

### Tumor Lysis Syndrome

#### Definition

Simultaneous death of many cancer cells produces release to blood of enormous quantities of products of their destruction.

#### When?

May particularly occur during initial phase of treatment of pts. w/ large chemosensitive tumors

#### Symptoms

Hyperphosphatemia  
Hyperuricemia  
Hyperkalemia (life-threatening: cardiac arrhythmias)  
Hypocalcemia secondary to formation of calcium phosphate: tetany, mental agitation, seizures  
Acute renal failure

#### Diagnosis

Based on development of  
-increased lvl. of serum uric acid (8mg%) , phosphate (4,5 mg%) , and potassium (6mg%)  
-decreased levels of serum calcium (7mg%)  
-increased serum creatinine (1,5 x upper normal limit)  
-cardiac arrhythmias or death, seizures

#### Management:

- Forced diuresis 3 L/m<sup>2</sup> PWE + furosemide
- Allopurinol to fight hyperuricemia (protein degradation).
- Novel agent: rasburicase

### Hypercalcemia - Clinical Symptoms

Pts. w/ Ca. conc. b/w 10.5 & 12 mg/dl usually asymptomatic

Renal  
polyuria  
nephrolithiasis (chronic HC)

GI  
anorexia  
nausea  
vomiting  
constipation  
pancreatitis

Neuro-psych  
weakness  
fatigue  
confusion  
stupor  
coma

CV  
shortened QT interval on ECG  
bradyarrhythmias  
heart block  
cardiac arrest

Ocular  
band keratopathy (chronic HC)

### Local Radiotherapy

#### Teleradiotherapy

tumor irradiated from a distant (usually ~ 1m) source

#### Brachytherapy

irradiation source is placed @ direct vicinity of irradiated tissue (aka. Curietherapy)

### Brachytherapy

#### Contact or intracavitary irradiation

Installation of radiation source into cavity or through a natural route

#### Interstitial irradiation

Insertion of the radioactive source interstitially

#### LDR (low-dose-rate)

Currently, most freq. = Cesium 137  
--> dose rate: 1 cGy/min  
Intracavitary: most freq. cervical ca.  
Interstitial: oral cavity ca. , pharyngeal ca. , prostate ca. , sarcoma

#### HDR (high-dose-rate)

Currently, most freq. = Iridium 192  
--> dose rate: 100 cGy/min  
Intracavitary: vaginal ca. , oesophageal ca. , lung ca. , sarcoma  
Interstitial: prostate ca.

### Teleradiotherapy

#### Conventional

orthovolt (125-500 kV)  
-can only be used for palliative tx. of superficially located metastases  
--> practically not used these days

#### Megavolt

telecobaltotherapy, photons & electrons from linear accelerator, neutrons from either neutron generator or cyclotrone  
--> energy: 4 - 20 MeV



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### Renal Ca. - Clinical Presentation

Typical	<b>hematuria</b>
Triad	<b>abd. pain</b> <b>flank / abd. mass</b> ( <i>palpable tumor</i> )
Less	fever
freq.	weight loss anemia varicocele (abn. enlargement of pampiniform venous plexus)
	PARANEOPlastic SYNDROMES: --> erythrocytosis --> hypercalcemia --> nonmetastatic hepatic dysfunc. (Stauffer's synd.) --> acquired dysfibrinogenemia

### Pancreatic cancer

#### Notes

- Freq. site = Head of pancreas
- No screening test available
- 5-year survival < 5%
- Median age of diag. = 72 y/o
- Peak incidence - 65-84 y/o
- Males > Females

#### Clinical Features

- Pain
- Obstructive Jaundice
- Weight loss
- Anorexia

### Pancreatic cancer (cont)

#### Risk Factors

- Cigarette Smoking, Obesity, Non-hereditary Chronic Pancreatitis
- Environmental Factors (diet, coffee), prev. partial gastrectomy / cholecystectomy & H. pylori

#### Physical Findings`

- (+) Courvoisier's sign
- Palpable, nontender gallbladder
- (+) Virchow's Node
- Advanced Disease
- Abdominal Mass, Hepatomegaly, Splenomegaly, Ascitis

#### Diagnostic Procedures

- Ultrasound
- CT Scan
- ERCP
- Endoscopic US
- MRCp
- FDG-PET\*

#### CA 19-9 (Serum Marker)

- 80-90% sensitivity & specificity
- Suggestive of diag. pancreatic ca.
- Prognostic implications – Very high levels w/ inoperable disease
- Serial evaluation useful for monitoring response to tx.
- Detecting recurrence in pts. w/ completely resected tumors

#### Treatment

- Symptom management
- Endoscopic biliary / duodenal stenting
- Intestinal bypass surgery
- Deoxycytidine analogue Gemcitabine

\*Excluding occult distal metastasis

### BI-RADS

0 (incomplete)	Recommend add. imaging --> mammogram / targeted US
1 (negative)	Routine breast MR screening if cumulative lifetime risk ≥ 20%
2 (benign)	Routine breast MR screening if cumulative lifetime risk ≥ 20%
3 (prob. benign)	Short-interval (6 mth) follow-up
4 (suspicious)	Tissue diagnosis
5 (highly suggestive of malignancy)	Tissue diagnosis
6 (known biopsy-proven malignancy)	Surgical excision when clinically appropriate

#### Breast Imaging Reporting and Database System score.

- Scoring syst. used by radiologists describe mammogram results
- Most efficient tool to help detect breast cancer, esp. at its earliest stage

\*Table taken from UCSF Department of Radiology & Biomed. Imaging



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