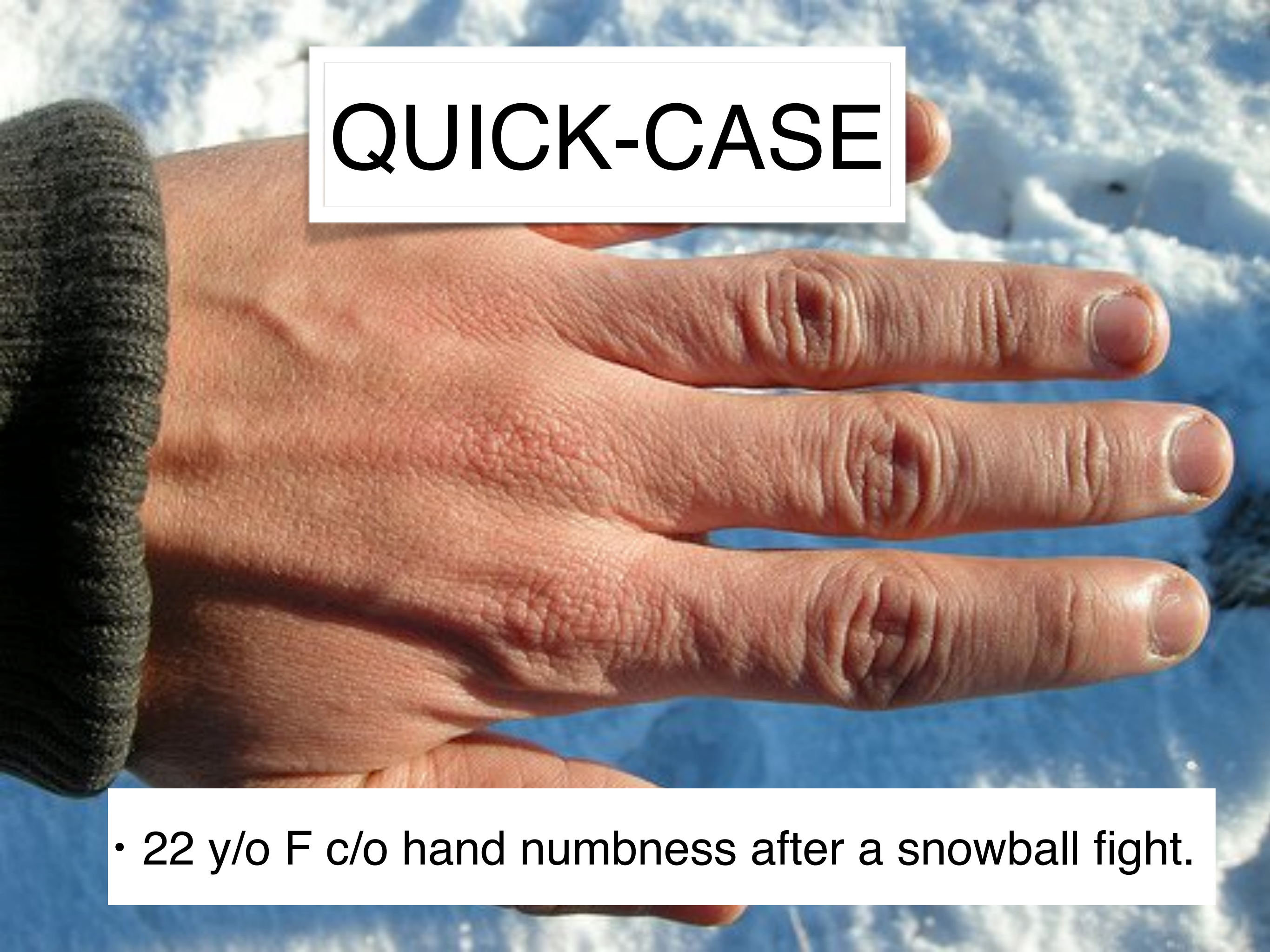


Case Studies: Environmental Emergencies

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QUICK-CASE



- 22 y/o F c/o hand numbness after a snowball fight.



