Cellulitis in Long Term Care Patients

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Declaration and Conflict of Interest

- I have nothing to declare
- I have no Conflict of Interest

Objectives

- Review cellulitis management in LTC patients
- Differentiate the types of cellulitis
- Discuss stasis dermatitis and other causes of soft tissue inflammation and rash
- Review recognition and management of contributing disorders and lower extremity conditions
- Review MRSA

LTC challenges

- Elderly – thin skin; malnutrition; compromised
- Other chronic conditions
  - Chronic venous stasis
  - Lymphedema
  - CHF
  - Skin conditions: Dermatitis, eczema, psoriasis
  - DM and neuropathy
  - Peripheral vascular disease
  - Open wounds
  - obesity

The good news

- Lack of travel recently
- Animal bite unlikely
- Other contacts and risks not applicable
- MRSA usually unlikely

Important questions for every case of cellulitis

Q - Is this an infection?

- Consider possibility of other non-infectious conditions:
  - Stasis dermatitis
  - Superficial phlebitis
  - Drug Reaction
  - Vasculitis – Wegener's, PAN, leucocytoclastic
  - Vascular – DVT, ischemia, embolic
  - Other – pyoderma gangrenosus

Important questions for every case of cellulitis

- **Q - What is the process?**

Attempt to make a syndrome diagnosis.

  - Is this cellulitis or is there something more going on – bursitis, tenosynovitis, septic arthritis; is there an abscess

Important questions if not getting better.

Q. Why not improving on appropriate antibiotics?

- Failure to respond is **usually NOT** due to inadequate antibiotic spectrum or lack of potency.
- common reasons for failure include :

1. Inadequate drainage, lack of surgical intervention
2. Wrong syndrome diagnosis
3. Not recognizing the underlying primary disease process

