Who gets SEA? When getting the history, be sure you ask the right questions to **FIND THE SEA!**

- **Fever**
- **I's**
  - IVDA
  - Injury - spinal trauma - 2nd m/c cause, may be remote history
  - Indwelling catheters
  - Invasive procedures - spinal injections, central lines, epidurals
  - Implantable devices - pacemakers / AICDs
  - Immunosuppression = AIDS, alcoholism, malignancy, steroid use
  - Infection = hematogenous spread - UTI, URI, endocarditis
  - Illness = chronic liver/renal Dz
- **Neurologic Deficit**
- **Diabetes** - most common

**Progression of Symptoms**

**STAGE 1** = back pain, tenderness, fever
**STAGE 2** = radicular pain, abnormal reflexes
**STAGE 3** = sensory abnormalities, motor weakness, bowel/bladder dysfunction
**STAGE 4** = paralysis - permanent disability without surgical intervention

- Progression may vary from hours to months
- Some symptoms may be skipped.

**Time is TONE**

- Rare but increasing incidence
- Neurological status at diagnosis is the most accurate predictor of outcome and prognosis
- Devastating permanent deficits - 8% of survivors are left paralyzed; ½ are misdiagnosed or have delayed diagnosis
- Delay can lead to litigation even if Dx is correct

**WHERE**

- Most located posteriorly in the T-spine
- Distant source = Hematogenous seeding most common mechanism, results in posterior SEA
- Local source = direct extension, results in anterior SEA
- Can be multiple, noncontiguous levels

**WHAT**

- Fever
- Malaise
- Back tenderness
- Neck/Back pain
  - severe, localized,
  - present from 1 day to 2 months
  - worse with supine position / flexion
  - nocturnal or rest pain
- Radiculopathy/paresis/plegia
- Bowel/bladder dysfunction
- Mental status change

**WHO**

- Anything causing bacteremia can cause SEA
- Neuro sx in up to 50% of cases

**Emergent Medicine Risk Management Newsletter**

**Spinal Epidural Abscess**

**Neuro sx in up to 50% of cases**

- Radiculopathy/paresis/plegia
- Bowel/bladder dysfunction
- Mental status change

**Progression of Symptoms**

- Usually sequential and the basis for staging

**STAGE 1** = back pain, tenderness, fever
**STAGE 2** = radicular pain, abnormal reflexes
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- Progression may vary from hours to months
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IMAGING
- Image entire spine
- Prioritize study - may need to call tech/radiologist
  - MRI with Gadolinium - imaging modality of choice
  - CT with IV contrast - only if MRI contraindicated or REALLY not available
    - May underestimate the length of SEA
    - Can’t distinguish early SEA from typical soft tissue, discosseous changes
  - CT with myelography - fairly sensitive but high risk of:
    - infection, bleeding, nerve injury, spinal shock, paralysis
  - Plain films - NOT useful - not a viable defense if patient has red flags for SEA

LABS
- CBC - leukocytosis (66%), left shift, thrombocytopenia, anemia.
- ESR (100%) / CRP (87%) - very sensitive but nonspecific

TREATMENT
- Emergent surgical consultation - treatment of choice is surgical decompression
  - Nonsurgical treatment may be appropriate in selected patients
  - Patients with minimal neurologic deficit or poor surgical candidates
- Empiric ABXs started early - don’t wait for imaging results
  - MRSA/MSSA + gram negative coverage
  - Vancomycin + 3rd/4th generation cephalosporins
  - Meropenem

B E W A R E  of P I T F A L L S
- Rare Dz but the numbers are increasing
- No risk factors found in up to 30% of cases
- Nonspecific Sx - from low back pain to sepsis
- Can mimic benign musculoskeletal conditions
- Classic diagnostic triad = seen in only 10–15%
  - fever, spinal pain, neurological deficit
- Normal CBC does not rule out SEA
- Fever is seen in only 50%

TAKE HOME POINTS
- Image entire spine
- Time is Tone!
- High index of suspicion = prompt NS consult + ABX
- Hit critical steps - Manage the timeline

DECISION ALGORITHM
- Low suspicion -> ESR / CRP -> MRI if elevated
- High suspicion -> MRI with gad
be a **NEURO NINJA**
with the 3-Minute High Yield Exam for Spinal Pain

### Motor
- Externity weakness
- Rectal tone
- Post-void residual >100 mL concerning
- Saddle anesthesia
- Dermatomal sensory abnormalities

### Sensory
- Early hyper-reflexia progresses decreased/absent reflexes
- Extremity reflexes
- Anal wink & cremasteric reflex

### Reflexes
- C1-2 Touch chin to chest
- C3 Touch ears to shoulder
- C4 Shrug shoulders
- C5 Raise both arms
- C6 Bicep flexion - palms up
- C7 Tricep extension - palms up
- C8 “Thumbs up” sign
- T1 Move fingers apart OR grasp
- T2-12 Trunk sensation

### Extremity Strength
Extremity strength is graded 1-5
Useful in serial exams to quantify deficit progression

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Total paralysis</td>
</tr>
<tr>
<td>1</td>
<td>Palpable or visible contraction</td>
</tr>
<tr>
<td>2</td>
<td>Active FROM with gravity eliminated</td>
</tr>
<tr>
<td>3</td>
<td>Active FROM against gravity</td>
</tr>
<tr>
<td>4</td>
<td>Active FROM against gravity + moderate resistance</td>
</tr>
<tr>
<td>5</td>
<td>Active FROM against gravity + full resistance = NORMAL</td>
</tr>
</tbody>
</table>

Exam is inadequate if patient doesn't remove shoes, socks and pants.

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