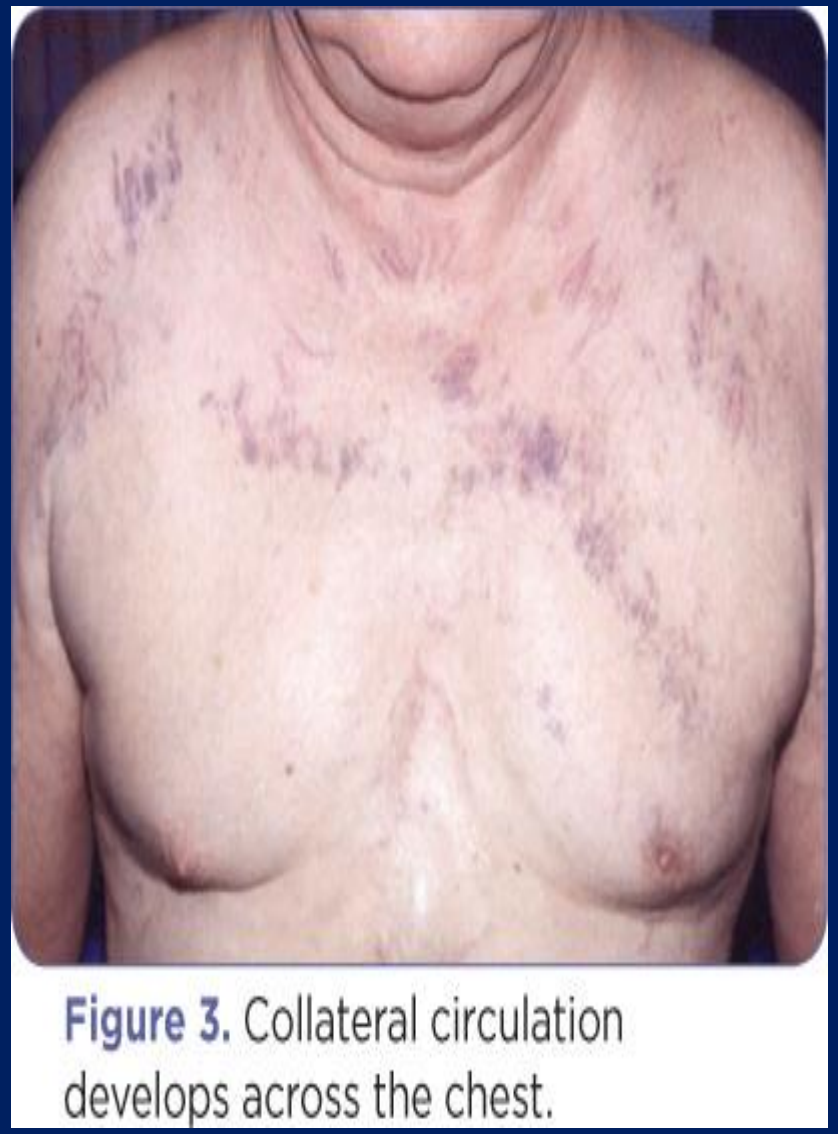
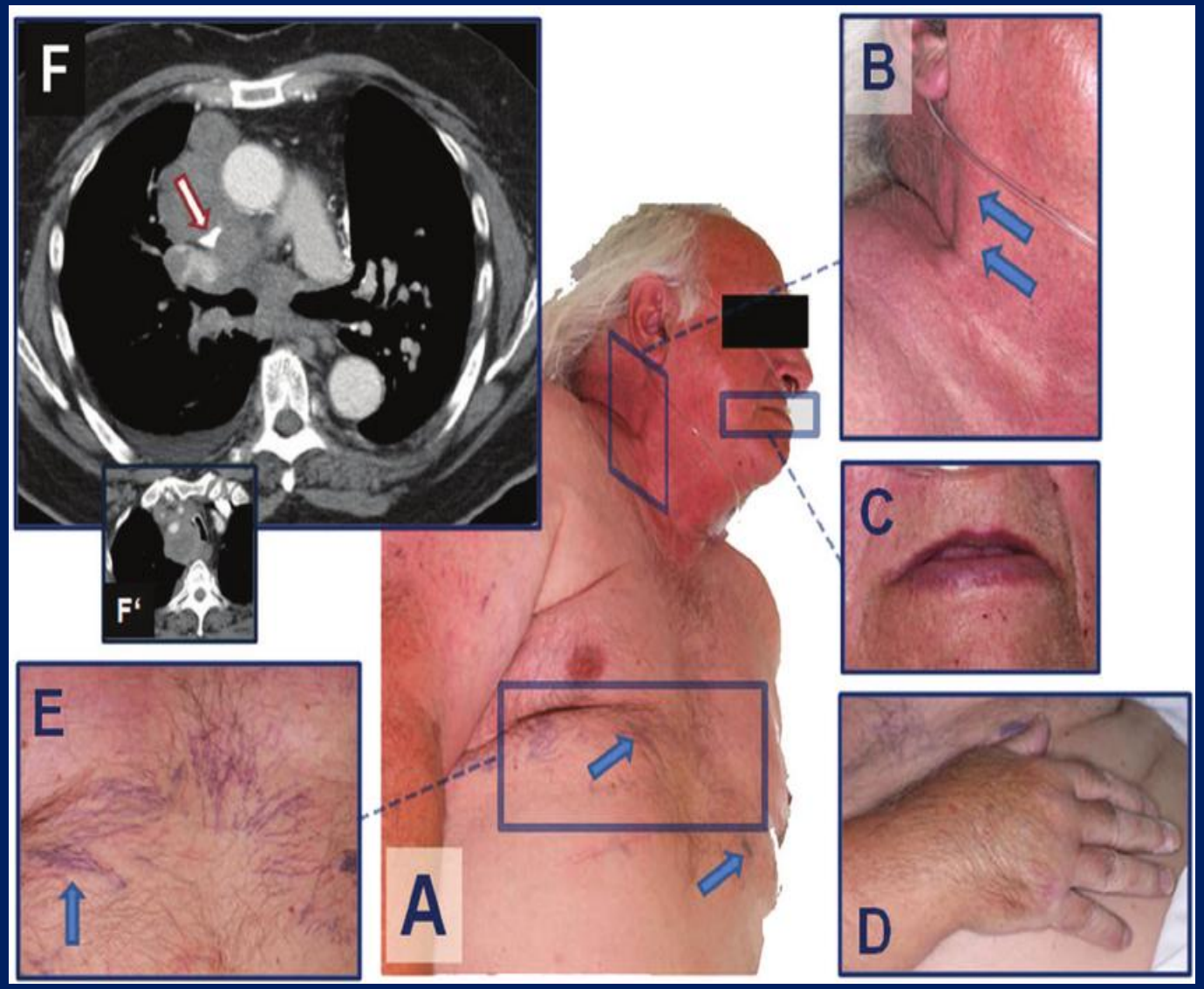
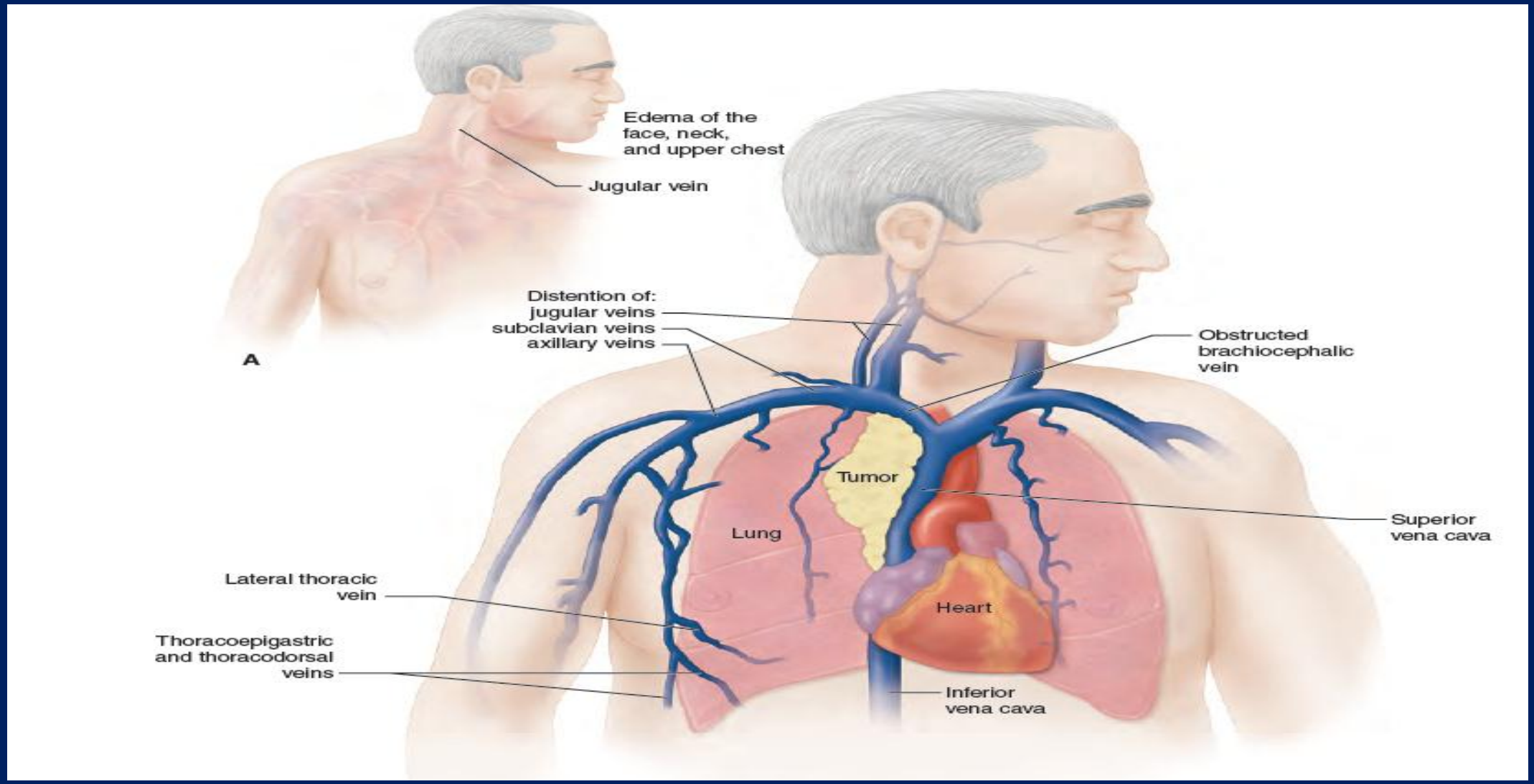


**Figure 3.** Collateral circulation develops across the chest.



# Σύνδρομο άνω κοίλης φλέβας




**Βιοψία: μικροκυτταρικός καρκίνος πνεύμονα**

# Συμπτώματα

TABLE 119.1

**Common Symptoms and Physical Findings of Superior Vena Cava Syndrome**

| Symptoms | Patients Affected* (%) | Physical Findings | Patients Affected* (%) |
|---|---|---|---|
| Dyspnea | 63 | Venous distention of neck | 66 |
| Facial swelling and head fullness | 50 | Venous distention of chest wall | 54 |
| Cough | 24 | Facial edema | 46 |
| Arm swelling | 18 | Cyanosis | 20 |
| Chest pain | 15 | Plethora of face | 19 |
| Dysphagia | 9 | Edema of arms | 14 |