Point #1

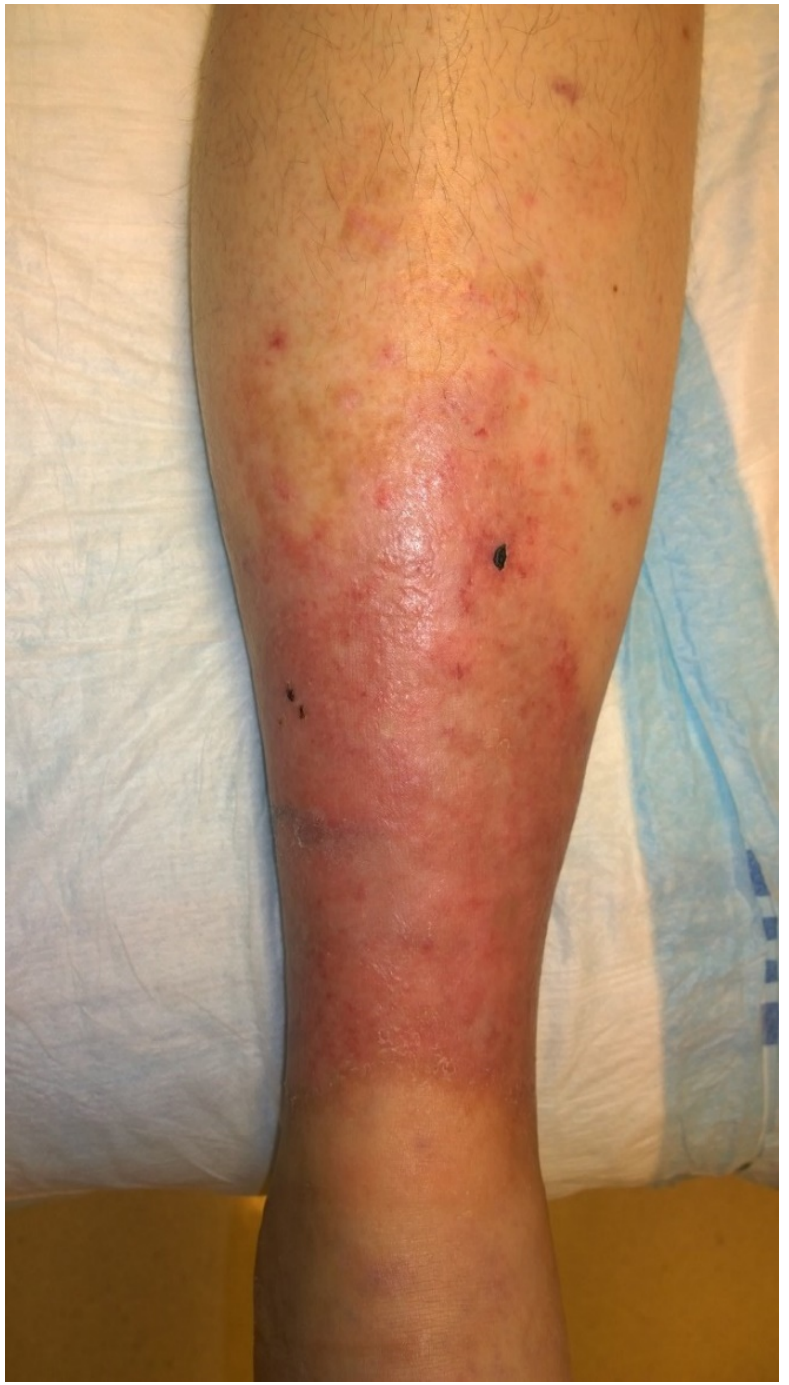
- Understand the Process

No response to treatment

multiple courses of antibiotics

- Cephalexin
- Clinda
- Doxy

Still red, painful, tender

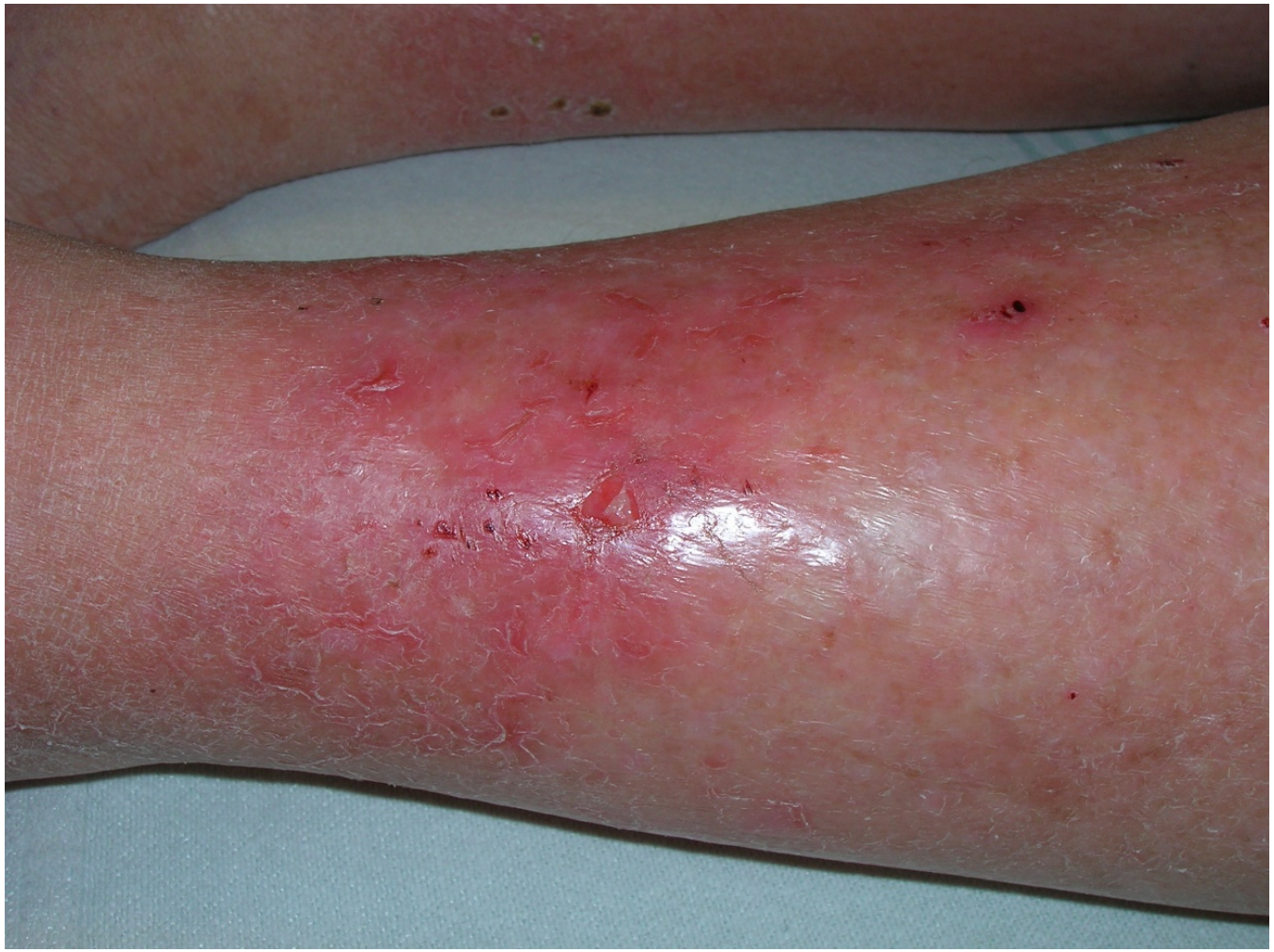


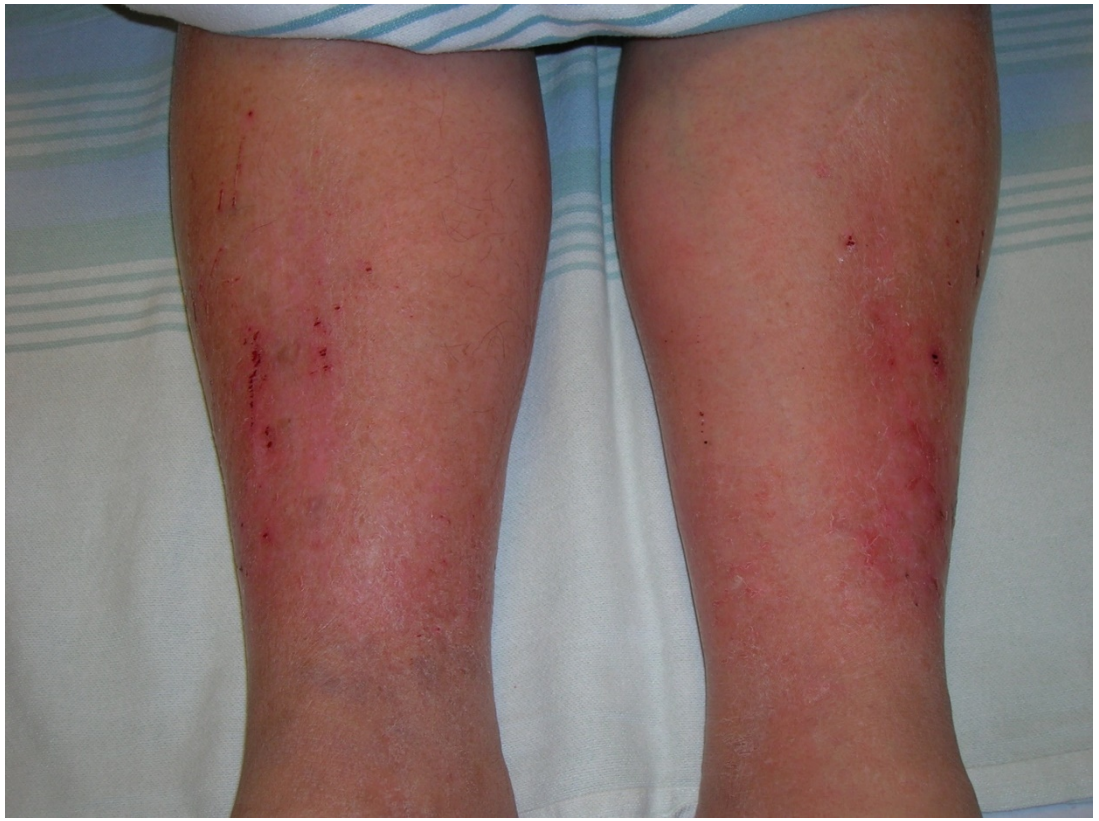