SUPERFICIAL COLD INJURY

- “frostnip”
- Injury to superficial layer of skin



SUPERFICIAL -V- DEEP COLD INJURY

	Superficial	Deep
Skin Color	Pale, blanched, red	White, pale, waxy
Skin Injury/ Other	Loss of feeling in area	Loss of feeling, swelling, blisters
After Rewarming	Tingling in area	Pain, mottled, flushed, bruised, cyanotic

TREATMENT



- Remove pt from cold environment
- Remove constrictive clothing/jewelry
- Oxygen if $\text{SpO}_2 < 94\%$
- Cover injury with dressing
- Prevent re-exposure to cold
- Rewarm with pt's own body heat

QUICK-CASE

- 
- 33 y/o M lost gloves, in cold environment for 12 hrs.
 - C/o bilateral hand pn .



DEEP FROSTBITE



DEEP FROSTBITE

- Pale, white, waxy skin
- Skin firm. It's frozen!
- Swelling, blisters

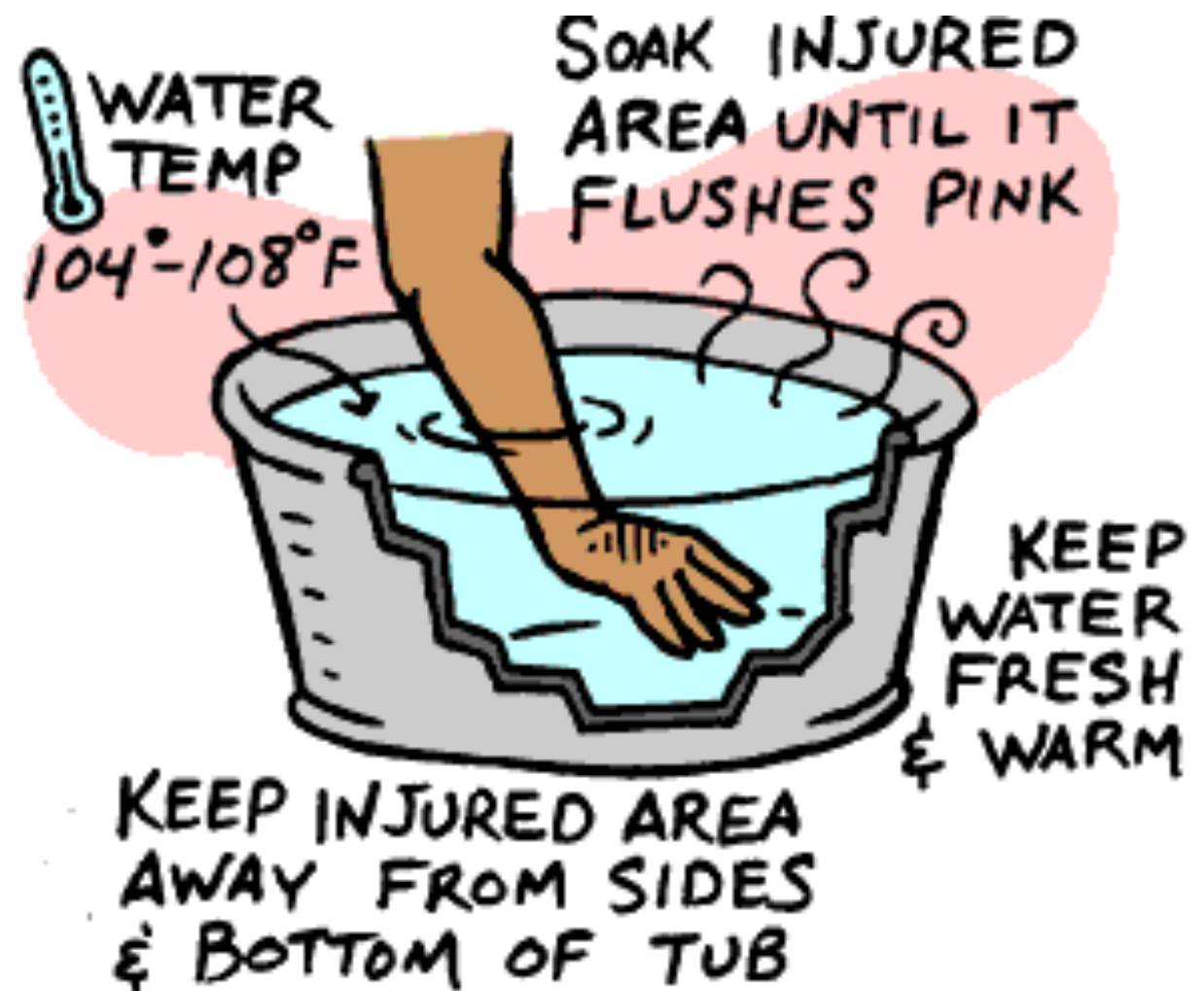


TREATMENT

- General treatment for frostbite:
 - Remove from cold, remove wet clothing
 - Remove jewelry, anything restrictive
 - Don't rub! Protect/splint extremity
 - Don't re-expose to cold
 - Oxygen via appropriate delivery device

TREATMENT: THAW?

- Only when no danger of re-freezing and/or transport is delayed!
- Water warmer than body temp
 - no warmer than 104-108°F
- It's gonna hurt!



QUICK-CASE

- 32 y/o M CAOx4
- Playing football on hot day, became weak and dizzy.
- Feels better lying down.
- Cool, moist, and pale skin, and a rapid, strong radial pulse.



HEAT EXHAUSTION

- Body is having trouble compensating for high temp, decreased fluid volume, and loss of electrolytes.
- Loss of fluid = hypovolemic shock, peripheral vasodilation = distributive shock