# Αίτια

**Primary Pathologic Diagnoses for Superior Vena Cava Syndrome**

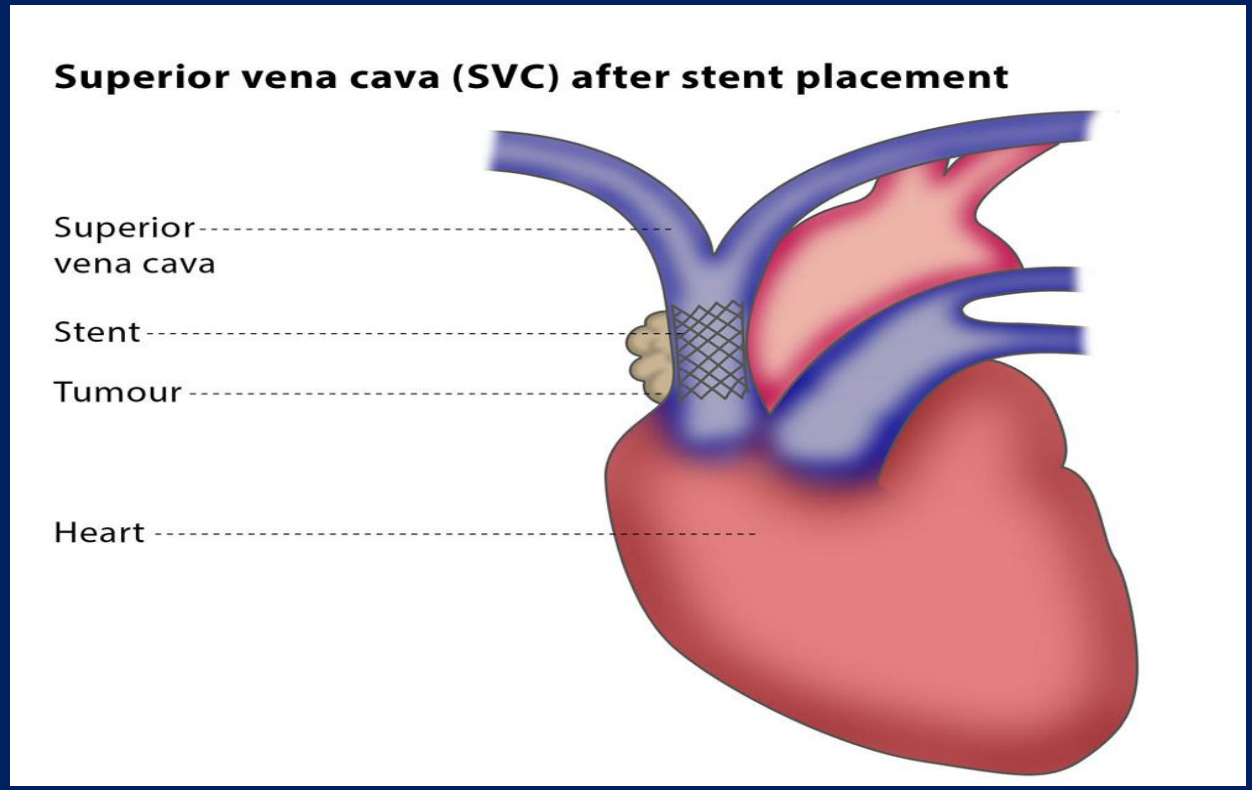
| Histologic Diagnosis | Bell et al.[7] 159 Patients (%) | Schraufnagel et al.[10] 107 Patients (%) | Parish et al.[9] 86 Patients (%) | Yellin et al.[11] 63 Patients (%) | Rice et al.[12] 78 Patients (%) |
|---|---|---|---|---|---|
| Lung cancer | 129 (81) | 67 (63) | 45 (52) | 30 (48) | 36 (46) |
| Lymphoma | 3 (2) | 10 (9) | 8 (9) | 13 (21) | 6 (8) |
| Other malignancies (primary or metastatic) | 4 (3) | 14 (13) | 14 (16) | 8 (13) | 5 (6) |
| Nonneoplastic | 2 (1) | 16 (15) | 19 (22) | 11 (18) | 31 (40) |
| Undiagnosed | 21 (13) | — | — | — | — |

# Αντιμετώπιση

Ακτινοθεραπεία

Χημειοθεραπεία

Stent

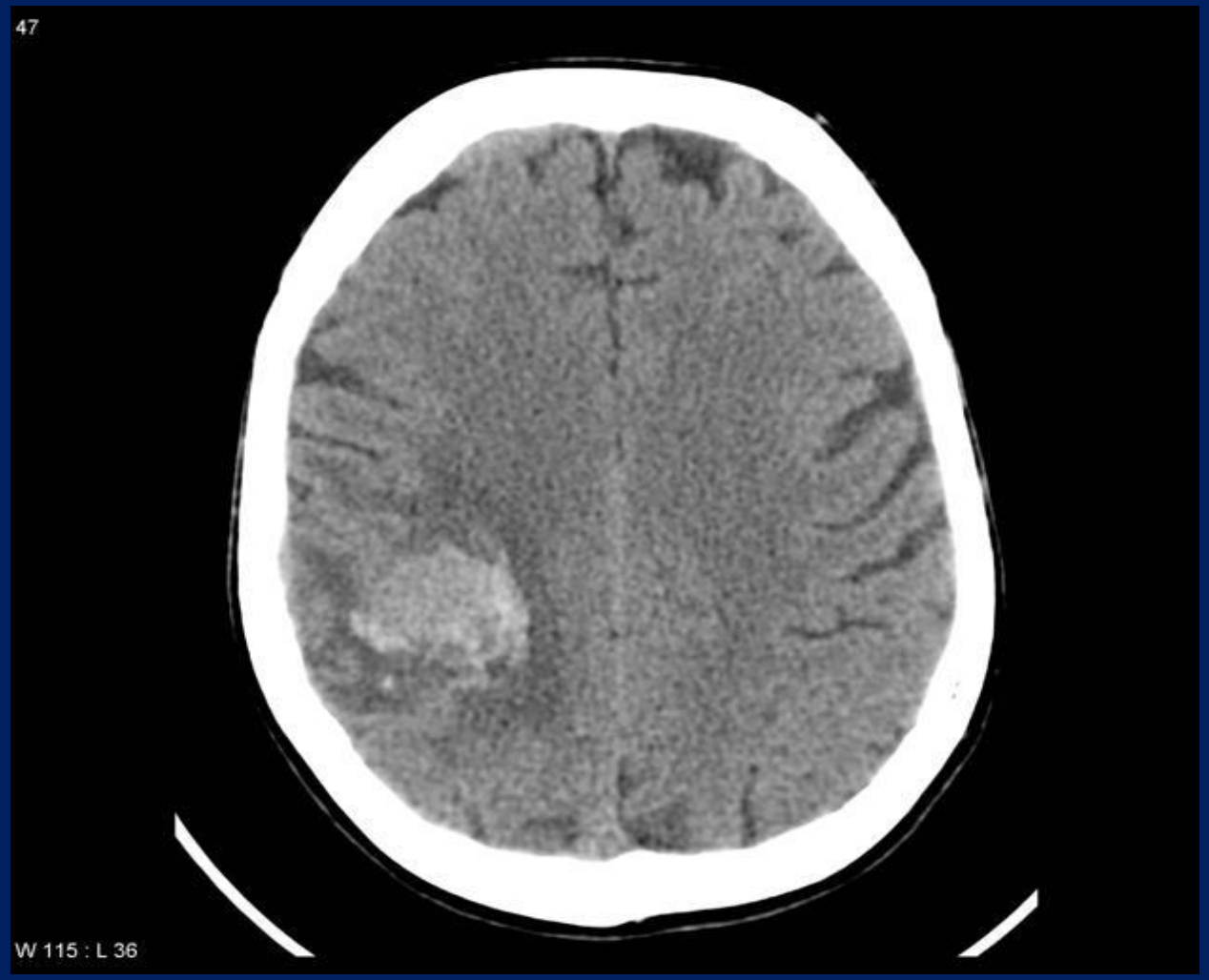


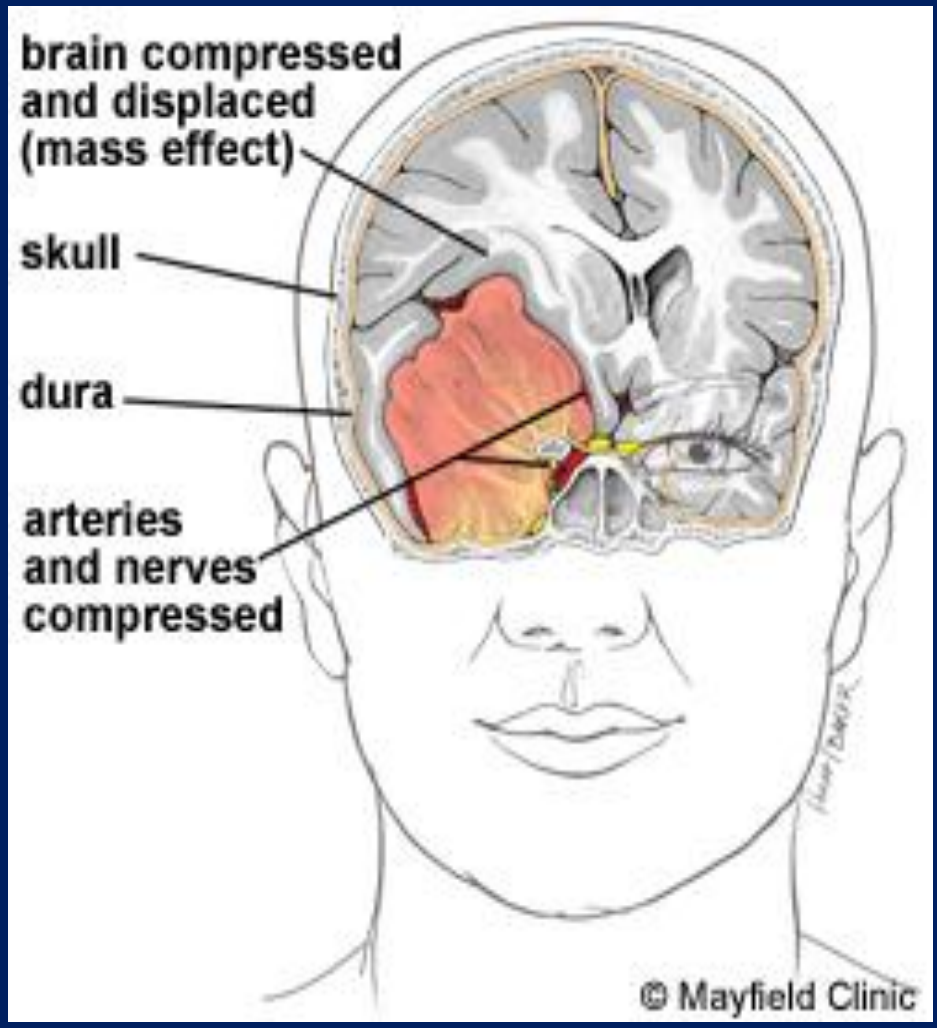
Γυναίκα 55 ετών

Διάγνωση μελανώματος ράχης πρό 4 ετίας

Χειρουργείο + ανοσοθεραπεία για 3 έτη

Αναφέρει ναυτία-εμέτους, κεφαλαλγία από ημερών


47
W 115 : L 36


brain compressed and displaced (mass effect)
skull
dura
arteries and nerves compressed
© Mayfield Clinic

# INCREASED INTRACRANIAL PRESSURE (ICP)

## "CUSHING'S TRIAD"

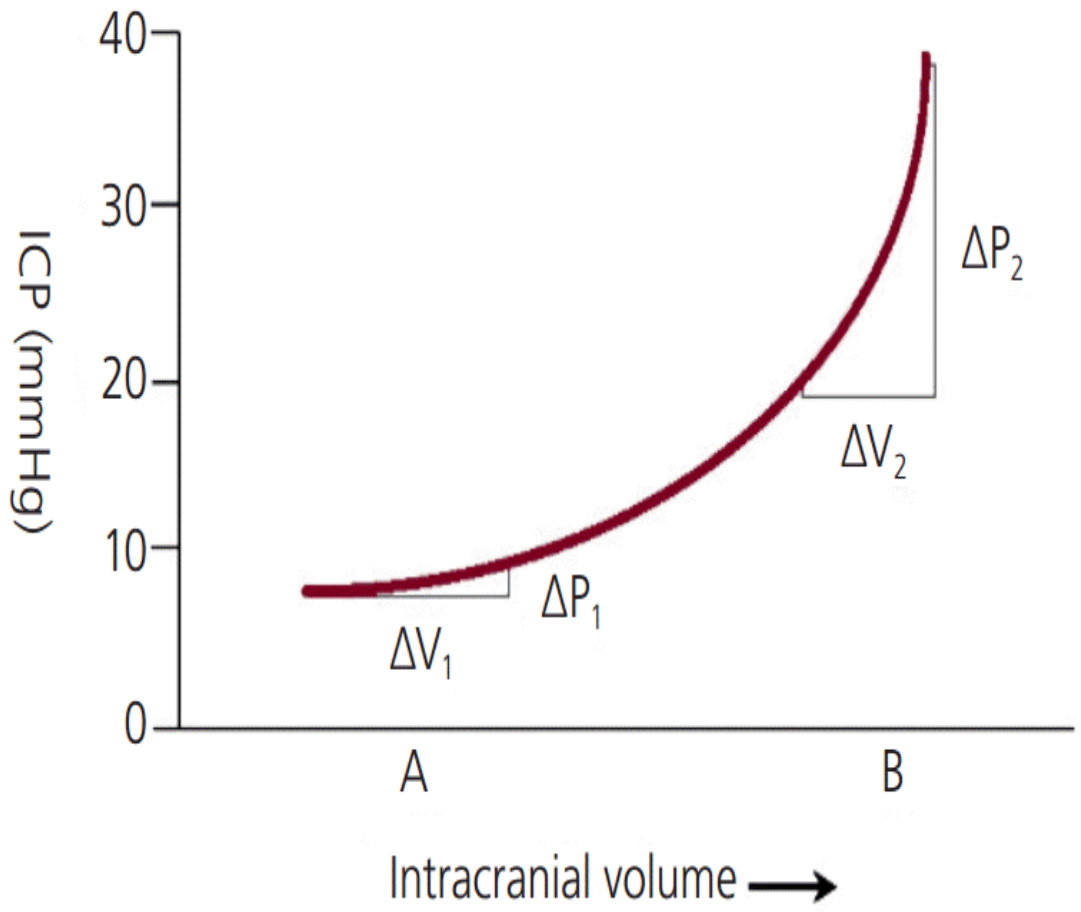
(Symptoms of ICP are OPPOSITE of Shock)