Stasis Dermatitis

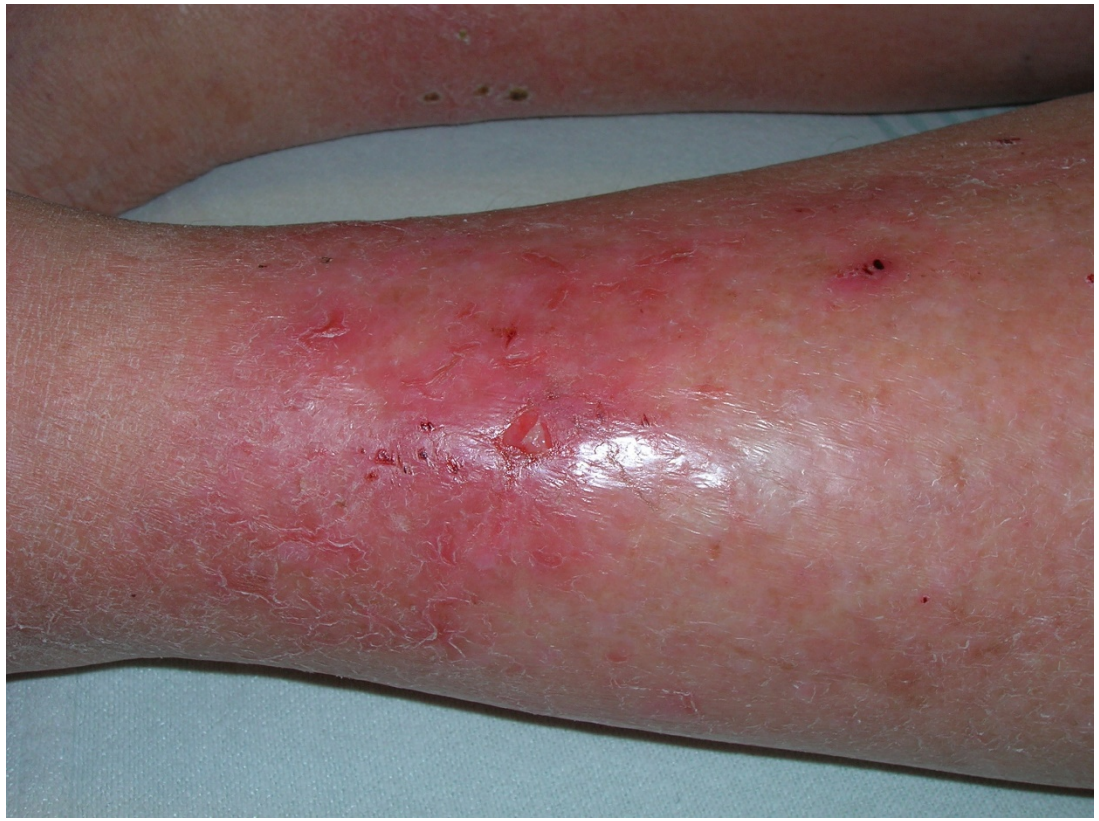
Common in chronic venous stasis

Clues:

- Chronic edema
- typical skin changes
- Erythematous, scaling, and eczematous patches and plaques
- May be Bilateral
- Not febrile
