No disclosures

Thank you to:
Devin Schellenberg
Paris Ingledew
Don Cooper
People who post things on Google/Wikipedia
SUPERIOR VENA CAVA SYNDROME

What is it?
Why is it an emergency?
Causes (benign vs malignant, NSCLC vs SCLC)
Epidemiology
Clinical Presentation
Work up
Treatment (prognosis)
CAUSES OF SVCS

What’s more common? Benign or malignant?
CAUSES OF SVCS

A) Benign
B) Malignant
C) I don’t know
D) I need more time to google this
CAUSES OF SVCS

Malignant causes more common (> 85%)
CAUSES OF SVCS

**Malignant (>85%)**
- Lung Cancer (SCLC, NSCLC)
- Lymphoma
- Breast Cancer mets
- Primary mediastinal germ cell tumors
- Mesothelioma

**Benign (3 – 15%)**
- Indwelling catheters
- Thymoma
- Cystic hygroma
- Tuberculosis
- Fungal/bacterial pneumonia
- Thyroid goiter
- Aortic aneurysm
- COPD
- Cardiac tamponade
SVCS & COLLATERAL BLOOD FLOW

- Edematous head and neck with naso/oro-pharyngeal edema.
- Swelling of upper arms and torso.
- Appearance of collateralized chest wall veins.
- Cyanotic appearance of skin.

Diagram showing vascular pathways and edema in the head and neck area.
SVCS & collateral blood flow
## Table 119.1

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

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

## Grading the severity of malignant superior vena cava syndrome

<table>
<thead>
<tr>
<th>Grade</th>
<th>Findings</th>
<th>Estimated incidence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Asymptomatic – Radiographic superior vena cava obstruction in the absence of symptoms</td>
<td>10</td>
</tr>
<tr>
<td>1</td>
<td>Mild – Edema in head or neck (vascular distention), cyanosis, plethora</td>
<td>25</td>
</tr>
<tr>
<td>2</td>
<td>Moderate – Edema in head or neck with functional impairment (mild dysphagia, cough, mild or moderate impairment of head, jaw, or eyelid movements, visual disturbances caused by ocular edema)</td>
<td>50</td>
</tr>
<tr>
<td>3</td>
<td>Severe – Mild or moderate cerebral edema (headache, dizziness), mild/moderate laryngeal edema, or diminished cardiac reserve (syncope after bending)</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>Life-threatening – Significant cerebral edema (confusion, obtundation), significant laryngeal edema (stridor), or significant hemodynamic compromise (syncope without precipitating factors, hypotension, renal insufficiency)</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>Fatal – Death</td>
<td>&lt;1</td>
</tr>
</tbody>
</table>

Reproduced from: Yu JB, Wilson LD, Dotterbeck FC. Superior vena cava syndrome—a proposed classification system and algorithm for management. J Thorac Oncol 2008; 3:811. Table used with the permission of Elsevier Inc. All rights reserved.
WORK UP

Hx/Phys (known Ca Dx? Hx of central lines?)
CT Chest (mass vs PE vs other)
CXR may show mass or widened mediastinum (16% of patients had normal CXR, Parish et al, 1981)
Bx if not done already for masses
CASE

Patient tolerating chemo well – dz stable, no Sx
Patient progressing clinically and on imaging – you’re the GPO seeing her for follow up, now what?
CASE

A) Go for coffee
B) Google pictures of normal vs abnormal CT chest/mediastinal anatomy
C) start Dexamethasone + PPI
D) send back to her Medical Oncology for a change in systemic therapy
E) send to Radiation Oncology for radiotherapy
F) All of the above
G) none of the above
H) some of the above
MNGT OF SVCS

1. Conservative measures (elevate head of bed, O2)
2. Dex! (ideally after biopsy)
3. Chemo preferred for SCLC, lymphoma
4. RT if NSCLC (palliates Sx in 70% of lung Ca)
5. endovascular stent, Fragmin if clot (rapid Sx relief)
6. Surgical bypass (usually palliative procedure)

Prognosis depends on underlying cause
Who are we?

DOCTORS!
SPINAL CORD COMPRESSION

What is it?
Why is it an emergency?
Causes
Epidemiology
Clinical Presentation
Work up
Treatment
WHERE DO SPINAL CORD COMPRESSIONS OCCUR?
WHERE DO SPINAL CORD COMPRESSIONS OCCUR?

