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Oncologic Emergencies: A deeper dive --Neutropenic fever, Tumor lysis syndrome and Cord compression

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Oncologic Er	mergencies	
Mechanical	Metabolic	Hematologic
Pulmonary Embolism	Tumor Lysis	Cytopenia
Spinal Cord Compression	Hypercalcemia	 Febrile Neutropenia
SVC Syndrome	Hyperuricemia	Hyperviscosity
Small bowel obstruction	SIADH	Hyperleukocytosis
Urinary obstruction	Adrenal insufficiency	Bleeding
CNS tumor	Hypokalemia	Clotting
Carcinomatous meningitis		

Case 1		
70 y.o male PMHx of CKD, HTN, and IgG-Ka uncontrolled back pain, confus day prior and received IVF and received an increase in pain re	ppa smoldering Myeloma pre ion, and weakness. Patient w Zoledronic acid (Zometa) for gimen.	esents to the ER with as seen in the infusion center 1 elevated Calcium and also
Exam:	Initial Work up:	CHEM:
Paraspinal TTP surroundi	ng L4/L5 bilaterally,	Na 132
otherwise no focal neuro	logical findings and no	К 4.2
midline spinal TTP, step o	ff or deformity	CI 106
		Co2 21.9
		Cr 2.69
		Gluc 109
		Ca 11.4

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Spinal Cord Compression

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• What is spinal cord compression
   • Radiologic compression of the thecal sac
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- With or without neurological symptoms
 Tumor invasion of the epidural space²
 Encircling the thecal sac
- As tumor compresses, edema develops
- Location²

Thoracic spine (65%) followed by lumbar then cervical



Spinal Cord Compression

- Most common cancer types¹
 - Lung (25%)
 - Prostate (16%)
 - Multiple Myeloma (11%)
 - Breast (7%)
 - Children: Sarcomas, Neuroblastoma, and Hodgkin Lymphoma (Children)
- Arterial seeding of bone
 - ~85-90% of cases by metastatic spread
- Diagnostic MRI⁶
 - Early detection is KEY



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•	When poll is active, respond at pollev.com/unclcn	e
You are waiting on MRI to confirm	CUNC: International UX Conference News your suspicion of Spinal Cord compression. Which of the following is the ty symptoms for patients with cord compression?	ypical progression o
Motor, Sensory, Bowel/bladder, Pa		
Sensory, Motor, Pain, Bowel/bladd	ler -	
Pain, Bowel/bladder, Sensory, Mot	or	
	Provered by Poll Everywhere	





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Spinal Cord Compression

Outcomes

 Most important prognostic factor for ambulation is pretreatment neurologic status

- Ability to ambulate after treatment based on presentation
- 75% if ambulating at presentation
 30-50% if weakness at presentation
- 10% of those with paralysis at presentation



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Case 1 Resolution

• Summary:

- MRI revealed Myeloma involvement of L5 with pathologic fracture
 Compression grade: 1c (thecal sac deformation with nerve root contact)
- Given Dexamethasone 10 mg IV once, followed by 4 mg PO every 6 hours
- Consulted Neurosurgery and Radiation Oncology
- Neurosurgery with no emergent intervention, but did recommend Kyphoplasty for pain control
- Radiation oncology proceeded following Kyphoplasty
- Patient able to fully ambulate post treatment

6 y.o male MHx of nephrolithiasis presents	with I flank pain x 1 week He		
6 y.o male MHx of nephrolithiasis presents	with I flank pain x 1 week He		
AHx of nephrolithiasis presents	with I flank nain x 1 week. He		
uising on legs and gum bleeding	while brushing teeth Denies	endorses f	nematuria, easy
and guin biccom	5 while broshing teeth. Denies		
	Initial Work up:		
Exam:	CBC: CBC:	HEM:	Urinalysis:
Left side CVA	WBC 42.8	Na 136	WBC 7
A construction of the second sec	Hab 14.8	K 5.1	RBC >182
tenderness	11EU 14.0		
tenderness	Plt 33K	CI 110	
tenderness	Plt 33K Smear with	CI 110 Co2 20	
tenderness	Pit 33K Smear with abnormal lymphoid	Cl 110 Co2 20 Cr 2.9	
tenderness	Plt 33K Smear with abnormal lymphoid cells	Cl 110 Co2 20 Cr 2.9 Gluc 109	