- Does not respond to ABX – repeated, prolonged

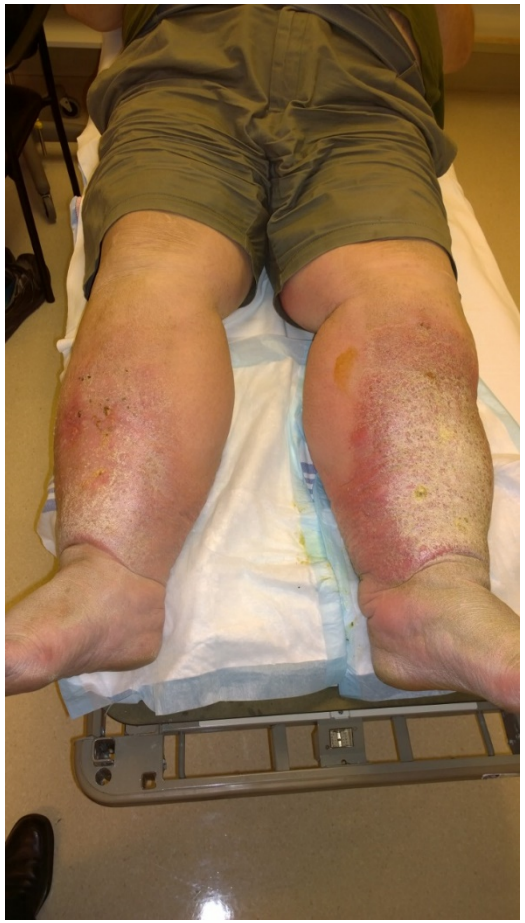


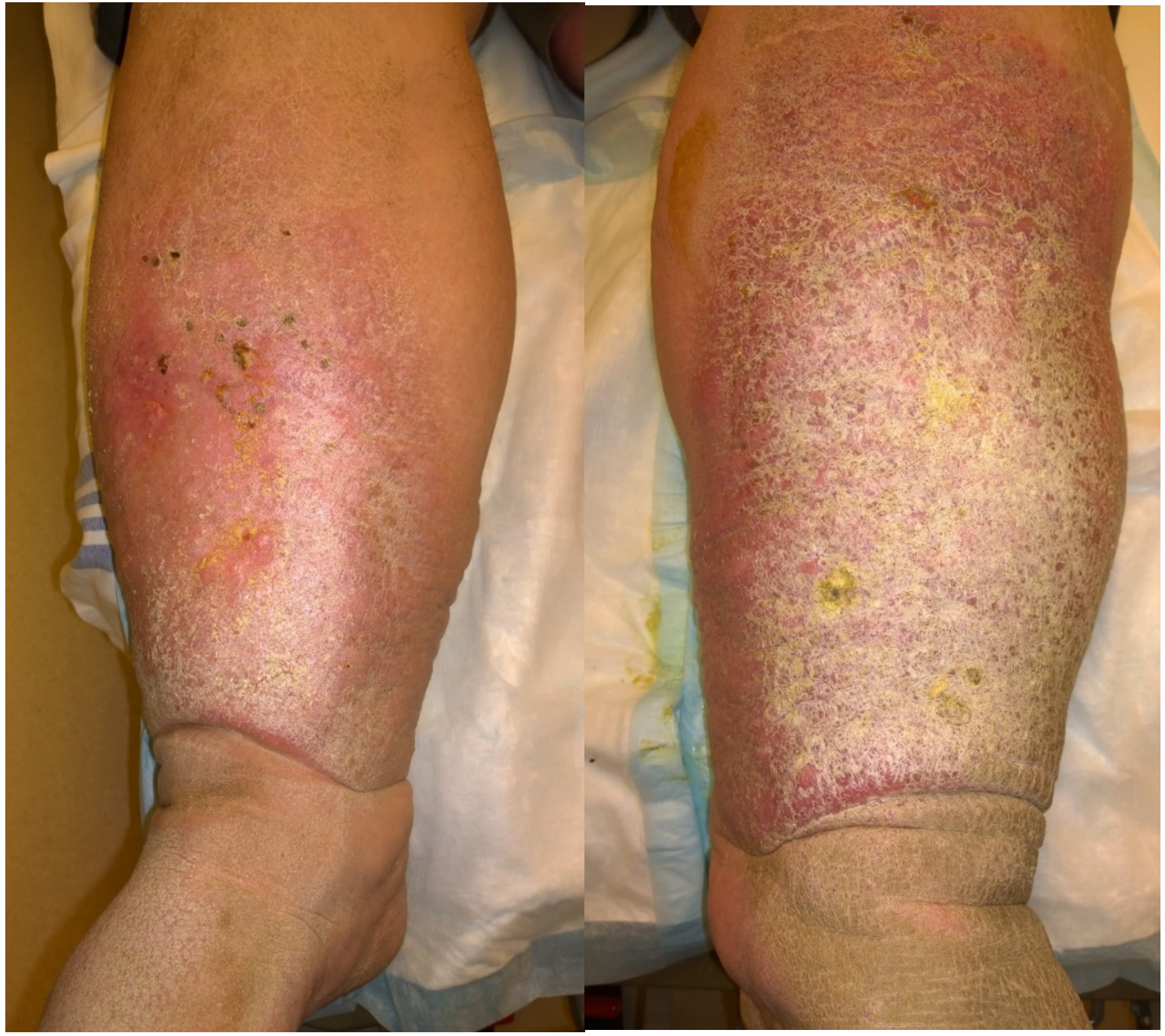




Risk factors for Stasis Dermatitis

- Venous Hypertension
- Varicose veins
- Chronic dependent edema
- Obesity
- CHF is exacerbating condition