- Body is still effectively offloading heat, so skin is diaphoretic, cool or maybe warm, but not hot!

	Heat Cramps	Heat Exhaustion	Heat Stroke
Cramping	Y	N	N
Skin Condition	flushed, diaphoretic, cool/ warm	diaphoretic, pale, cool/warm	flushed, diaphoretic/dry, pale, hot
BP	normal	normal to low	low, severe hypotension
LOC and Mental Status	normal	normal	depressed LOC, AMS
Other Signs/ Symptoms		headache, nausea, vomiting, dizz, near-syncope	

HEAT EXHAUSTION: TX

- Remove pt from hot environment!
 - shade, back of ambulance with AC rockin'!
- Remove insulating clothing
- Lay pt supine, if necessary
- Oxygen via appropriate delivery device
- Fanning, cool water mist
- Water/electrolyte drink = oral rehydration

QUICK-CASE

- Astronaut in heavy space gear on hot & humid day
- AMS
- Hot, red, moist skin



HEAT STROKE

- Body can no longer compensate for high temp, decreased fluid volume, and loss of electrolytes.
- Loss of fluid = hypovolemic shock, peripheral vasodilation = distributive shock
- Body is **NOT** effectively offloading heat, so skin is possibly dry but probably **HOT!**

	Heat Cramps	Heat Exhaustion	Heat Stroke
Cramping	Y	N	N
Skin Condition	flushed, diaphoretic, cool/ warm	diaphoretic, pale, cool/warm	flushed, diaphoretic/dry, pale, hot
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HEAT STROKE: TX

- Remove pt from hot environment!
 - shade, back of ambulance with AC rockin'!
- Remove insulating clothing
- Lay pt supine, if necessary
- Oxygen via appropriate delivery device
- Fanning, cool water mist
- Cold packs to neck/axillae/groin