### ICP

- ↑ Systolic B/P
- ↓ Pulse
- ↓ Respirations


### Shock

- ↓ B/P
- ↑ Pulse
- ↑ Respirations




# Intracranial Volume-Pressure Curve

- Fig. 54.3 p. 1612
- Stage 1: good compensation for volume change with no > ICP
- Stage 2: good compensation, but > risk of ICP
- Stage 3: steep rise in curve; loss of autoregulation; Cushing's Triad
- Stage 4: ICP at terminal levels; herniation

# Complications

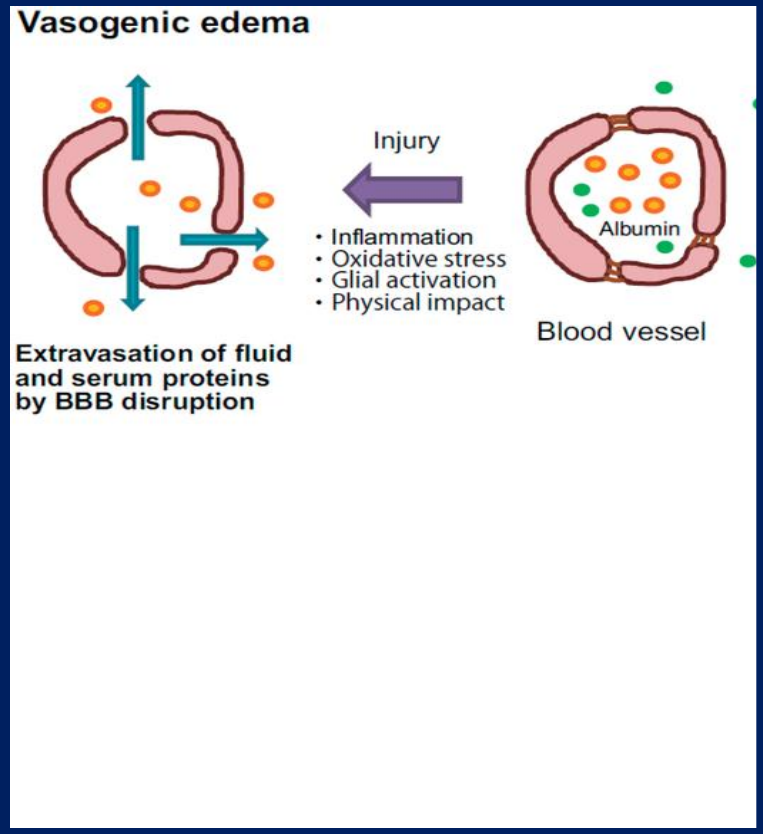
- Increased intracranial pressure
- Increased intraocular pressure
- Increased intragastric pressure
- Aspiration due to decreased gag reflex
- Malignant hyperthermia
- Dysrythmias
- Hypoxemia
- Airway trauma
- Failure to intubate / failure to ventilate
- DEATH

# Αντιμετώπιση

Δεξαμεθαζόνη

Μαννιτόλη

Ακτινοθεραπεία



Γυναίκα 46 ετών

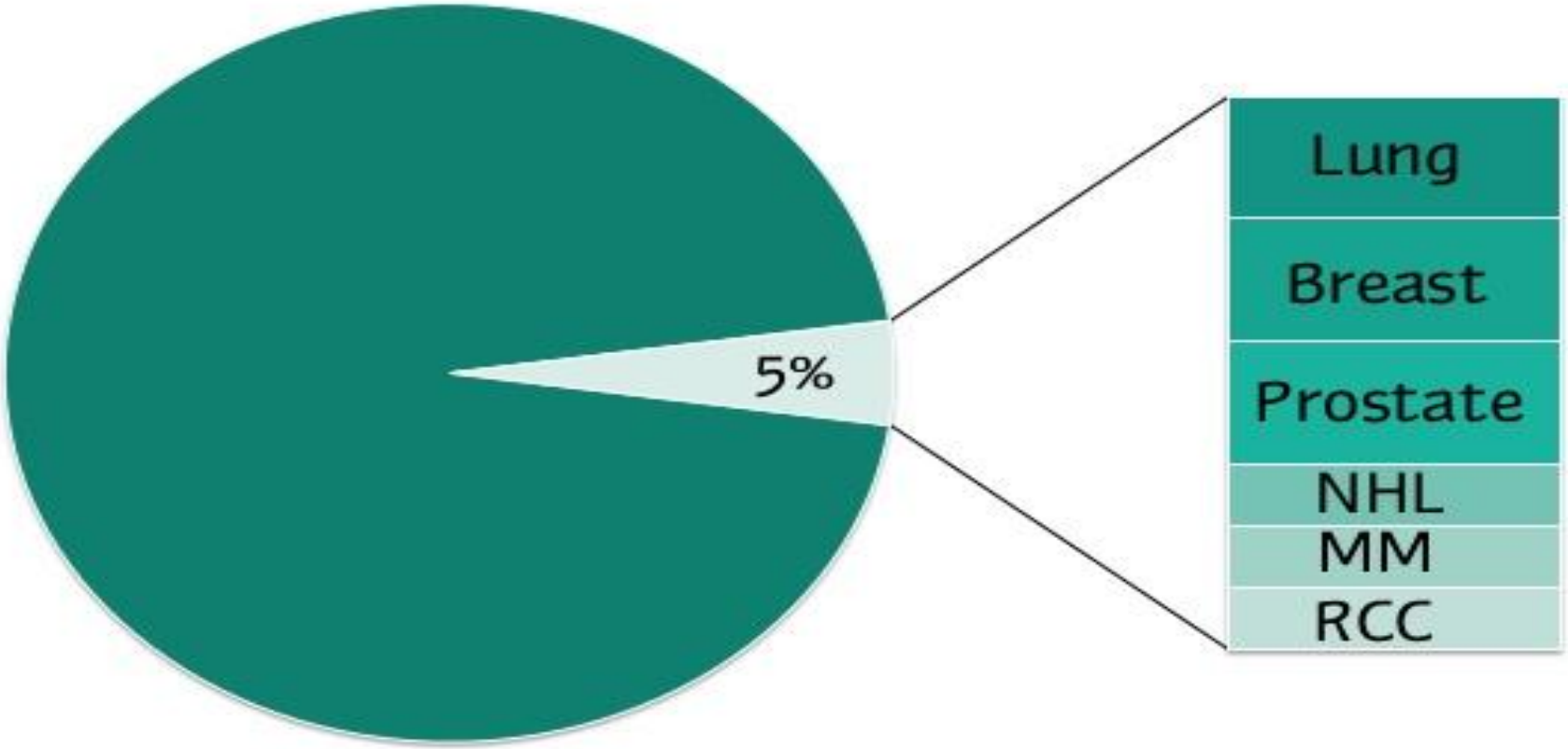
Ca μαστου σταδίου IV

Άλγος στην οσφύ

Άδυναμία-αιμωδίες κάτω άκρων

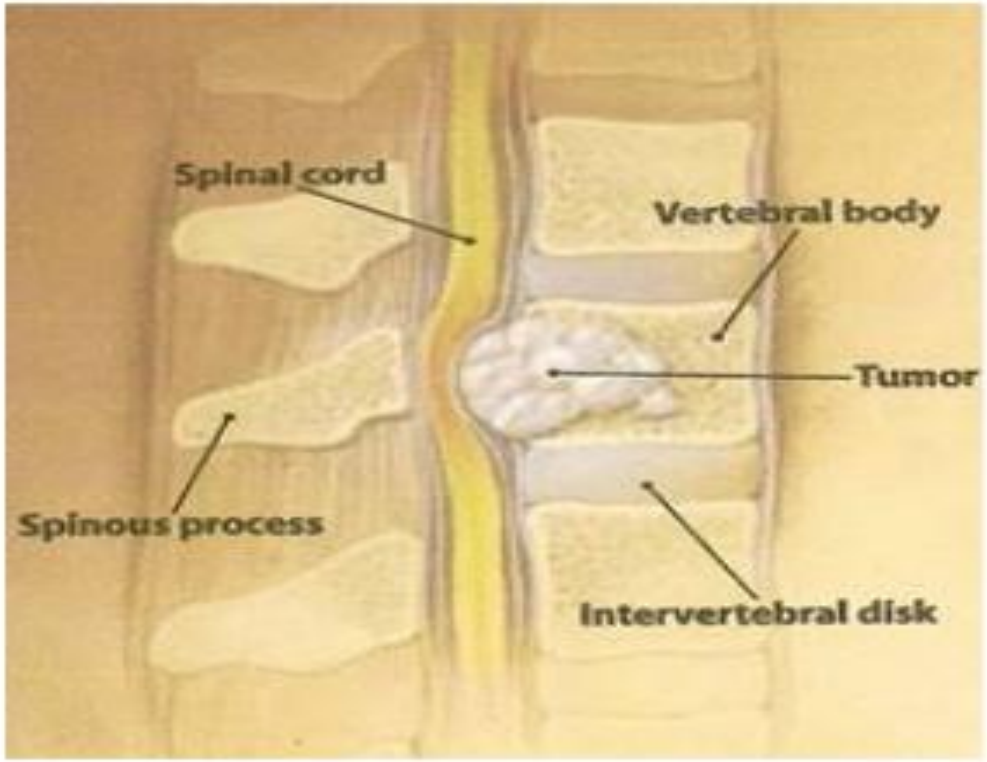
# EPIDEMIOLOGY & PROGNOSIS

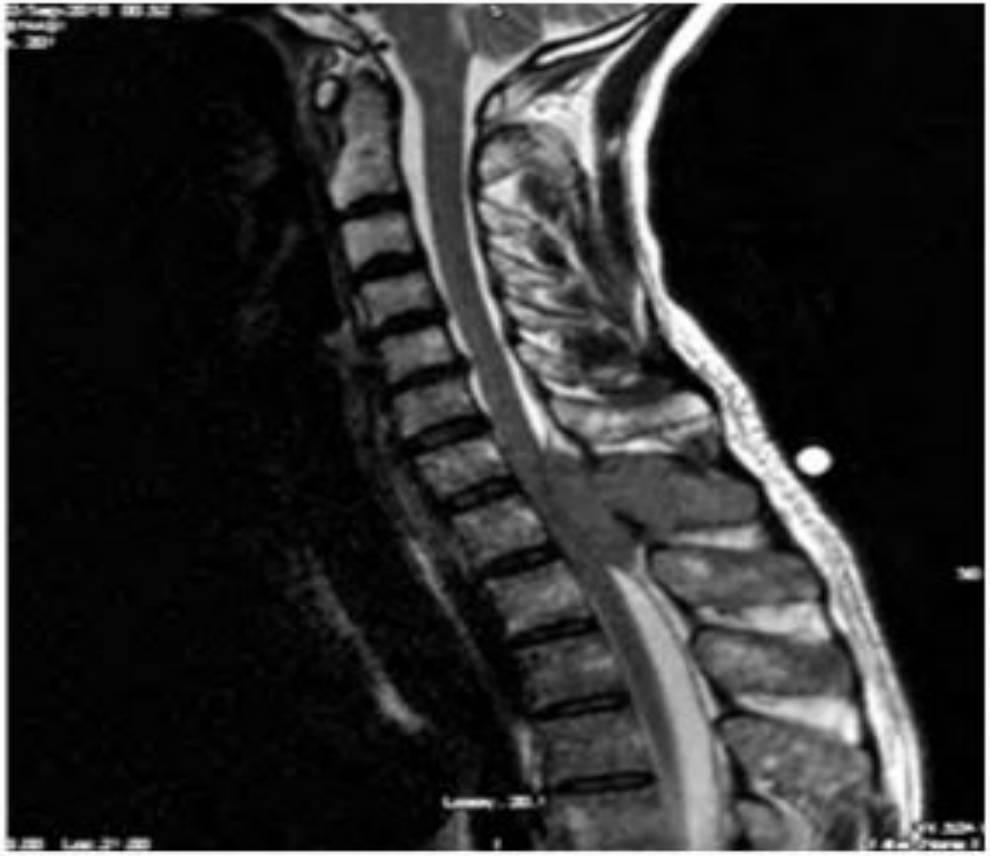
**Incidence of MSCC in terminal CA patients**