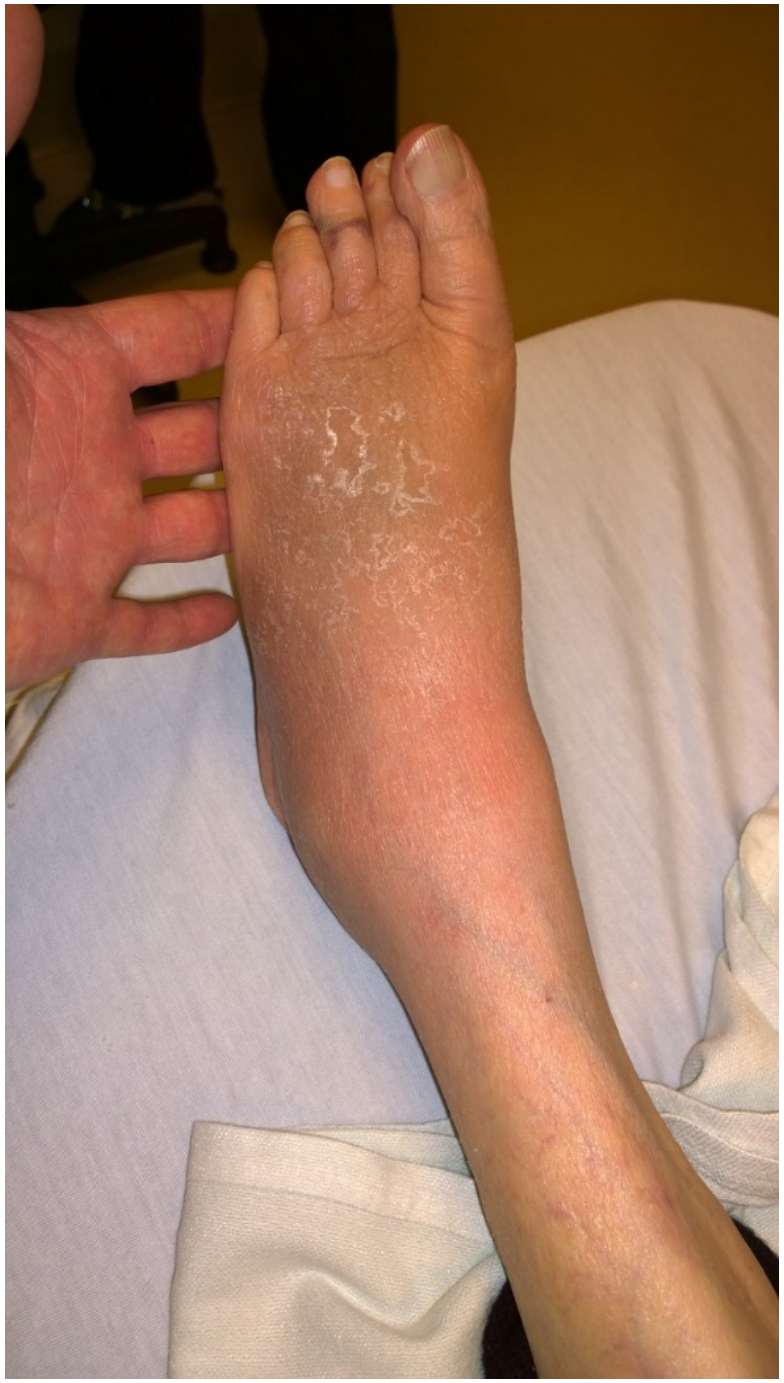


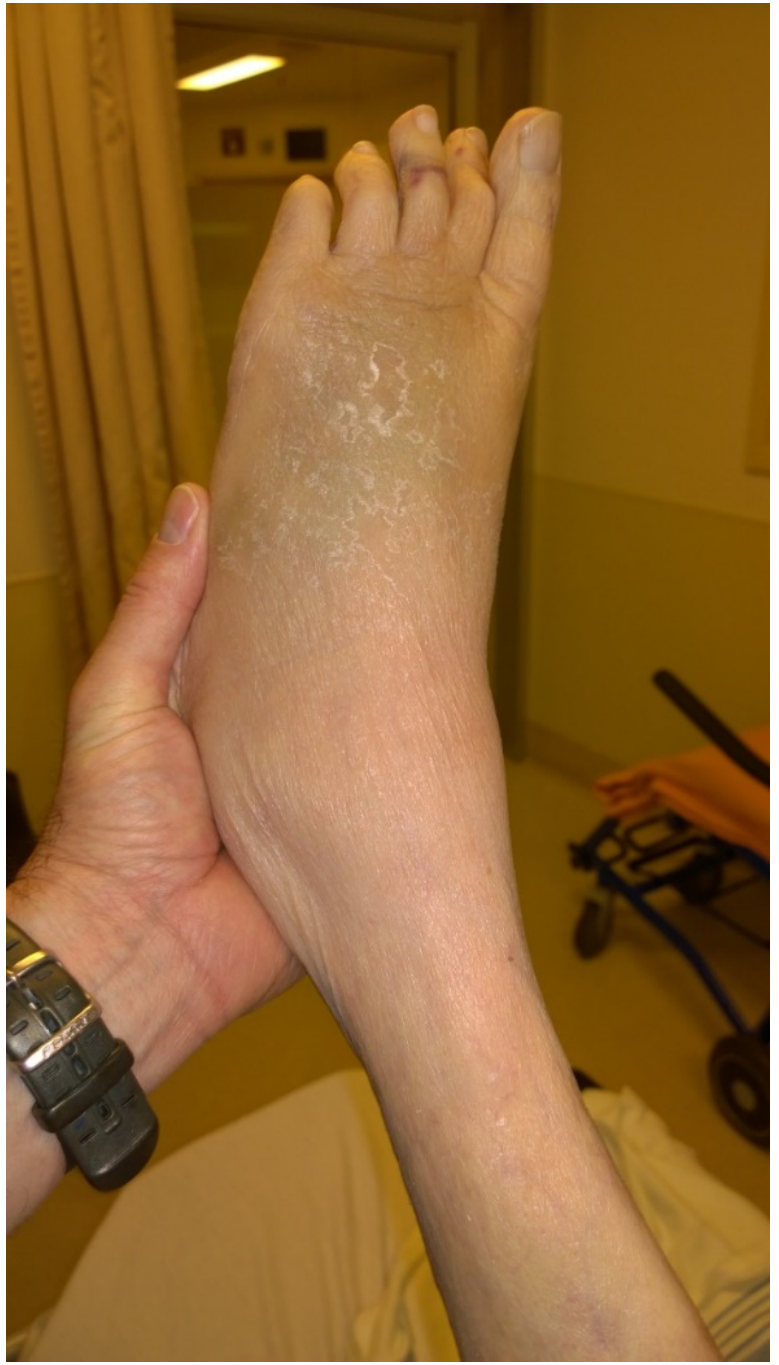


