



APPROACH WITH CAUTION

EMERGENCY MEDICINE RISK MANAGEMENT NEWSLETTER

SPINAL EPIDURAL ABSCESS

WHO

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

- **F**ever
- **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
- **N**eurologic Deficit
- **D**iabetes - most common



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

MOST COMMON
& CONSISTENT
EARLY SX

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

NEURO SX IN
UP TO 50%
OF CASES

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

PROGRESSION OF SYMPTOMS

USUALLY SEQUENTIAL AND THE BASIS FOR STAGING

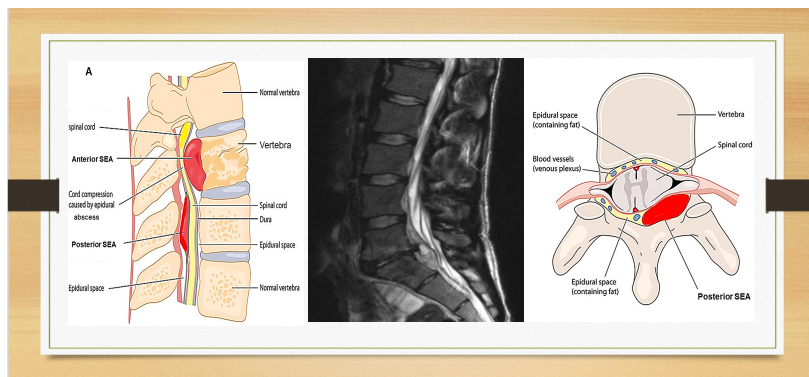
- STAGE 1** = back pain, tenderness, fever
- STAGE 2** = radicular pain, abnormal reflexes
- STAGE 3** = sensory abnormalities, motor weakness, bowel/bladder dysfunction
- STAGE 4** = paralysis - permanent disability without surgical intervention

- progression may vary from hours to months
- some symptoms may be skipped.

Time is T O N E

- **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





DIAGNOSTICS

LABS

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

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, disc/osseous 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

TREATMENT

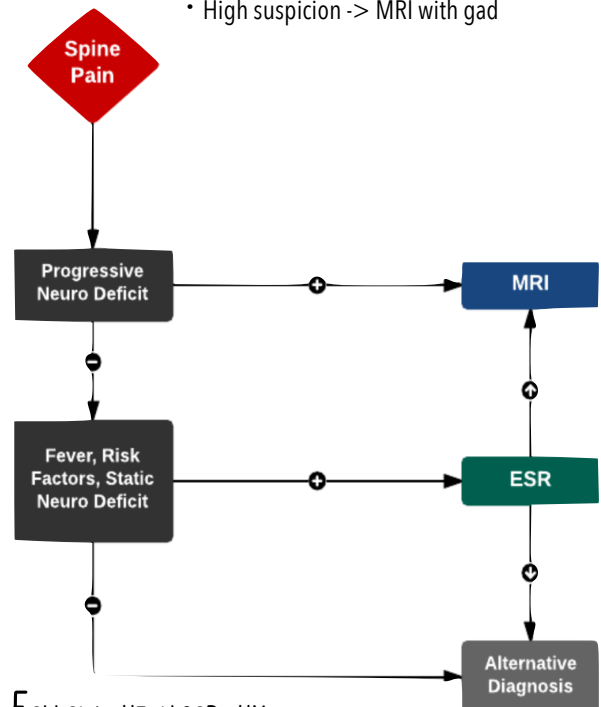
- **Emergent surgical consultation** - treatment of choice is surgical decompression
 - Nonsurgical treatment may be appropriate in selected patients
 - Patients with minimal neurologic deficit or poor surgical candidates
- **Empiric ABXs** started early - don't wait for imaging results
 - MRSA/MSSA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

**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



**FOLLOW THE ALGORITHM,
BUT AS ALWAYS, USE YOUR BIG BAD CLINICAL JUDGEMENT!**

BEWARE of PITFALLS

- 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%



be a **NEURONINJA**

with the 3-Minute High Yield Exam for Spinal Pain

	MOTOR SENSORY REFLEXES	<p>extremity weakness rectal tone post-void residual >100 mL concerning</p> <p>saddle anesthesia dermatomal sensory abnormalities</p> <p>early hyper-reflexia $\xrightarrow{\text{progresses}}$ decreased/absent reflexes extremity reflexes anal wink & cremasteric reflex</p>	WHAT TO TEST FOR...	
	CERVICAL	<p>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</p>	...HOW TO TEST FOR IT	
	THORACIC	<p>T1 Move fingers apart OR grasp T2-12 Trunk sensation</p>		
	LUMBAR/SACRAL	<p>L1-2 Hip flexion/Knee to chest L3 Extend knee L4 Dorsiflex ankle/toes up L5 Dorsiflex great toe OR heel walking L2-4 Patellar reflex S1 Plantar flex ankle/toes down/ toe walking S2 Flex knee S3-5 Saddle area sensation, rectal tone/ anal wink</p>		
	EXTREMITY STRENGTH	<p>Extremity strength is graded 1-5 Useful in serial exams to quantify deficit progression</p> <p>0 = total paralysis 1 = palpable or visible contraction 2 = active FROM with gravity eliminated 3 = active FROM against gravity 4 = active FROM against gravity + moderate resistance 5 = active FROM against gravity + full resistance = NORMAL</p>	...AND HOW TO GRADE IT	

EXAM IS INADEQUATE
IF PATIENT DOESN'T
REMOVE SHOES, SOCKS
AND PANTS