Tu	mor Lysis	s Syndrome (TLS)	
What is TLS • Massive re • Can occu • Laboratory	i Ilease of intr Ir spontaneou V diagnosis ^{3,}	acellular ions as malignant cells die ³ sly or due to cytotoxic chemotherapy 7	De
Labs	Normal Values	TLS values	C.A.
LDH	120-246 U/L	▲ >1000 U/L	
Potassium	3.5-4.8 mmol/L	▲ >6 mmol/L or 25% from baseline	
Uric acid	3.7-9.2 mg/dL	▲ >8 mg/dL or 25% increase from baseline	
Phosphorus	2.4-5.1 mg/dL	▲ > 4.5 mg/dL or 25% increase from baseline	
		_	



You ordered appropriate TLS labs to complete the work...

CHEM:
 K 6.1, Cr 3.9, Ca 8.6, Phos 7.3, Uric acid 26.4, LDH 10,053



Tumor Lysis Syndrome (TLS)

At risk populations:2,7

- ALL with WBC >100K
- AML with WBC >50K
 High tumor burden (Burkitt or high grade lymphomas)
 High proliferative diseases (LDH >1000)
- Less frequent in solid tumors (metastatic tumors)
 Pre-existing renal disease or dehydration

- Monitoring
 Q6 hour TLS labs in high risk patients
 - Solid tumors consider baseline TLS labs ³
 Prior to treatment in metastatic disease









Case 2

Summary

- Flow cytometry revealed high grade B cell lymphoma
- CT abdomen with retroperitoneal lymphadenopathy
- Started on IVF at 200 ml/hr, given Rasburicase x3, allopurinol 300 mg daily (renal dose) and Sevelamer 2400 mg TID
- Emergent dialysis x 4 days
- Lymph node biopsy revealed Stage IV Burkitt Lymphoma
- Received full treatment course
- Now in remission and doing well!

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A, and AML on Azac rogressive AMS. Onc	itidine/Venetoclax who te in the ER, patient
al Work up:	CHEM:
CBC: WBC 1.5	Na 145 K 3.7 Cl 104
	A, and AML on Azac ogressive AMS. Onc a i Work up: CBC: WRC 1 5







Neutropenic Fever

Definition: ⁸

- >38.3 C once or >38.0 C sustained over 1 hour
 ANC < 500 or within next 48 hours
- Risk factors⁸
 depth and duration of neutropenia Sepsis/death can develop within first 4 hours of fever
- Source:
- Bacterial, viral or fungal from any location
 Most common sites: GI tract, lungs, skin
- Do NOT forget to examine
 Sinuses, perianal (avoid DRE), mucosal membranes

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Neutropenic Fever

- At risk populations:
 - · Induction chemotherapy for acute leukemia Outpatients receiving chemotherapy

RLUSK

Chronic neutropenia: Myelodysplastic syndrome, myelofibrosis, or aplastic anemia

All patients with ANC <500 are placed on prophylaxis antimicrobials

Presentation

- Fever is often the only presenting symptoms
 - No neutrophils to amount response (abscess, consolidation, etc)
 ~70% of patient will not have an identified source ⁴









Neutropenic Fever

Special areas of concern

Meningitis:

- if receiving frequent LPs/IT Chemo; also must consider CNS involvement Pneumonia:
- · consider fungal and mycobacterium
- Sinus infections: Invasive fungal infections

- Typhlitis:
 • neutropenic enteritis from GI translocation (break down of mucosal barrier lining) Rectal fissures/perirectal abscess
- If pain, obtain CT

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Case 3 Resolution

• Summary:

- Cefepime x 10 days
- No infectious sources identified
- Cultures/CT chest negative Afebrile after 48 hours of antibiotics
- Discharged back on Levaquin prophylaxis given ongoing neutropenia

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University Cancer Research Fund

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