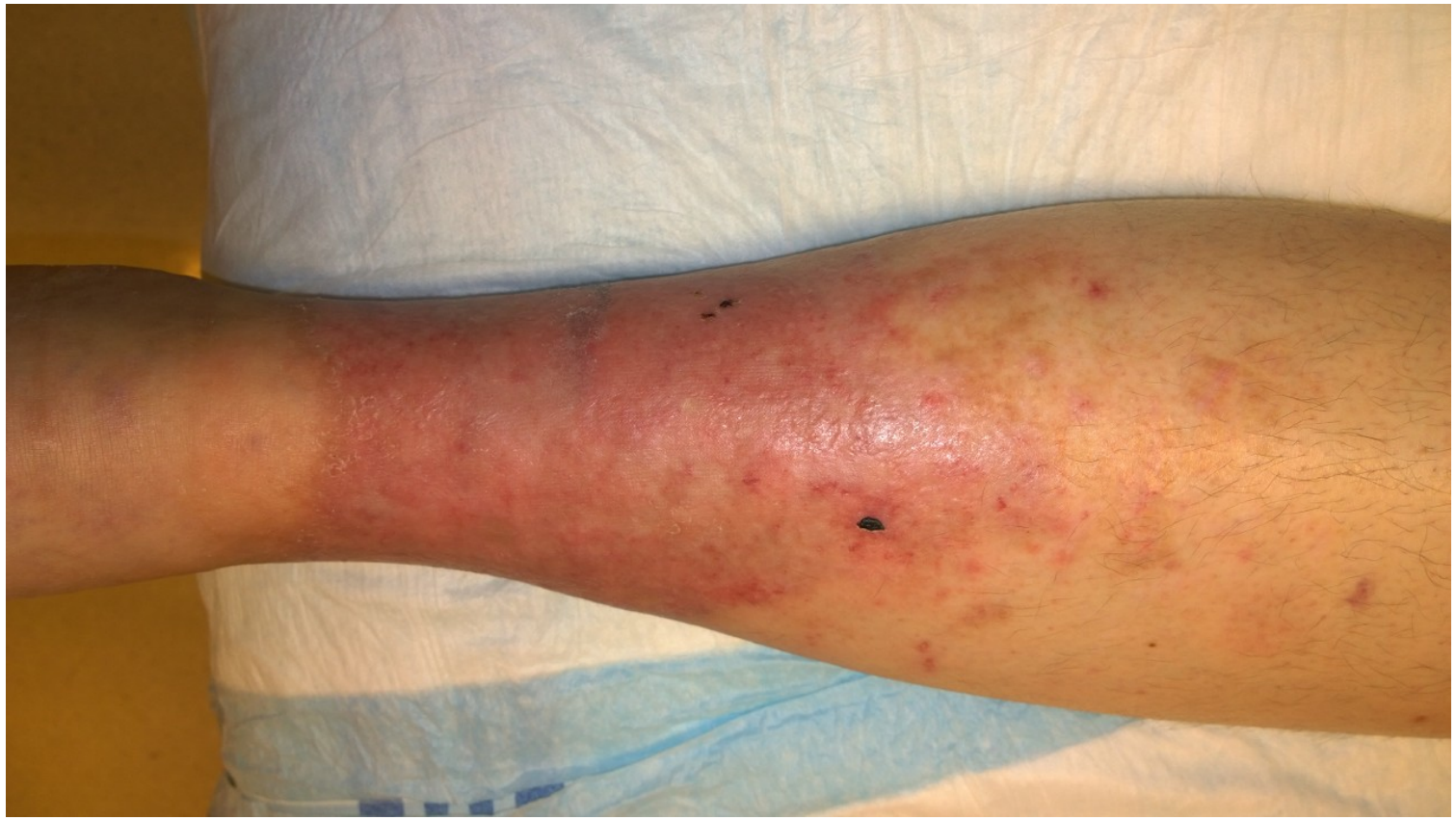
Stasis Dermatitis - clinical Dx

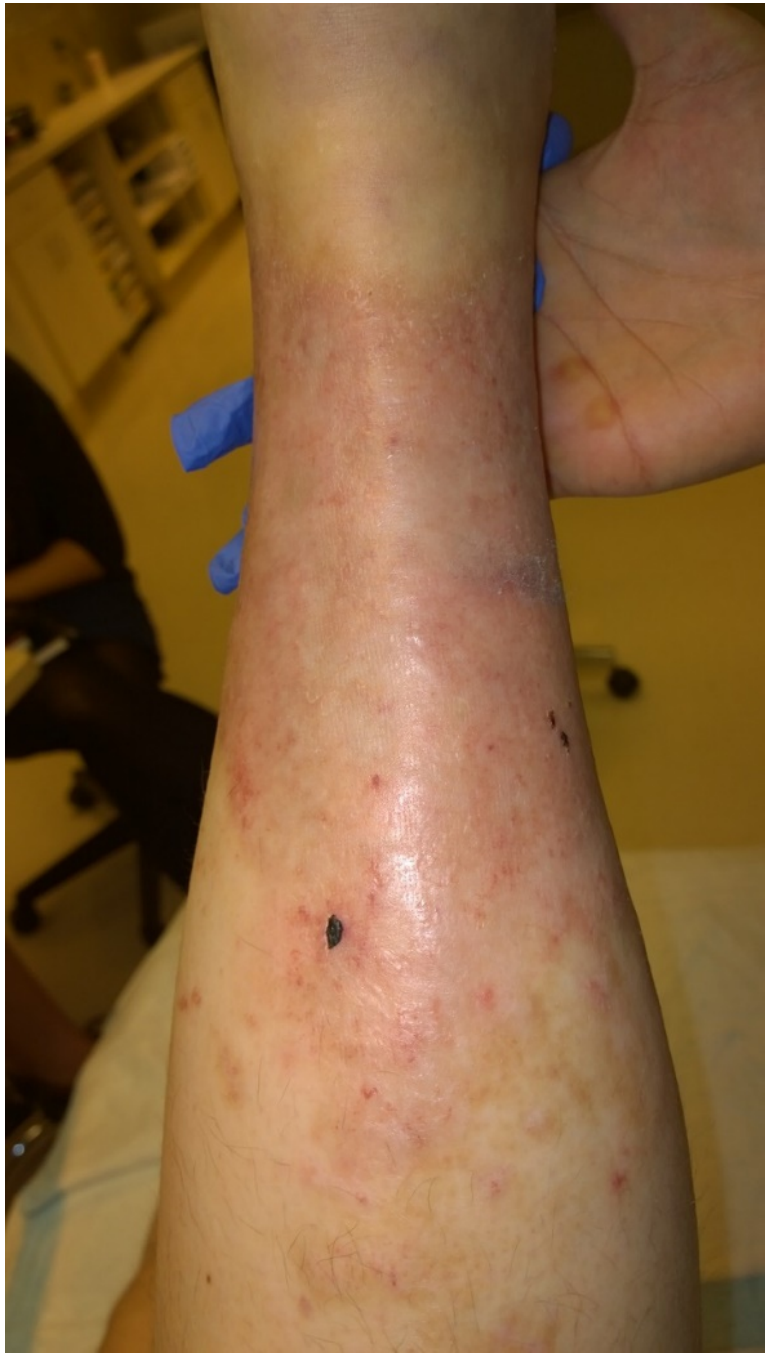
Tests:

- Normal WBC
- CRP low
- Biopsy not necessary; non-specific
- Clears with elevation





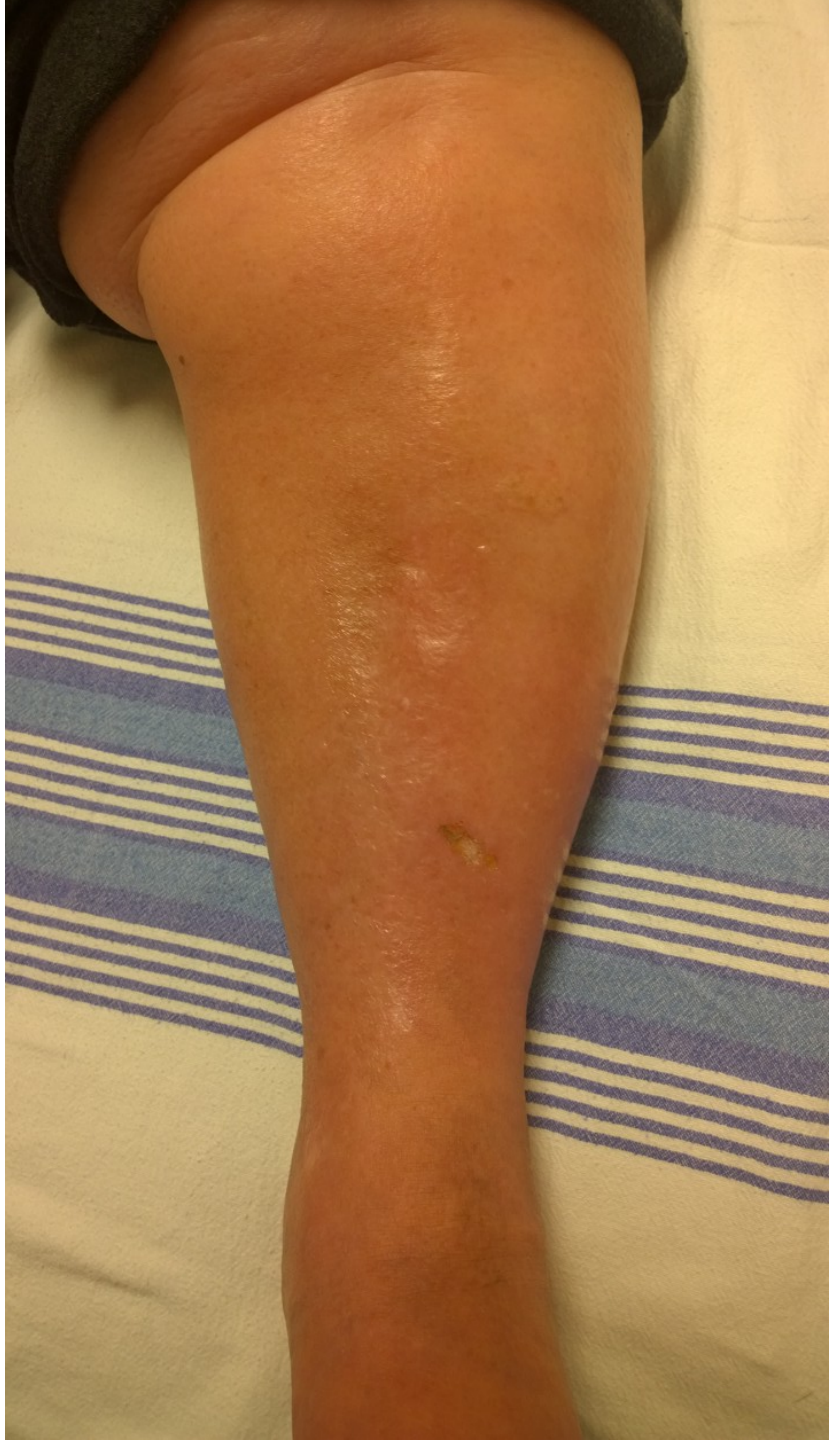




Stasis Dermatitis

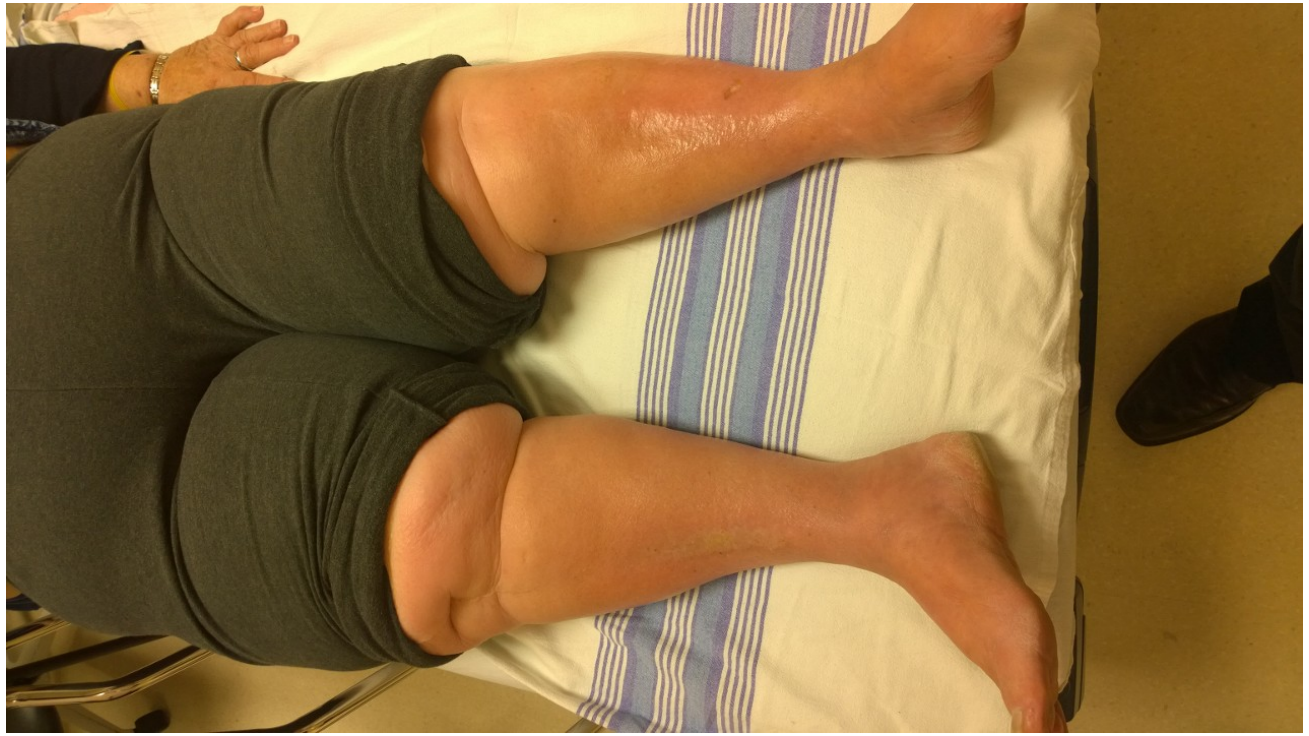
- **Treatment**
  - Elevation – as high as heart
  - Compression – dressing or stocking; tubigrip
  - Diuretics – if volume status up; monitor
  - Topical steroids – HC 1% adequate
  - Vascular/venous surgery
- **Beware:** May be secondarily infected – usually strep or staph;
  - add cephalexin