QUICK-CASE

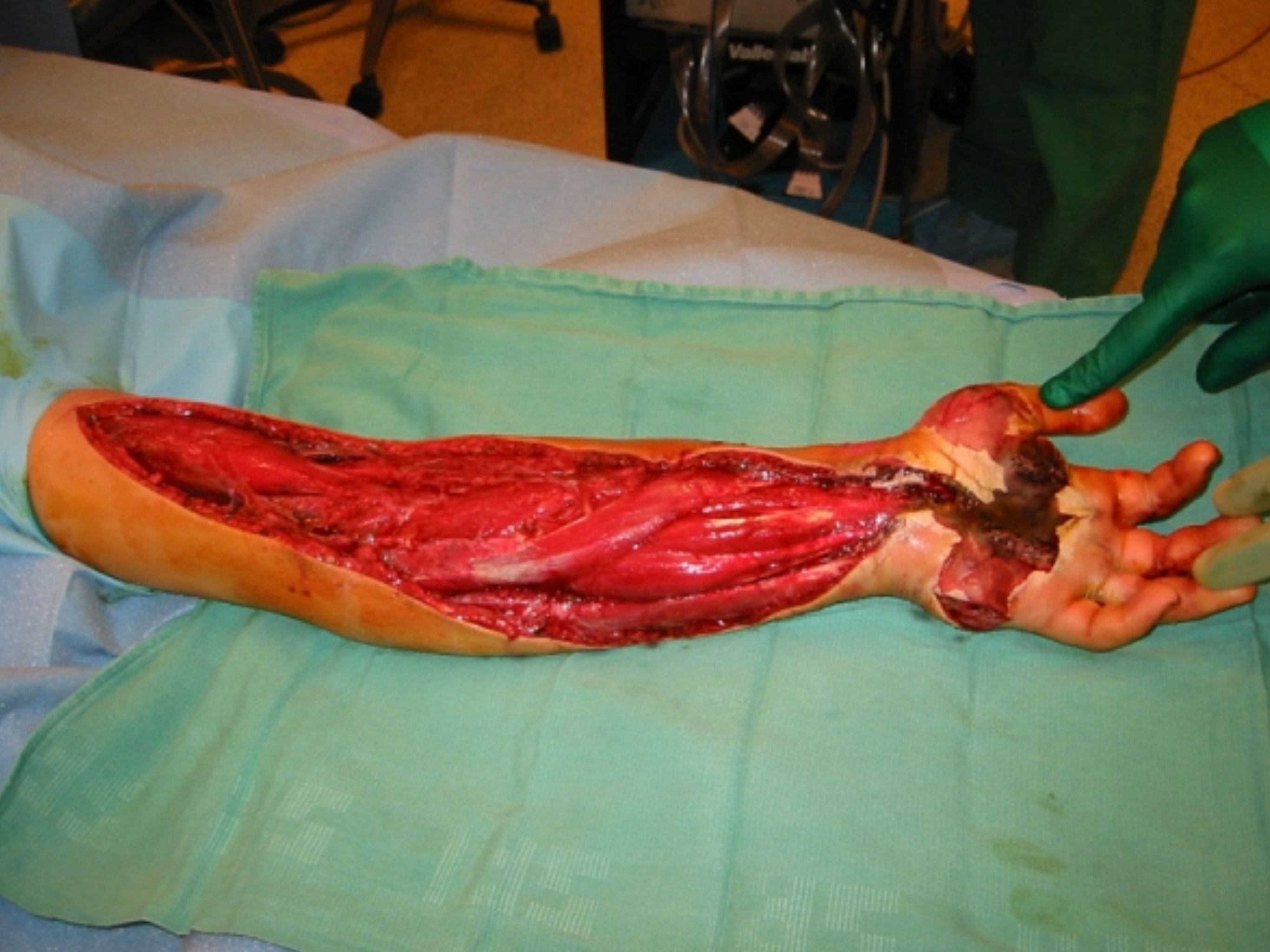


22 y/o M bit by his pet
rattlesnake

ENVENOMATION

- Venom:
 - destroys tissues around bite site
 - is neurotoxic, can travel beyond injury site
 - can cause systemic reactions
- Signs/Symptoms:
 - obvious bite with surrounding tissue injury
 - Weakness, N/V, Seizures, vision disturbance
 - AMS





ENVENOMATION

- Treatment:
 - clean with soap and water
 - keep pt calm, minimize movement and activity
 - immobilize bitten extremity
 - keep extremity in neutral to low position
 - remove restrictive clothing/jewelry
 - cold packs over bite site
 - pressure bandage around entire extremity
 - Oxygen via appropriate delivery device

TREATMENT: STINGS

- Take stinger out
- Wash area gently with soap
- Remove constricting items
- Lower site below heart
- Cold packs
- Constricting band/wrap
- Limit activity/splint



QUICK CASE

- 43 y/o M
- Found unconscious on golf course after a thunderstorm



ELECTRICAL INJURY

- Scene safety!
- Cervical spine precautions
- Spinal immobilization
- Watch for cardiac issues
 - CPR/AED
- Oxygen via appropriate delivery device