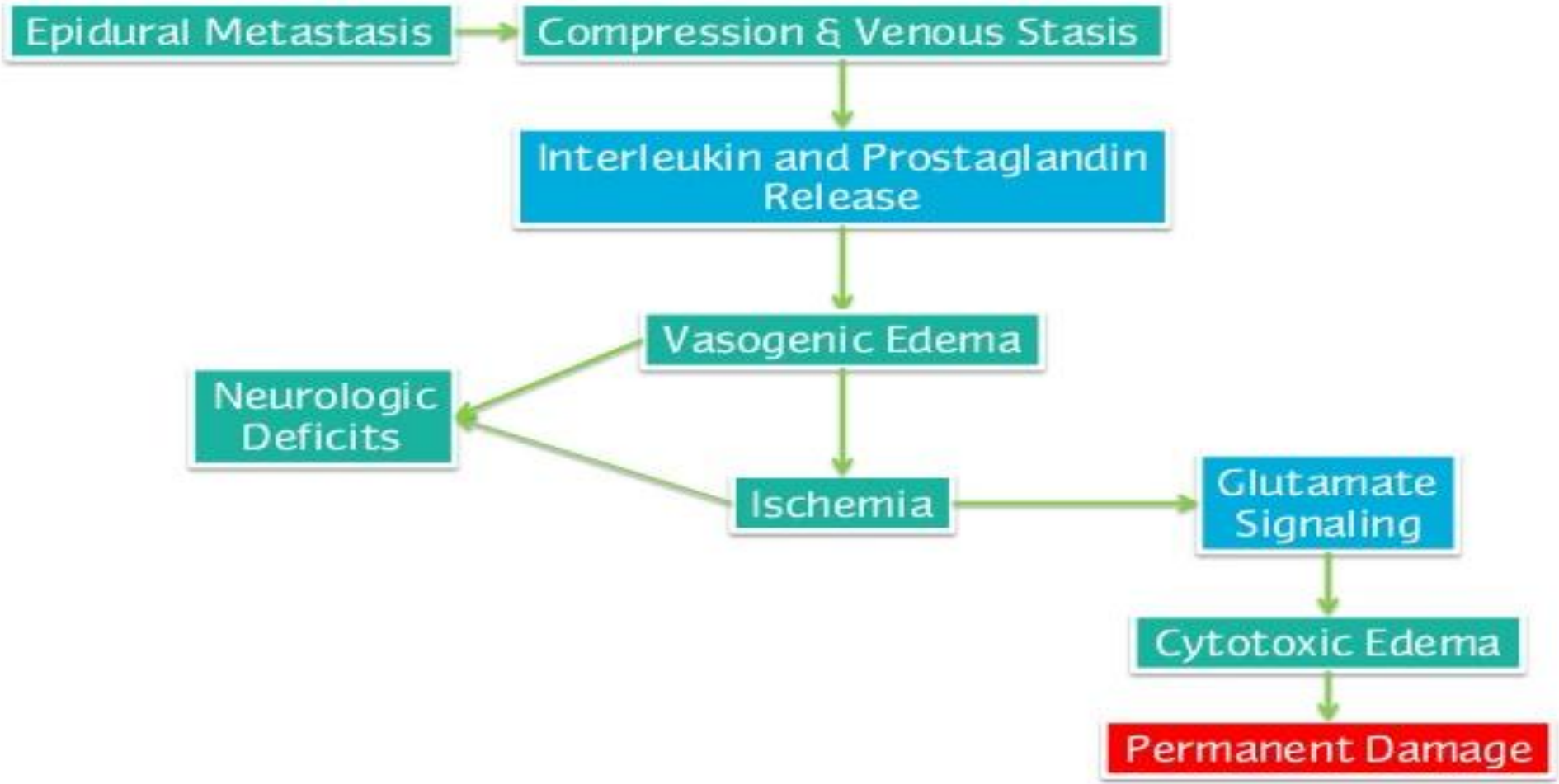

Median Survival after Diagnosis < 6 months

# PATHOPHYSIOLOGY

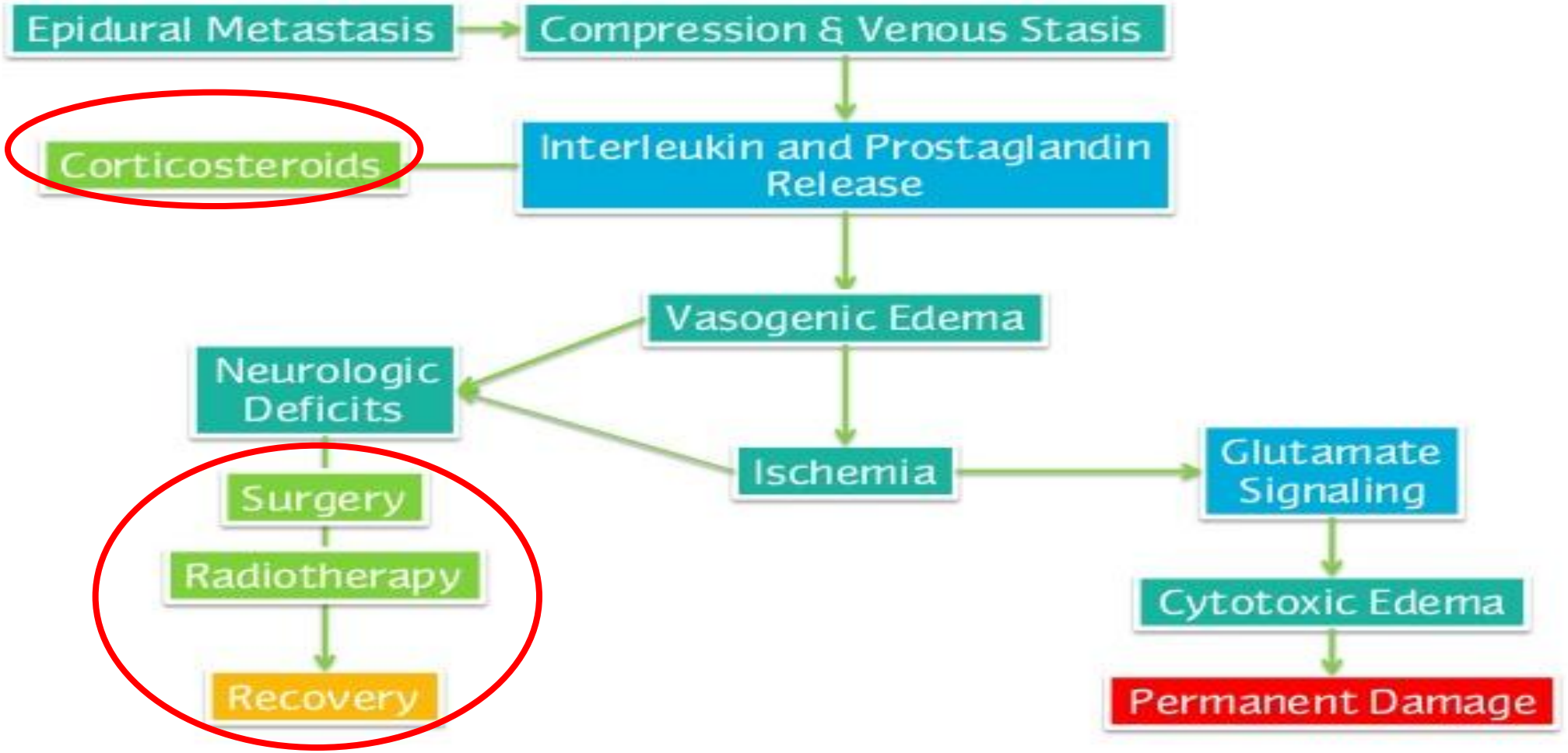


# PATHOPHYSIOLOGY

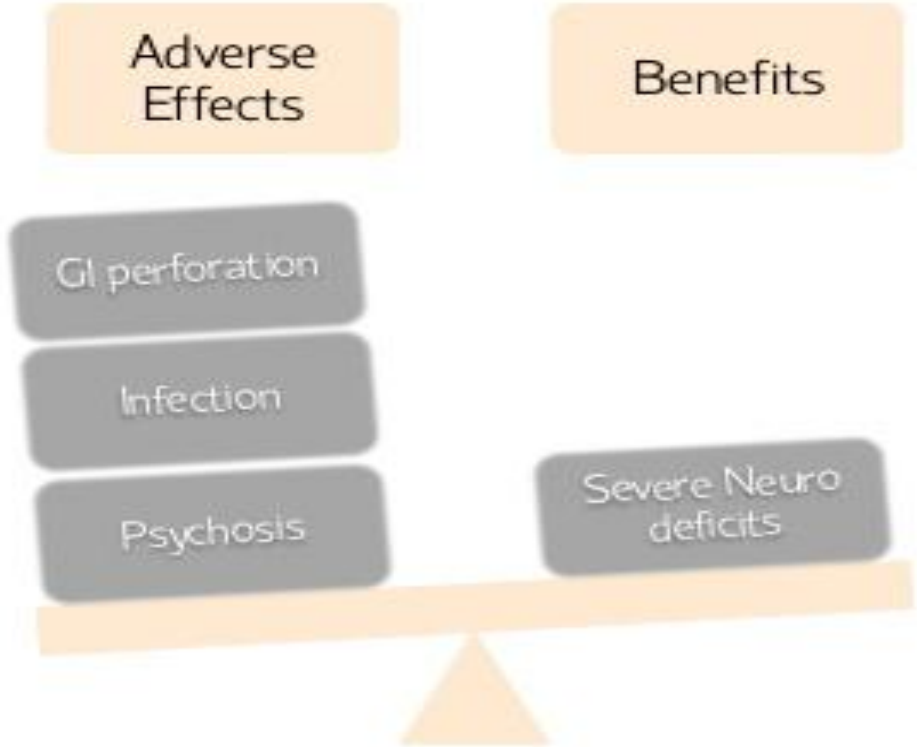


# TREATMENT


Epidural Metastasis
Compression & Venous Stasis
Corticosteroids
Interleukin and Prostaglandin Release
Vasogenic Edema
Neurologic Deficits
Ischemia
Glutamate Signaling
Surgery
Radiotherapy
Recovery
Cytotoxic Edema
Permanent Damage

# CORTICOSTEROIDS

| High Dose Dexamethasone | Standard Dose Dexamethasone |
| --- | --- |
| 96 mg IV bolus, 24mg PO q6h x 3 days , then taper | 10 mg IV bolus, then 4 mg IV q6h, then taper |



