Oncologic Emergencies

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Full Disclosure Statement

- **Celgene**
  - Nurse Advisory Boards (Breast, NSCLC, Pancreatic)
  - Nurse Speaker’s Bureau

- **Pfizer Oncology**
  - Nurse Advisory Boards (Colorectal & Breast)
  - Nurse Speaker’s Bureau

- **ProStrakan**
  - Speaker’s Bureau

- **Novartis**
  - Nurse Advisory Board
Oncologic Emergencies

Introduction

- Malignancy Is 2nd Leading Cause Of Death In U.S.
- Now Cancer Has 52% 5 Year Survival Overall
- Treatment Of Complications Can Be Life-saving Since Causative Tumor Often Is Curable
- Treatment Of Complications Can, At A Minimum, Improve Quality Of Life
Traditional Oncological Emergencies?

- Neutropenic Sepsis
- Acute Spinal Cord Compression
- Superior Vena Cava Obstruction
- Hypercalcemia Of Malignancy
Traditional Oncological Emergencies?

- Neutropenic Sepsis
  - Impending Death
- Acute Spinal Cord Compression
  - Impending Catastrophe
- Superior Vena Cava Obstruction
  - May Be A Presenting Feature Of Cancer
- Hypercalcemia Of Malignancy
  - Treatable Cause Of Life-threatening Deterioration
List of Major Emergency Complications of Malignancy

- Upper Airway Obstruction
- Malignant Pericardial Tamponade
- Superior Vena Cava Syndrome
- Acute Spinal Cord Compression
- Hypercalcemia
- Hyperviscosity Syndrome
- Hyperleukocytic Syndrome
- Acute Tumor Lysis Syndrome
- SIADH
- Adrenal Insufficiency / Crisis
- *Thrombocytopenia / Hemorrhage
- *Immunosuppression / Infection
- *Anaphylaxis/ Extravisation

*Due to time restraints, these will not be discussed
Systematic Approach

- Cancers (OR Treatments) That Cause It
- Signs And Symptoms
- How We Diagnose It
- How We Treat It

- The Symbol (?) Indicates That Data Exist, BUT Not To The Level Of Evidence-Based Practice
Upper Airway Obstruction by Malignancy

- **Causative Tumors:**
  - Laryngeal Cancer
  - Thyroid Cancer
  - Lymphoma
  - Metastatic Lung Cancer
  - Retropharyngeal Abscess
Upper Airway Obstruction by Malignancy

- **Symptoms**
  - Voice Change (Hoarseness)
  - Neck Fullness
  - Dysphagia
  - Stridor
  - Dyspnea

- Usually progresses & presents subacutely unless food aspiration, infection, hemorrhage, or inspissated secretions occur.
Upper Airway Obstruction by Malignancy

- Diagnosis
  - Lateral Soft Tissue Neck Film
  - CXR
  - Fiberoptic Laryngoscopy
Upper Airway Obstruction by Malignancy

Treatment:
- Oxygen
- Racemic Epinephrine Aerosol (1.0 To 1.5 Cc)
- Helium / Oxygen (Heliox) Inhalation
- ? IV Steroids Or Diuretics
- Intubation Over Fiberoptic Laryngoscope
- Consider Tracheostomy
- ? Emergency Radiation Treatment
Malignant Pericardial Tamponade

- Causative Tumors:
  - Melanoma
  - Hodgkin's Lymphoma
  - Acute Leukemia
  - Lung Cancer
  - Breast Cancer
  - Ovarian Cancer

- Radiation Pericarditis
- Rare To Be Initial Presentation Of Malignancy
Malignant Pericardial Tamponade
Malignant Pericardial Tamponade

- Signs And Signs:
  - Dyspnea / Weakness +/- Chest Pain
  - Hypotension / Narrow Pulse Pressure
  - Friction Rub (Rare)
  - Jugular Venous Distention
  - Muffled (Decreased) Heart Tones
  - Pulsus Paradoxicus > 10 Mm Hg
  - Low EKG QRS Voltage +/- Pulsus Alternans
  - +/- Cardiomegaly On CXR
Malignant Pericardial Tamponade

Diagnosis:
- Echocardiography
- Equalization Of Heart Chamber Pressures

Treatment Options:
- Needle Catheter Pericardiocentesis
- Pericardial Window Under Local Anesthesia
- Radiation Treatment
- Pericardiectomy
- Intrapericardial Chemo Treatment Or Sclerosis
Superior Vena Cava (SVC) Syndrome