A) C spine
B) T spine
C) L/S spine
D) No particular pattern to where they occur
WHERE DO SPINAL CORD COMPRESSIONS OCCUR?

C spine: <10%

T spine: 60-80%

L/S spine: 15-30%
CLINICAL PRESENTATION

- Pain (earliest, most common Sx)
  *band of pain, local vs radiates down limb(s)
- Motor weakness (50-65% at Dx)
  *onset rapidity is variable, can be subacute
- Sensory impairment (usually 1-2 levels below compression)
- Autonomic dysfunction
  (bladder: urinary retention, loss of control)
  (bowel: constipation vs. fecal incontinence)
MANAGEMENT

A) Dexamethasone?
B) Surgery?
C) RT?
D) Surgery + RT?
E) all of the above
F) none of the above
MANAGEMENT

Dex + PPI (no evidence for > 16 mg/day)

Surgery

Radiotherapy

Surgery + postop RT
# Good vs Poor Prognosis?

<table>
<thead>
<tr>
<th>Good Prognosis</th>
<th>Poor Prognosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Chemo/RT sensitive tumor</td>
<td>- Tumor not sensitive to Chemo/RT</td>
</tr>
<tr>
<td>- Early detection of tumor</td>
<td>- Sx &gt; 24 hrs or late detection</td>
</tr>
<tr>
<td>- Gradual/slow onset of tumor</td>
<td>- Patient not ambulating</td>
</tr>
<tr>
<td>- Sx &lt; 24 hrs</td>
<td>- Poor ECOG/PPS</td>
</tr>
<tr>
<td>- Patient still ambulating</td>
<td>- Vertebral collapse</td>
</tr>
<tr>
<td>- Good ECOG</td>
<td>- Autonomic dysfunction</td>
</tr>
<tr>
<td>- Vertebrae intact</td>
<td>- Rapid loss of function</td>
</tr>
</tbody>
</table>
When a nurse takes up gardening
CASE

58F with back pain, describes it as a “tight band around the middle of my chest that’s really painful”

No neuro Sx

Hx of breast cancer

What to do next?
CASE

What to do next?
A) switch specialties
B) order a CT
C) order a MRI
D) start patient on Dex
E) tell her it’s probably fine
F) panic
G) some of the above
H) none of the above
CASE

CT showed lytic lesions in multiple levels, including C2, T9 with ?cord compression and definite compression at T12

Tx = Dex (started in clinic), RT
CASE

64 YO with Hx of metastatic prostate Ca based on PSA, patient refused Bx

Sometime later, presented to hospital with pain crisis

Also c/o generalized weakness, episodic pins & needles in the hands/legs (improved on Dex)

Started on Methadone, Ketamine via CADD pump, Hydromorph breakthroughs for pain

Started on high dose Dex + PPI after MR
Spot the bony abnormality
55 YO man with increasing back pain, low leg weakness for a “while”

Noted in ER to have 3-4 minus of 5 weakness clinically, not ambulatory, hyperreflexic and some spasticity

<table>
<thead>
<tr>
<th>Sign</th>
<th>UMN Lesion</th>
<th>LMN Lesion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weakness</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Atrophy</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Fasciculations</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Reflexes</td>
<td>Increased</td>
<td>Decreased</td>
</tr>
<tr>
<td>Tone</td>
<td>Increased</td>
<td>Decreased</td>
</tr>
</tbody>
</table>
You’re the GP working in ER who sees this gentleman - What next?

A) have a resident see it (“great learning opportunity”)
B) order imaging (CT, MRI)
C) start Dex + PPI
D) consult NeuroSurgery
E) consult Radiation Oncology
F) retire
G) some of the above
H) none of the above
CASE
PLEASE

DON'T THROW YOUR CIGARETTE ENDS ON THE FLOOR THE COCKROACHES ARE GETTING CANCER

www.getreferralmd.com
CONCLUSION

Not all emergencies are equal (Ex. SVCS can be mild)
Spinal cord compressions often present first with pain, neuro Sx usually come later
Imaging!
Dex (but be aware if no tissue biopsy)
QUESTIONS?

"Mr. Osborne, may I be excused? My brain is full."