# RADIATION and SURGERY

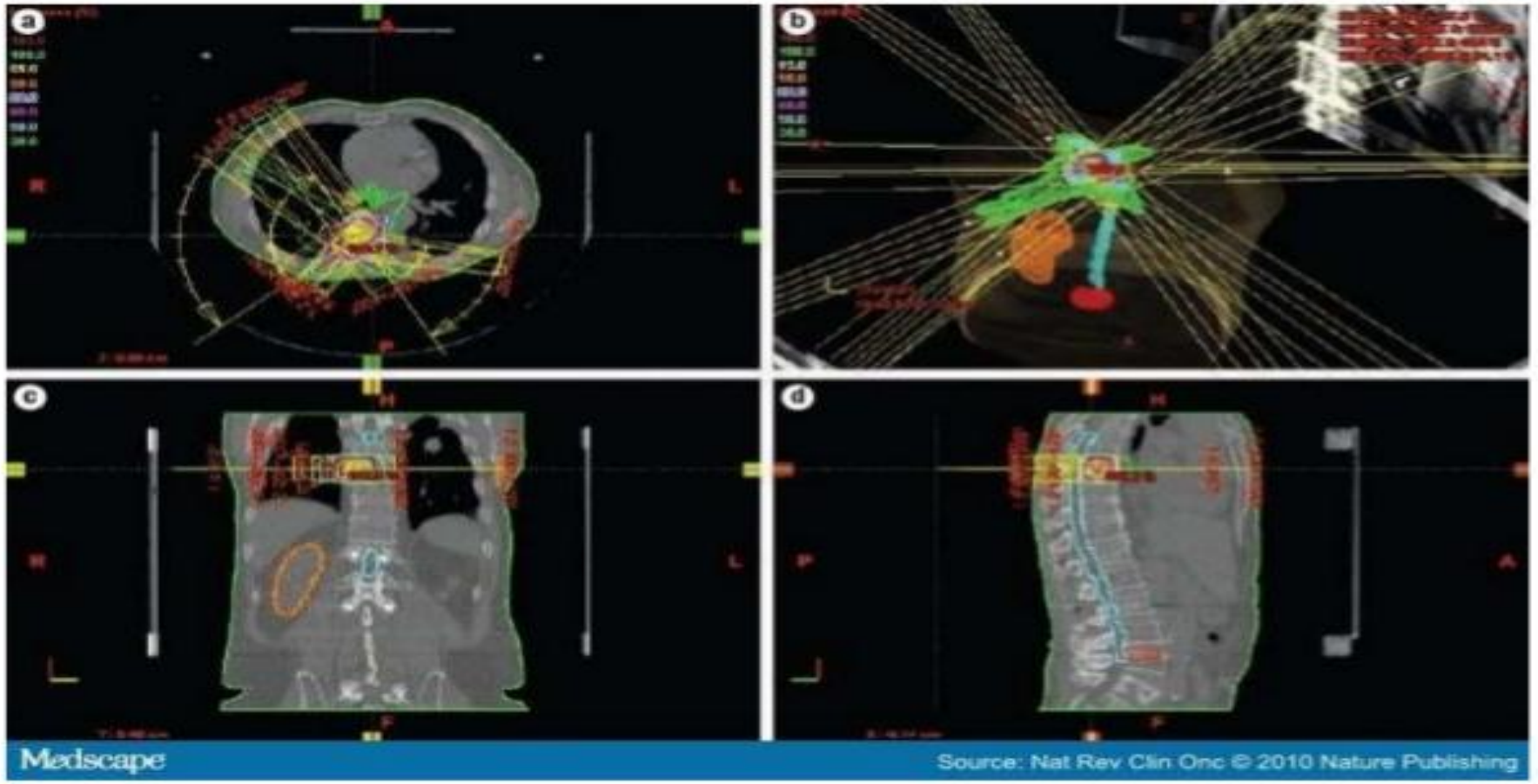
**MSCC best treated with COMBINATION therapy**

Radiation*
Shrink the tumor!

Surgery
Stabilize the spine
and/or resect tumor

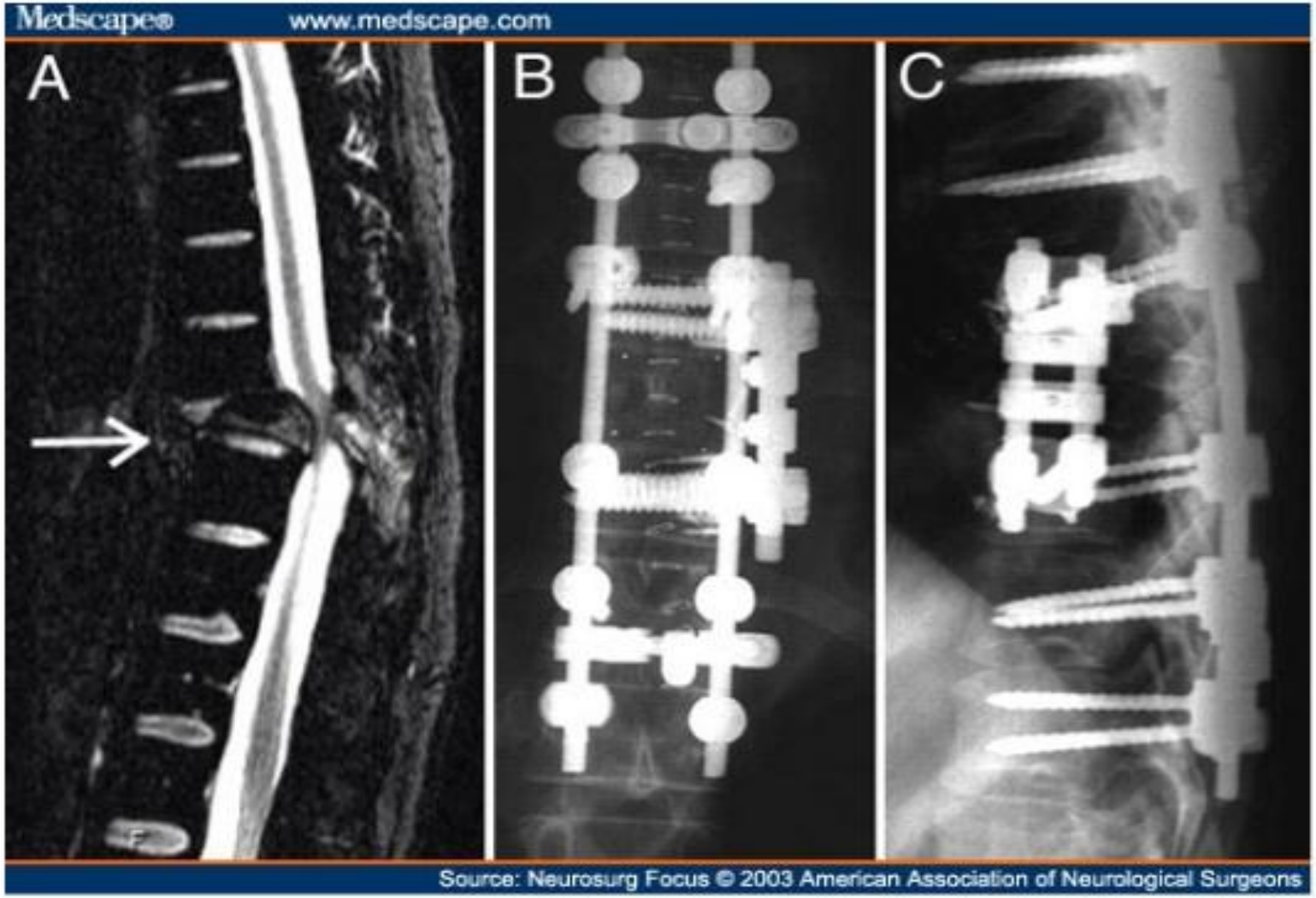
***Chemotherapy may also be appropriate if the tumor is chemotherapy sensitive**

# Treatment




Rades D, Abrahm M. Nat Rev Clin Oncol. 2010;7(9).