- Causative Tumors:
  - Small Cell (Oat Cell) Lung Cancer
  - Squamous Cell Lung Cancer
  - Lymphoma
  - Anaplastic Mediastinal Cancer

- SVC Thrombosis From Indwelling Catheter

- Symptoms Are Due To SVC Compression Or Occlusion
### SVC Syndrome

<table>
<thead>
<tr>
<th>SYMPTOM</th>
<th>FREQUENCY (%)</th>
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<tbody>
<tr>
<td>Dyspnea</td>
<td>83</td>
</tr>
<tr>
<td>Cough</td>
<td>70</td>
</tr>
<tr>
<td>Orthopnea</td>
<td>64</td>
</tr>
<tr>
<td>Nasal congestion</td>
<td>35</td>
</tr>
<tr>
<td>Hoarseness</td>
<td>35</td>
</tr>
<tr>
<td>Stridor</td>
<td>33</td>
</tr>
<tr>
<td>Dizziness</td>
<td>29</td>
</tr>
<tr>
<td>Stupor / coma</td>
<td>20</td>
</tr>
</tbody>
</table>

Other sx : syncope, headache, dysphagia, epistaxis
<table>
<thead>
<tr>
<th>SIGN</th>
<th>FREQUENCY (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neck vein distention</td>
<td>92</td>
</tr>
<tr>
<td>Facial swelling / fullness</td>
<td>86</td>
</tr>
<tr>
<td>Arm vein distention</td>
<td>68</td>
</tr>
<tr>
<td>Mentation changes</td>
<td>27</td>
</tr>
<tr>
<td>Tongue edema</td>
<td>24</td>
</tr>
<tr>
<td>Laryngeal edema</td>
<td>24</td>
</tr>
<tr>
<td>Rhinorrhea</td>
<td>18</td>
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</tbody>
</table>
SVC Syndrome*

- Less Common Signs:
  - Facial Plethora / Telangiectasia
  - Supraclavicular Palpable Mass
  - Horner's Syndrome
  - Papilledema

- *If Present, Represents A True Emergency
SVC Syndrome

- Diagnosis
  - CXR Abnormal In 84%

- Confirm With (One Of The Following):
  - Chest CT With Contrast
  - MRI
  - Contrast Venography
  - Tc99m Radionuclide Venography
SVC Syndrome

- **Treatment:**
  - Keep In Head-up Position
  - IV Steroids
  - IV Diuretics
  - ? Anticoagulants Or Thrombolytics (Some Data Available)
  - Emergent Mediastinal Radiation Treatment
  - Remove Central IV Catheter If Present
Acute Spinal Cord Compression

Causative tumors:

- Breast Cancer
- Lung Cancer
- Prostate Cancer
- Lymphomas
- Multiple myeloma
- Renal cell Cancer
- Sarcomas
- Epidural abscess / hematoma

18,000 cases per year in U.S.
Acute Spinal Cord Compression

- Symptoms:
  - Localized Back Pain +/- Tenderness
  - May Be Absent With Lymphomas
  - Paraparesis / Paraplegia
  - Distal Sensory Deficits
  - Urinary Incontinence
Acute Spinal Cord Compression

- Cervical, Thoracic, Or Lumbar Spine Films:
  - 85% Abnormal
- May Not Be Needed If CT Or MRI Planned
- Radionuclide Bone Scan
  - Sensitivity > 90% Except For Multiple Myeloma
- Spine CT With Contrast
- MRI
- Myelography

NOTE: Any Studies Done Should Be In Emergent Time Frame & With Early Involvement Of Consultant
Malignant Spinal Cord Compression

- 80% of cases of MSCC occur in patients with pre-existing diagnosis of malignancy
- Back pain in pt with known cancer should be considered secondary to MSCC until proven otherwise
- Corollary: 20% of cases in patients with no previous diagnosis of cancer
- A medical emergency
MSCC: Pathophysiology

- Develops In 3 Ways
  - Growth And Expansion Of Vertebral Metastasis Into Epidural Space


Fig. 1. Metastatic tumor invading the thoracic vertebral body causing circumferential epidural compression of the spinal cord. (Courtesy of OHSU Neurological Surgery, Portland, OR; with permission.)
MSCC: Pathophysiology

- Neural Foramina Extension By A Paraspinal Mass
  - Lymphoma
  - Neuroblastoma
MSCC: Pathophysiology

- Destruction Of Vertebral Cortical Bone
- Causing Vertebral Body Collapse
- Displacement Of Bony Fragments Into The Epidural Space

L2 and S1 compression fractures in metastatic bronchogenic carcinoma