

Leg Pain Scenario:

A 53-year-old male has come to the emergency room with leg pain.

Using the Epi-logical approach, what should be the probable diagnoses?

The clinician should consider all differentials on the mind map.

How should a clinician address urgent/emergent situations?

The patient's BP is 160/99, HR 77, T 98F and O2sat 100%, his BMI is 36, and he appears to be in no acute distress. At this point, the only risk factors the clinician knows about are the patient's gender, age, and blood pressure, which place him at risk for chronic arterial insufficiency. The clinician can continue with the history and make sure to ask about risk factors associated with life-threatening conditions (DVT, acute arterial occlusion, compartment syndrome) relatively early in the process.

Weighing and Removing Anchor Bias:

The Clinician's Questions	The Patient's Responses	How does this information help with the weighing process?
Where exactly is the pain?	I have pain in both legs.	The clinician can focus attention on the left half of the mind map, which contains differentials for bilateral causes of pain.
Sorry to hear that. When did this pain start?	It's been going for several months.	Bi-laterality and chronicity of pain make all life-threatening conditions less likely. Rhabdomyolysis is less likely. All other chronic conditions presenting with bilateral pain are likely.
Are both legs hurting from the top to the bottom, or do any particular parts of your legs hurt more than others?	The pain is almost all over both legs. Sometimes, it is worse in the lower legs, but it's almost all over.	Peripheral neuropathy and restless leg syndrome, which tend to be distal, are somewhat less likely. All other differentials under bilateral chronic pain category are likely.
What type of pain do you feel? Is it dull, or sharp, like pins and needles? (<i>this can be posed as an open-ended question or a lead on question</i>)	It's more like a dull ache, than sharp or pins and needles.	Arterial insufficiency, spinal stenosis, and venous insufficiency are more likely. Peripheral neuropathy and restless leg syndrome continue to be less likely.
On a scale of 0 to 10, if 0 is no pain and 10 is the worst pain ever, how severe is it?	It varies from 2 to 8. But I am never pain free.	As discussed previously, the severity of the pain does not always help with diagnostic reasoning, especially if the pain is chronic, but the

		severity helps the clinician in management, and with follow up questions.
So, what factors would you say make the pain go down to the level of 2, and what causes it to go up to an 8?	I can't tell for sure, but any exercise or any amount of walking makes it worse. I feel better with rest, but sometimes it doesn't matter if I am resting, it still hurts.	This is consistent with claudication. Conditions which cause claudication, such as arterial insufficiency and spinal stenosis, are more likely, and venous insufficiency is less likely. The pain is also somewhat consistent with MTSS and CECS.
Do you exercise, and if so, do you feel crampy pain in your legs, which gets better with rest?	I don't really exercise. I can hardly walk to take care of daily chores.	MTSS and CECS are unlikely.
Do you have any low back pain, which may or may not be going down in your legs?	My back hurts sometimes, but that pain seems to be separate.	Both spinal stenosis and arterial insufficiency continue to be likely.
At this point, the clinician has narrowed the differentials sufficiently to chronic arterial insufficiency and spinal stenosis. The clinician can ask additional questions about risk factors.		
I see that your blood pressure is high. Has it been high for some time? Do you have additional medical conditions such as high cholesterol or diabetes? (<i>Often, this information can be also obtained from a chart review</i>)	Yes, I have been dealing with high blood pressure for a long time. Honestly, I think my pain makes it worse. I also have high cholesterol and an enlarged prostate, which I think is causing some problems with erections, but I don't have diabetes or any other heart condition.	These risk factors point toward arterial insufficiency.
Do you smoke, drink or use any drugs?	I do smoke about a pack a day, but do not drink or use drugs.	Smoking increases the risk for both arterial insufficiency and degenerative diseases, such as spinal stenosis.
Do you take any medicines for your health conditions?	I take amlodipine, atorvastatin, and a baby aspirin. I also take Tylenol with codeine for pain.	Neutral.
At this point, the clinician has sufficient evidence for arterial insufficiency. Spinal stenosis is second in line. The clinician can move forward with a physical exam after asking at least a few questions to remove anchor bias.		
Do you notice any swelling or engorgement in your legs or ankles?	Not really.	Venous insufficiency is unlikely.

Do you feel any problems with balance?	No, I haven't had any issues like that.	Peripheral neuropathy is unlikely.
Do you feel that your legs are restless at night?	Sometimes, I do feel that. But it doesn't bother me more than once in a blue moon.	Restless leg syndrome as a primary diagnosis is unlikely, but the patient may have an early stage of restless leg syndrome as an additional diagnosis.
The clinician can proceed with the physical exam.		
General	No distress, normal skin color, comfortable.	Neutral
Lower extremity exam	Skin: slightly pale without gangrene, no rash. Vascular: no swelling, bony landmarks (ankle malleoli appreciable), or loss of hair. No edema on palpation. No calf tenderness. Decreased but appreciable peripheral pulses. Neuro: normal sensory and motor exam.	Chronic arterial insufficiency is most likely.
Office ankle brachial index	Abnormal at 0.4	Chronic arterial insufficiency is likely

Based upon the evaluation, the patient has moderate to severe arterial insufficiency. The lower extremity angiogram confirms the diagnosis. Peripheral arterial disease is a proxy for generalized atherosclerotic disease, and a full cardiac work up, including factors leading up to the underlying pathology (endothelial dysfunction, hyperlipidemia, vascular inflammation) must be performed and managed.