# RADIATION and SURGERY



Άνδρας 55 ετών

Ca προστάτη

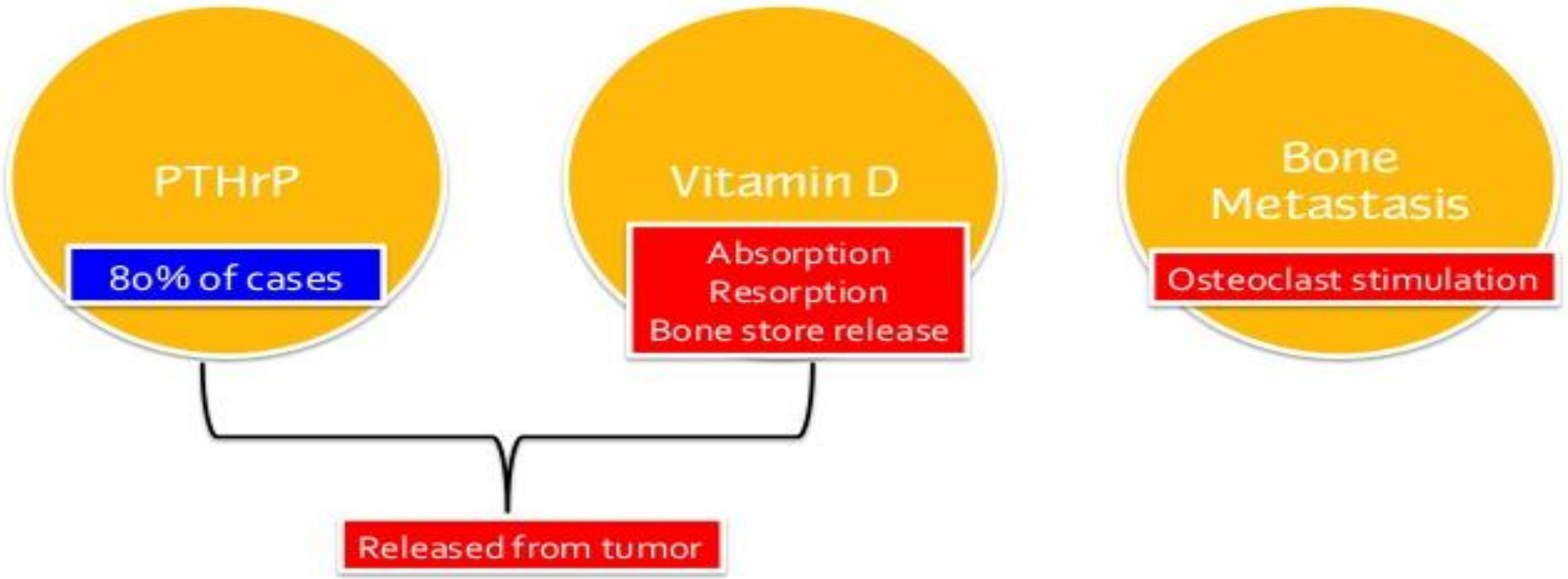
Κοιλιακό άλγος

Σύγχυση από 2ημέρου

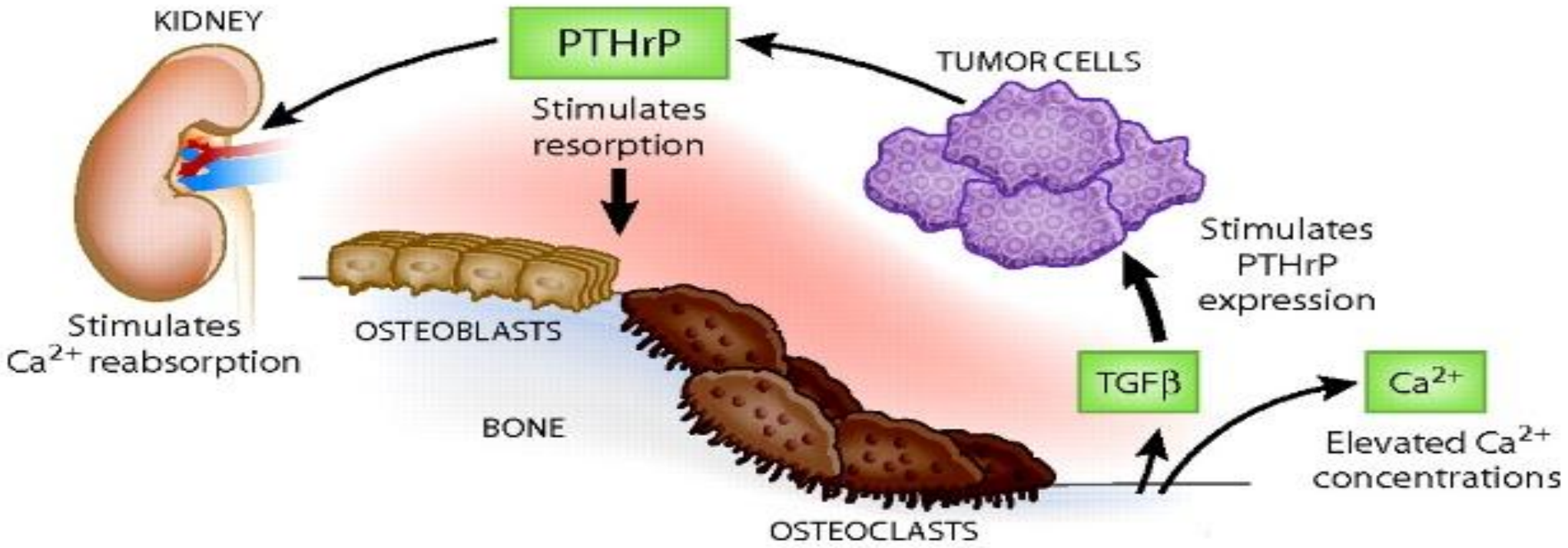
Κρεατινίνη: 1.67

Ασβέστιο: 15.2

# PATHOPHYSIOLOGY



# Parathyroid hormone related peptide



# Degrees of hypercalcemia

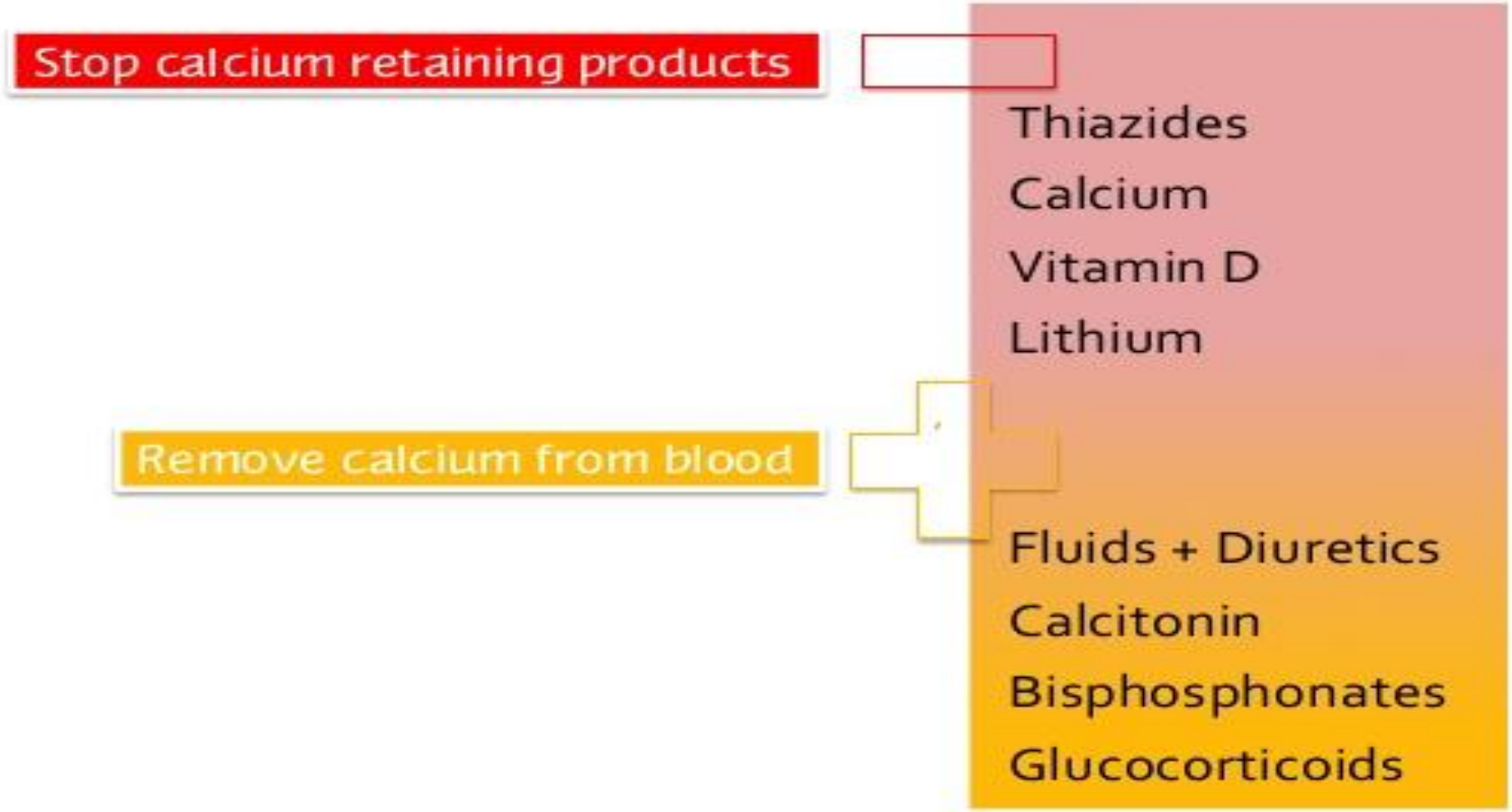
| Mild | Moderate | Severe |
| --- | --- | --- |
| 10.5-11.9mg/dL | 12-13.9 mg/dL | ≥ 14 mg/dL |

Anorexia N/V
Polydipsia
Constipation Polyuria
Weight Loss
Fatigue Bone Pain

Confusion
Lethargy
Coma

Corrected Calcium = Calcium + 0.8 (4-Albumin)

# TREATMENT


Stop calcium retaining products
Thiazides
Calcium
Vitamin D
Lithium
Remove calcium from blood
Fluids + Diuretics
Calcitonin
Bisphosphonates
Glucocorticoids

# TREATMENT

## Hydration (6-12h*)

NS 300-500cc/hr until euvolemic

Caution: HF, Renal failure*

## Diuresis (6-12h)

Lasix 20-40 mg IV q12-24h

Avoid Thiazides


## Calcitonin (12-24h)

Calcitonin 4-8IU/kg **IM/IV** q12h

Tachyphylaxis often occurs, IN ineffective


## Bisphosphonates (48-72h)

Zoledronic Acid 4 mg IV

Pamidronate 60-90 mg IV

Caution: poor dentition (ONJ) or reduced CrCl

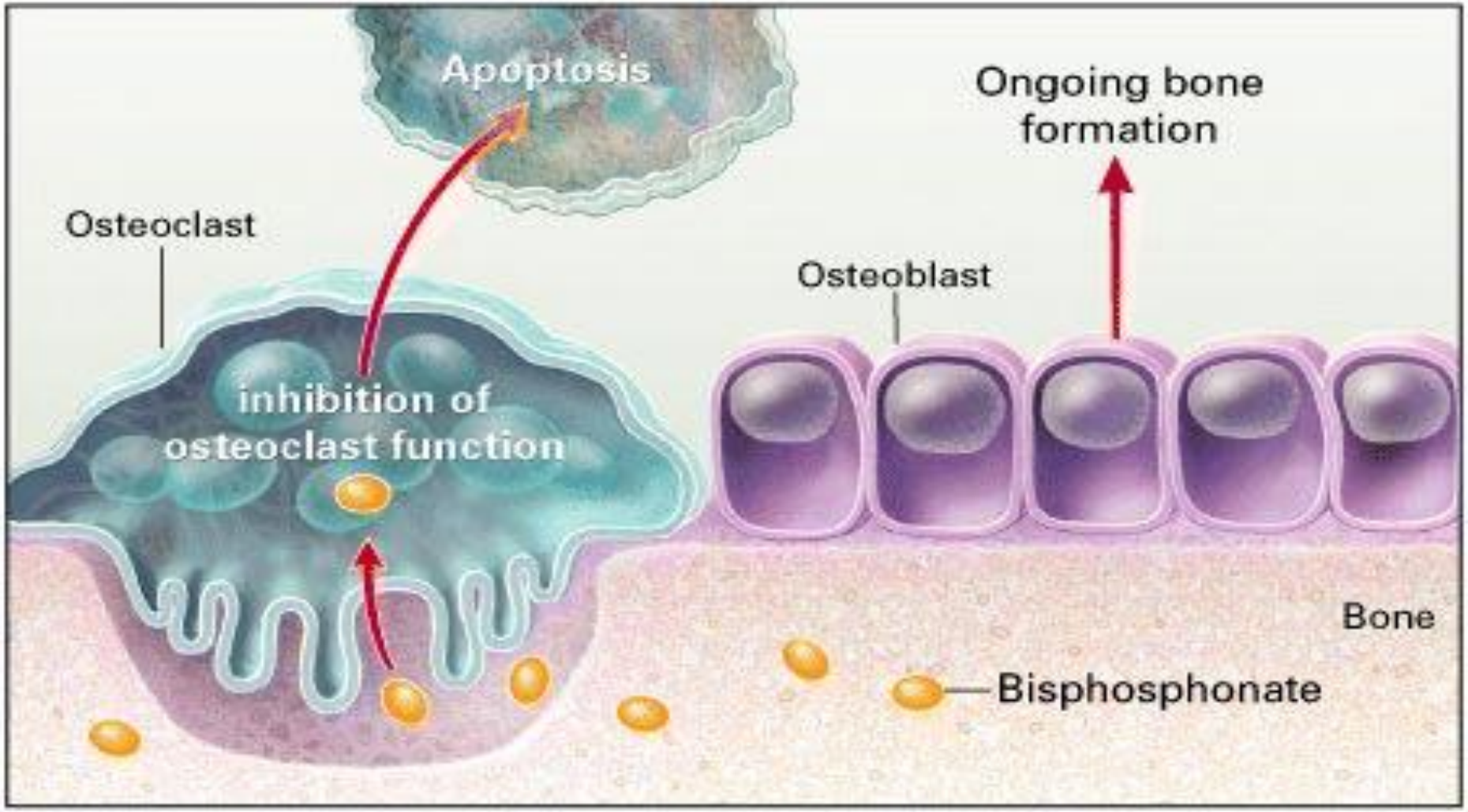

## Glucocorticoids (3-5 days)

Hydrocortisone 100 mg IV q6h

Prednisone 60 mg PO daily

Usually limited to lymphomas

# Bisphosphonates



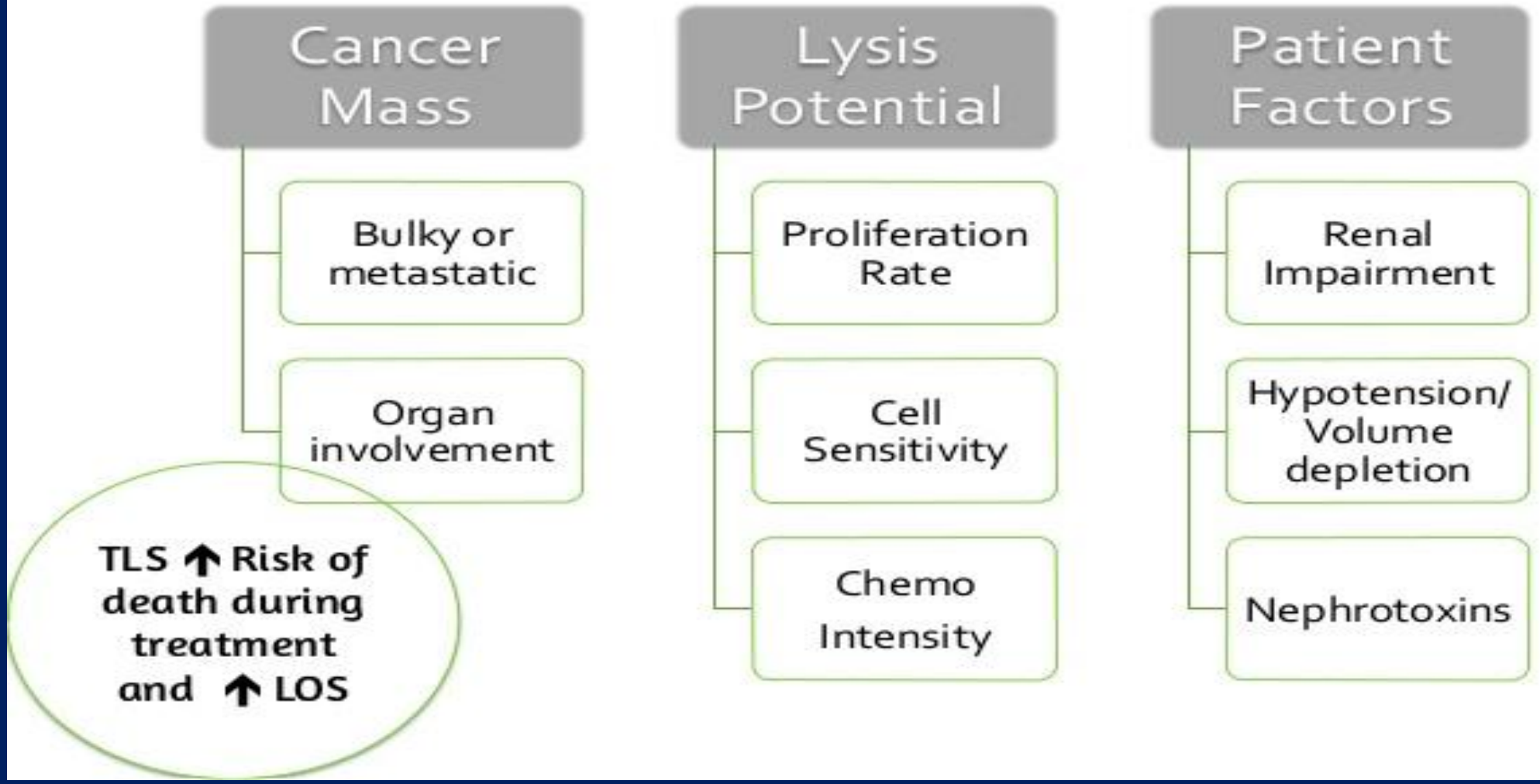
Γυναίκα 61 ετών

Πρόσφατη λήψη χημειοθερεπείας λόγω λευχαμίας

Κοιλιακό άλγος, ανορεξία, έμετοι

Αδυναμία,ολιγουρία

# Epidemiology & Prognosis



# Definition

## Cairo-Bishop Laboratory TLS

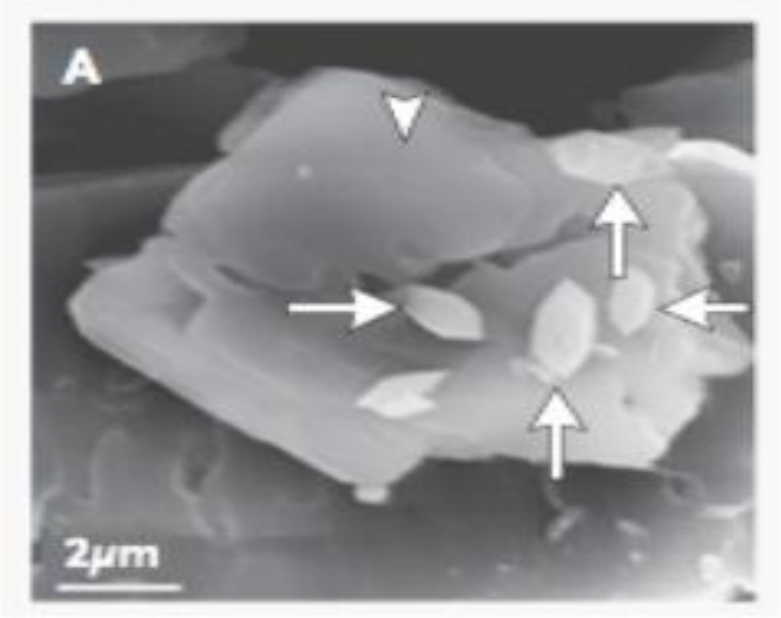
≥ 2

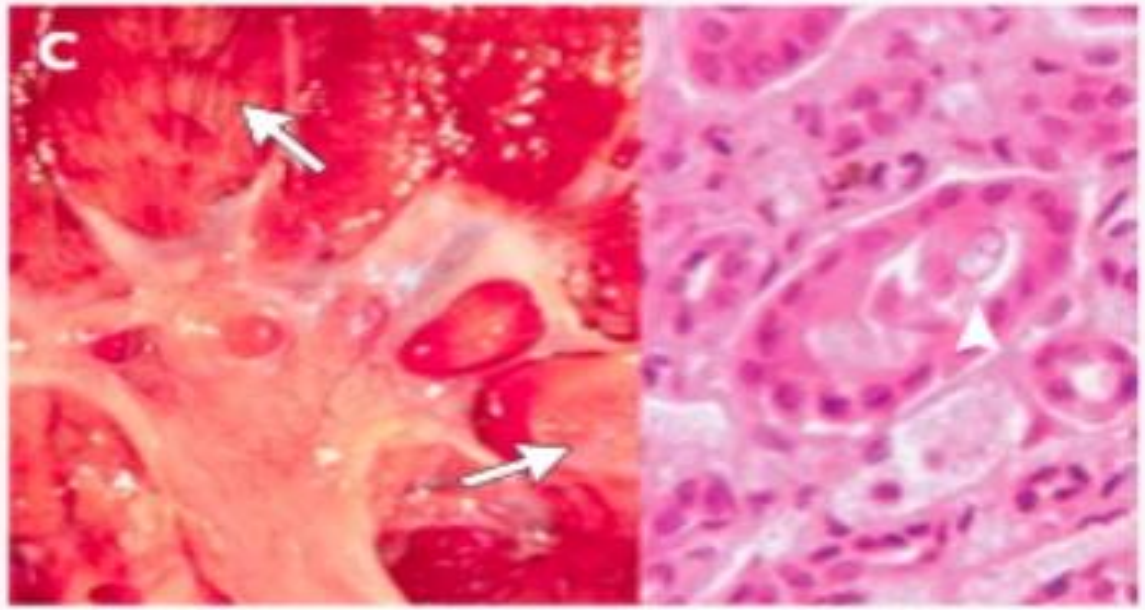
Uric Acid ≥ 8 mg/dL
Potassium ≥ 6mEq/L
Phosphorous ≥ 6.5 mg/dL
Calcium ≤ 7 mg/dL
OR a 25% change from baseline

## Clinical TLS

SCr ≥ 1.5 x ULN
Cardiac arrhythmia
Seizure
Sudden death

# TLS Induced Renal Failure



# Treatment Strategies

## Prevention

Evaluate risk factors

1) Tumor burden
2) Sensitivity
3) Underlying dysfunction

Determine **need** and **INTENSITY** of prophylaxis

## Treatment

Manage lab abnormalities

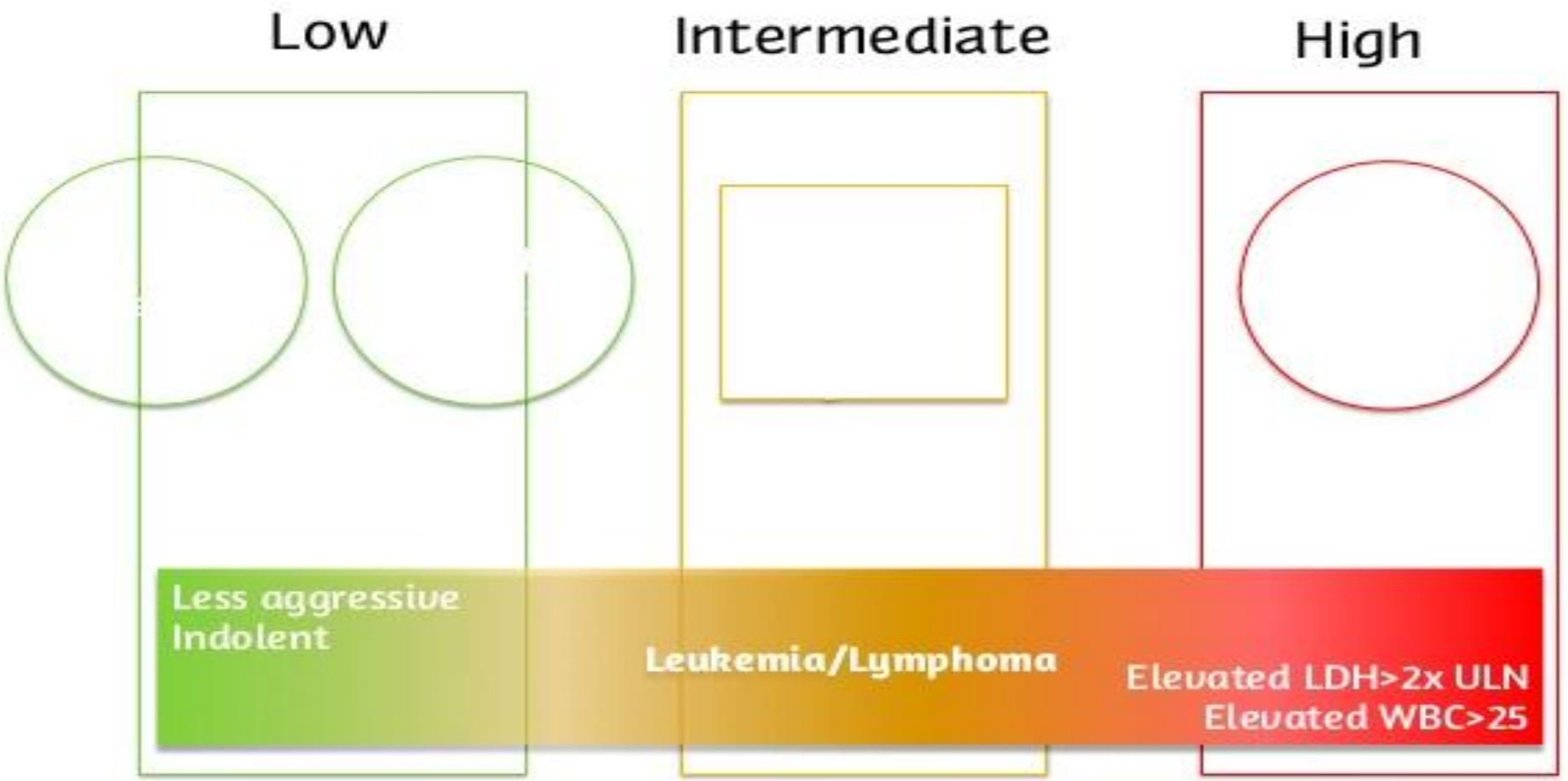
- Hyperkalemia
- Hyperphosphatemia
- Hyperuricemia

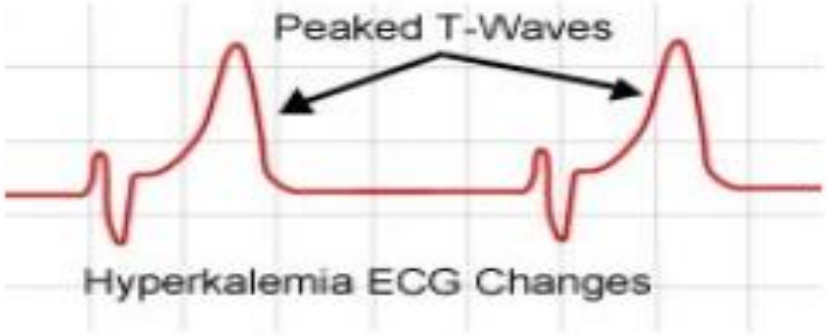
Dose adjust medications based on **renal** function

# Prevention

| | |
|---|---|
| **Hyperhydration**<br>Caution: Heart or Renal failure | • NS IV 2500-3000mL/$m^2$/day<br>• Goal: UO – 80-100 mL/$m^2$/hr |
| **Allopurinol**<br>No need for renal dose adjust | • 300 mg/m2/day starting 48h prior to chemotherapy |
| **Rasburicase**<br>Ensure proper G6PD function | • 0.15-0.2 mg/kg IV x 1 then reassess |

# Risk Stratification





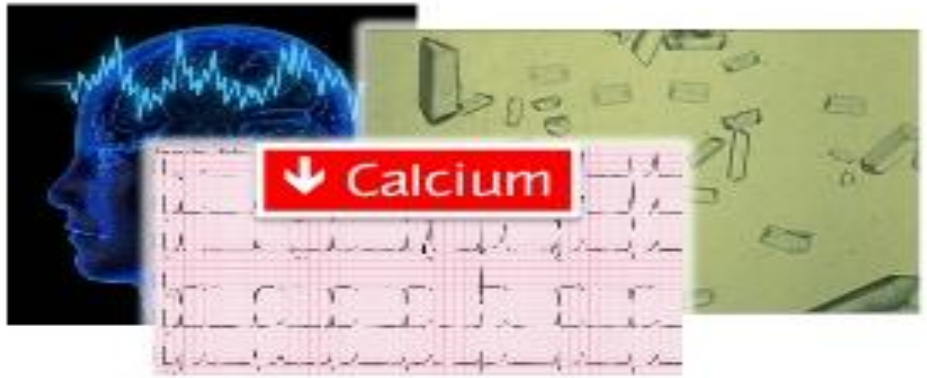

# Hyperkalemia

**Potassium** (3.7-5.2 mEq/L)
Mild: 5.5-6.5
Moderate: >6.5
Severe: >6.5 + ECG changes

- Calcium gluconate 1-2 g IV over 5-10 mins, may repeat

- Insulin 10 units + D50W 50mL IVP
- Albuterol 10-20 mg nebulized over 10 mins
- Sodium bicarbonate 50-100mEq IV over 2-5 mins

- Lasix 20-40 mg IV
- SPS 15-60 gm PO q6h

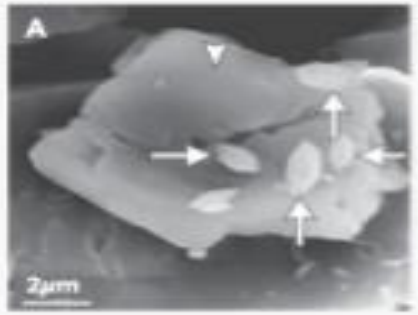



# Hyperphosphatemia

**Phosphate** (2.4-4.1 mg/dL)
Ca x Phos > 70

## Phosphate Binders (prevent absorption via GI tract)

| | |
|---|---|
| ↓Renal fxn | |
| ↑Ca | Calcium Acetate 1337 mg PO TID AC |
| | Sevelamer 800-1600mg PO TID AC |




# Hyperuricemia

**Uric Acid**

Low <4

Intermediate: 4-8

High >8

- NS 2500-3000mL/m$^2$/day
- Goal: UO – 80-100mL/m$^2$/hr

- Rasburicase 0.2 mg/kg IV x 1, redose based upon UA levels

Άνδρας 70 ετών

Ca πνεύμονα σταδίου IV

Λήψη χημειοθεραπείας πρό 10 ημερών

Εμπύρετο έως 38.6, αδυναμία-καταβολή

# Febrile Neutropenia

- Definition:
  - Fever:
    - Oral temperature ≥ 38.3 without signs of noninfectious causes of increased temperature

      OR
    - temperature of ≥ 38.0 C twice, lasting for at least 1 h or measured twice within 12 h
  - Neutropenia
    - Neutrophil count <500/$mm^3$

      OR
    - Neutrophil count <1000/$mm^3$ with predicted decline to 500/ml within the next 2 days

Link et al. Ann Hematol (2003) 82 (Suppl 2):S105–S117.

# Febrile Neutropenia

- Investigations
  - cultures
  - CBC
  - BUN/Cr
  - transaminase measurements
- If respiratory symptoms are present → CXR
  - may be clear due to lack of inflammatory response
- Can consider outpatient treatment of low risk patients >16 years old

Hughes et al. Clinical Infectious Diseases. 2002;34:730-51

# Febrile Neutropenia

**Table 4. Scoring index for identification of low-risk febrile neutropenic patients at time of presentation with fever.**

| Characteristic | Score |
|---|---|
| Extent of illness[a] | |
| No symptoms | 5 |
| Mild symptoms | 5 |
| Moderate symptoms | 3 |
| No hypotension | 5 |
| No chronic obstructive pulmonary disease | 4 |
| Solid tumor or no fungal infection | 4 |
| No dehydration | 3 |
| Outpatient at onset of fever | 3 |
| Age <60 years[b] | 2 |

**NOTE.** Highest theoretical score is 26. A risk index score of ≥21 indicates that the patient is likely to be at low risk for complications and morbidity. The scoring system is derived from [50].

[a] Choose 1 item only.

[b] Does not apply to patients ≤16 years of age. Initial monocyte count of ≥100 cells/mm$^3$, no comorbidity, and normal chest radiograph findings indicate children at low risk for significant bacterial infections [46].

Hughes et al. Clinical Infectious Diseases. 2002;34:730-51.

# Febrile Neutropenia

- Initial treatment algorithm

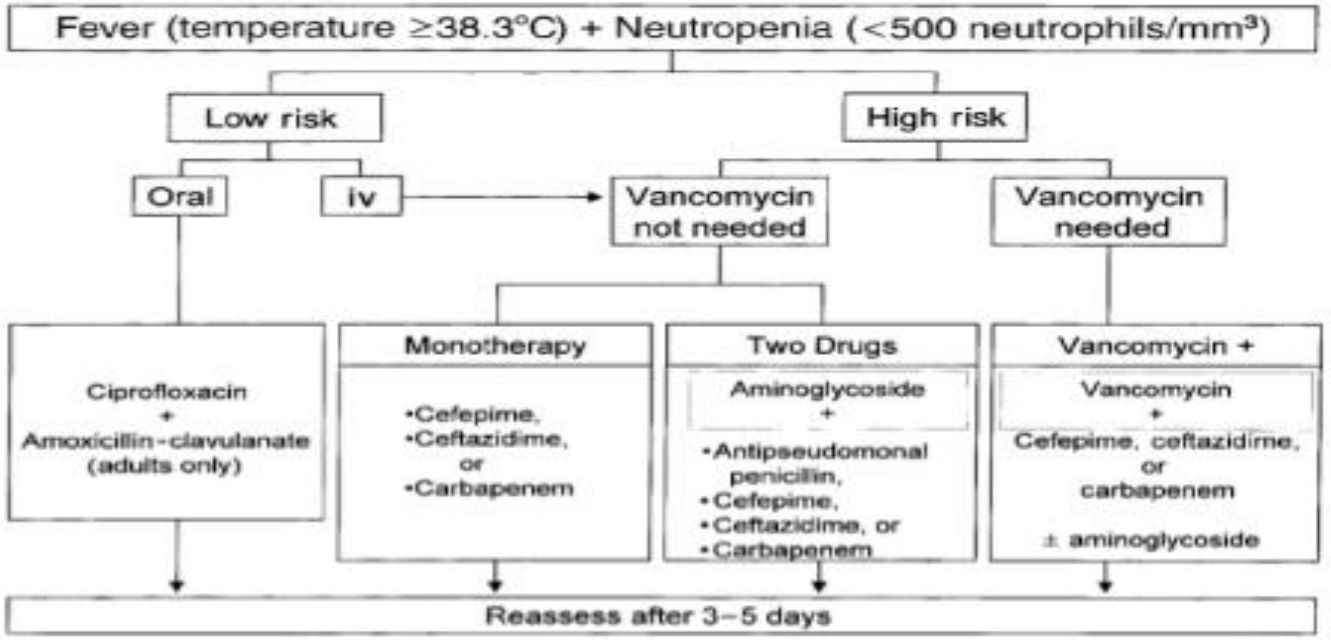
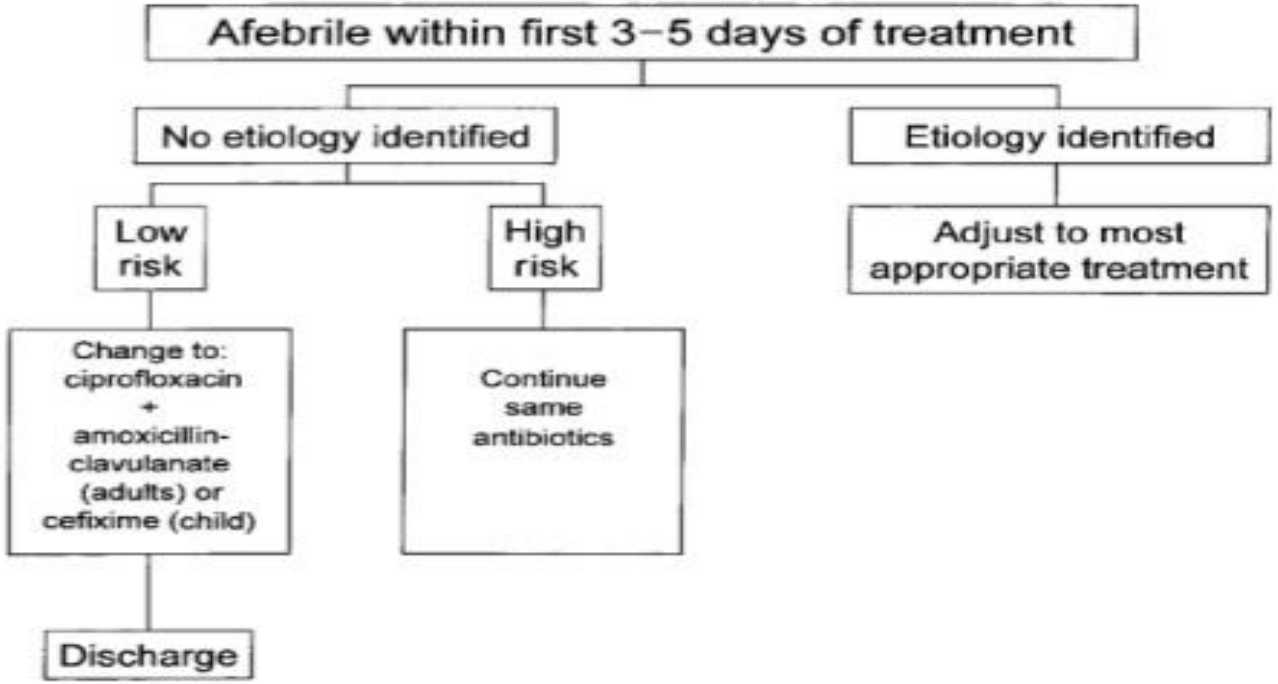



**Figure 1.** Algorithm for initial management of febrile neutropenic patients. See tables 3 and 4 for rating system for patients at low risk. Carbapenem, imipenem or meropenem.

Hughes et al. Clinical Infectious Diseases. 2002;34:730-51.

# Febrile Neutropenia

- Continuing treatment algorithm




Hughes et al. Clinical Infectious Diseases. 2002;34:730-51.

# Febrile Neutropenia

- Continuing treatment algorithm

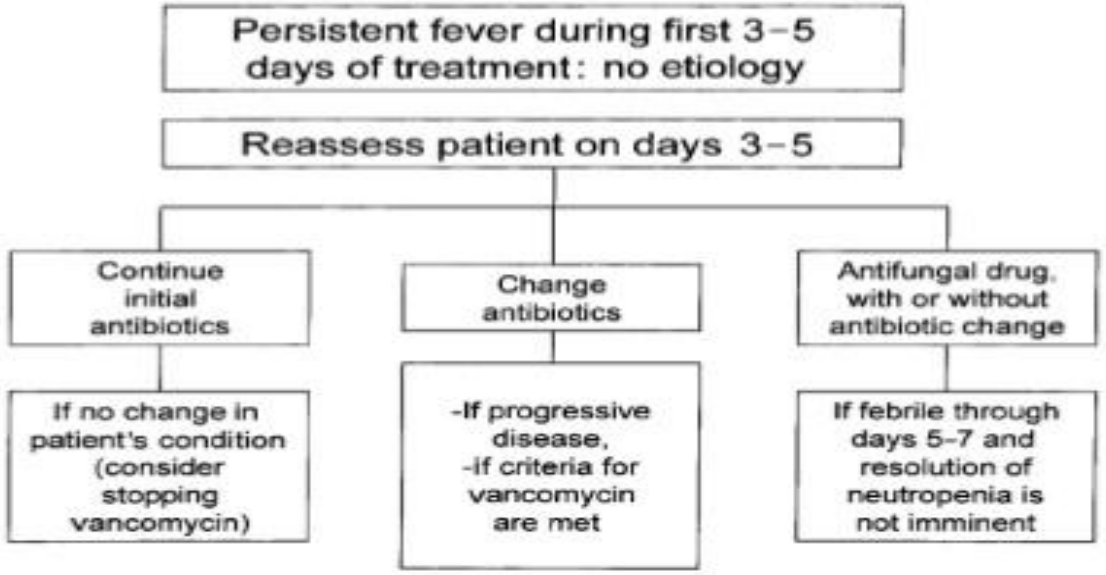



**Figure 3.** Guide to treatment of patients who have persistent fever after 3–5 days of treatment and for whom the cause of the fever is not found.

Hughes et al. Clinical Infectious Diseases. 2002;34:730-51.