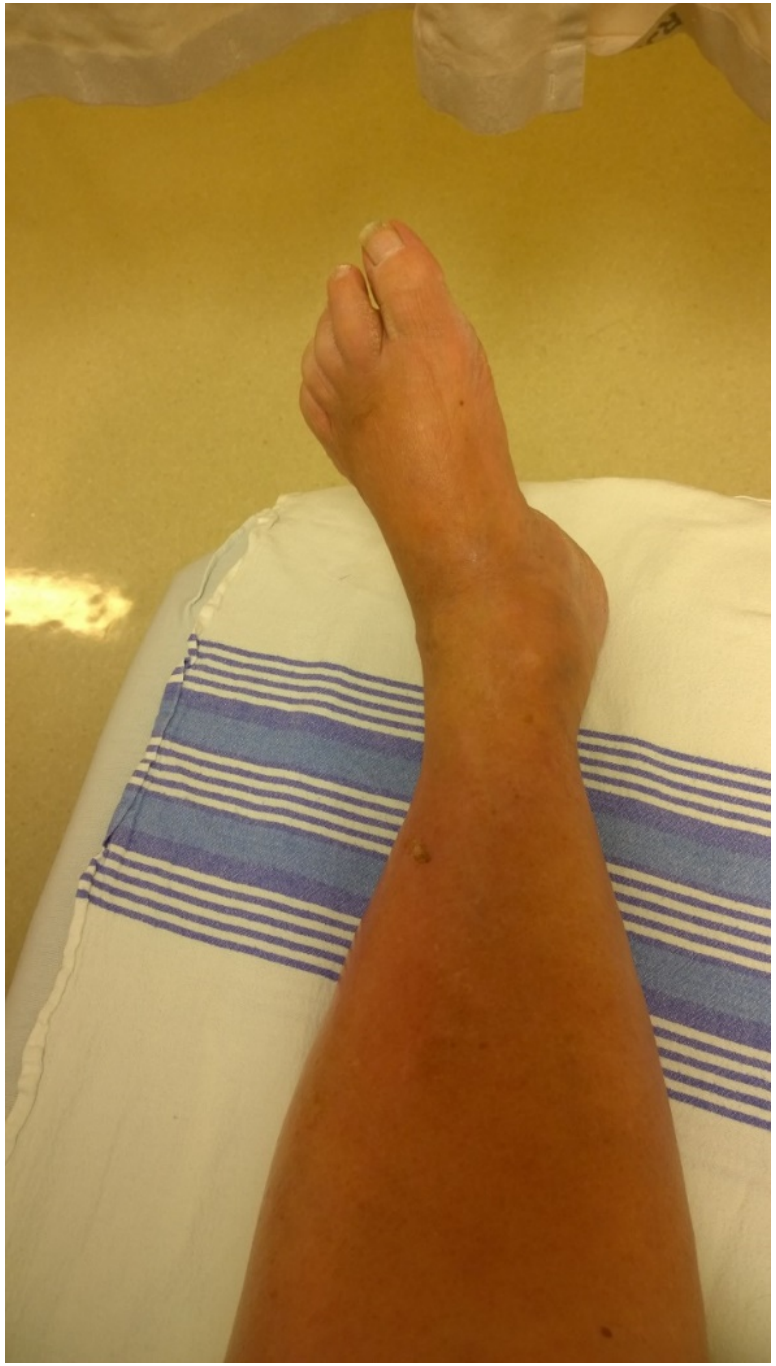
Lipodermatosclerosis

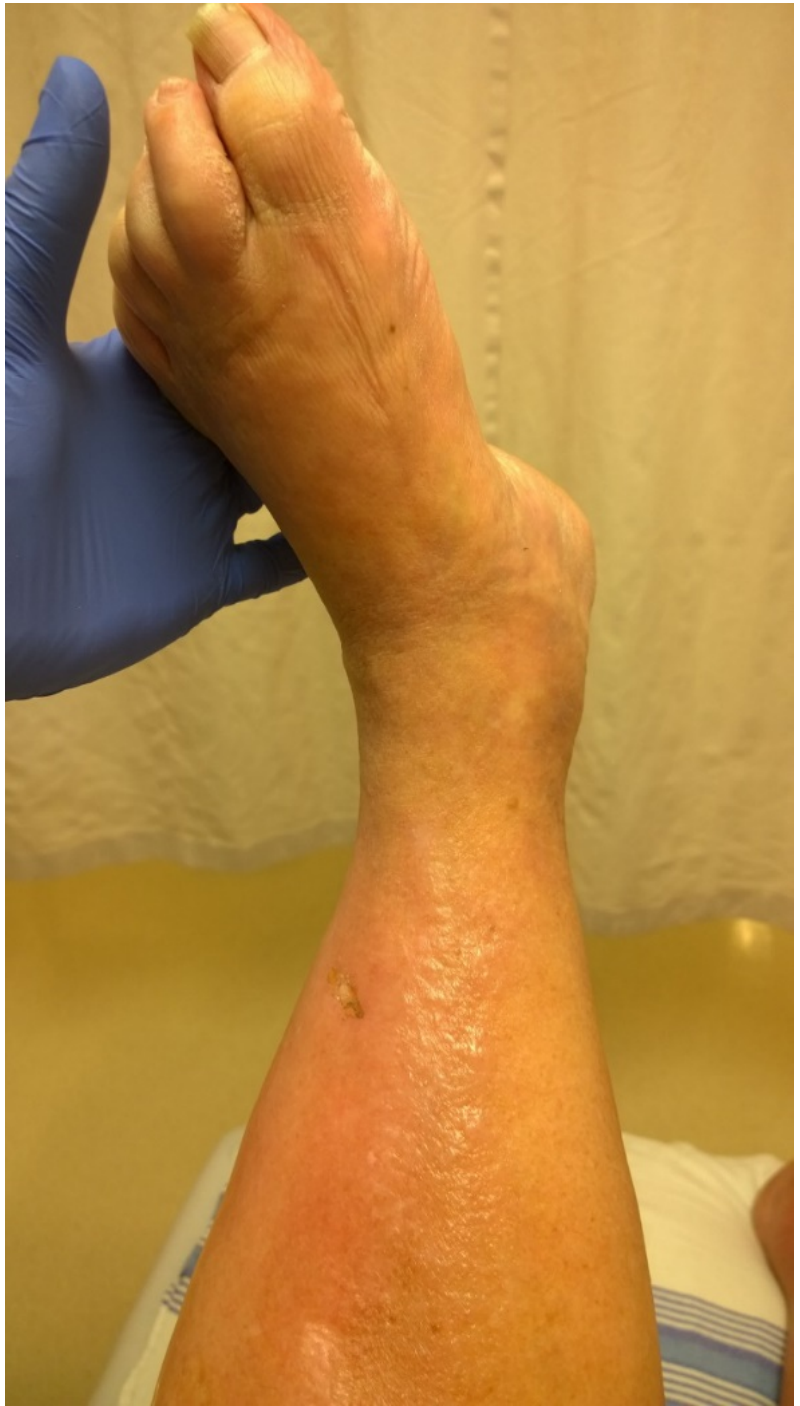


Lipodermatosclerosis

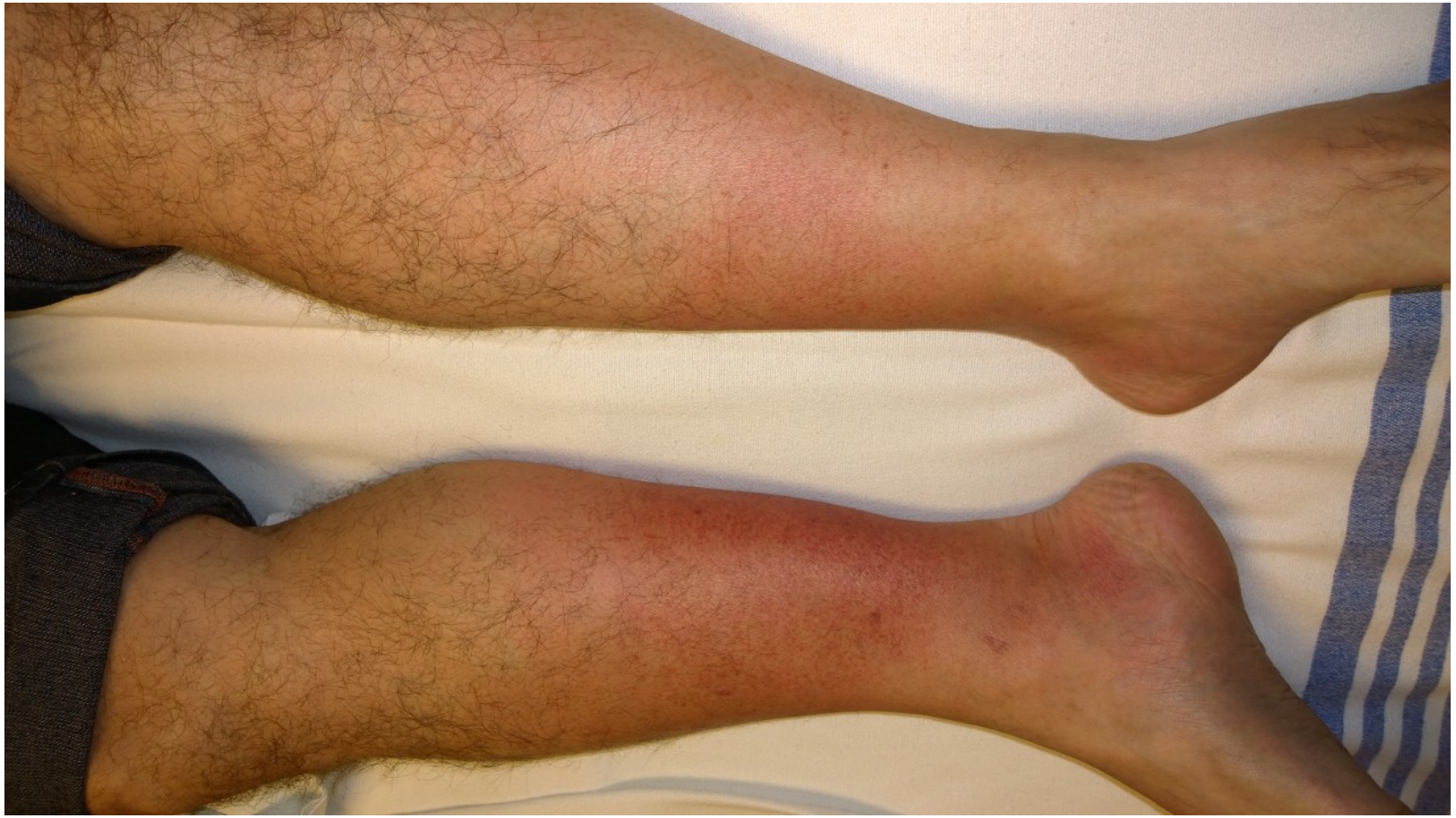
- Induration
  - superficial
  - deep – woody tissue
- Hyperpigmentation
- “Hourglass” legs
- ulceration







Acute Lipodermatosclerosis



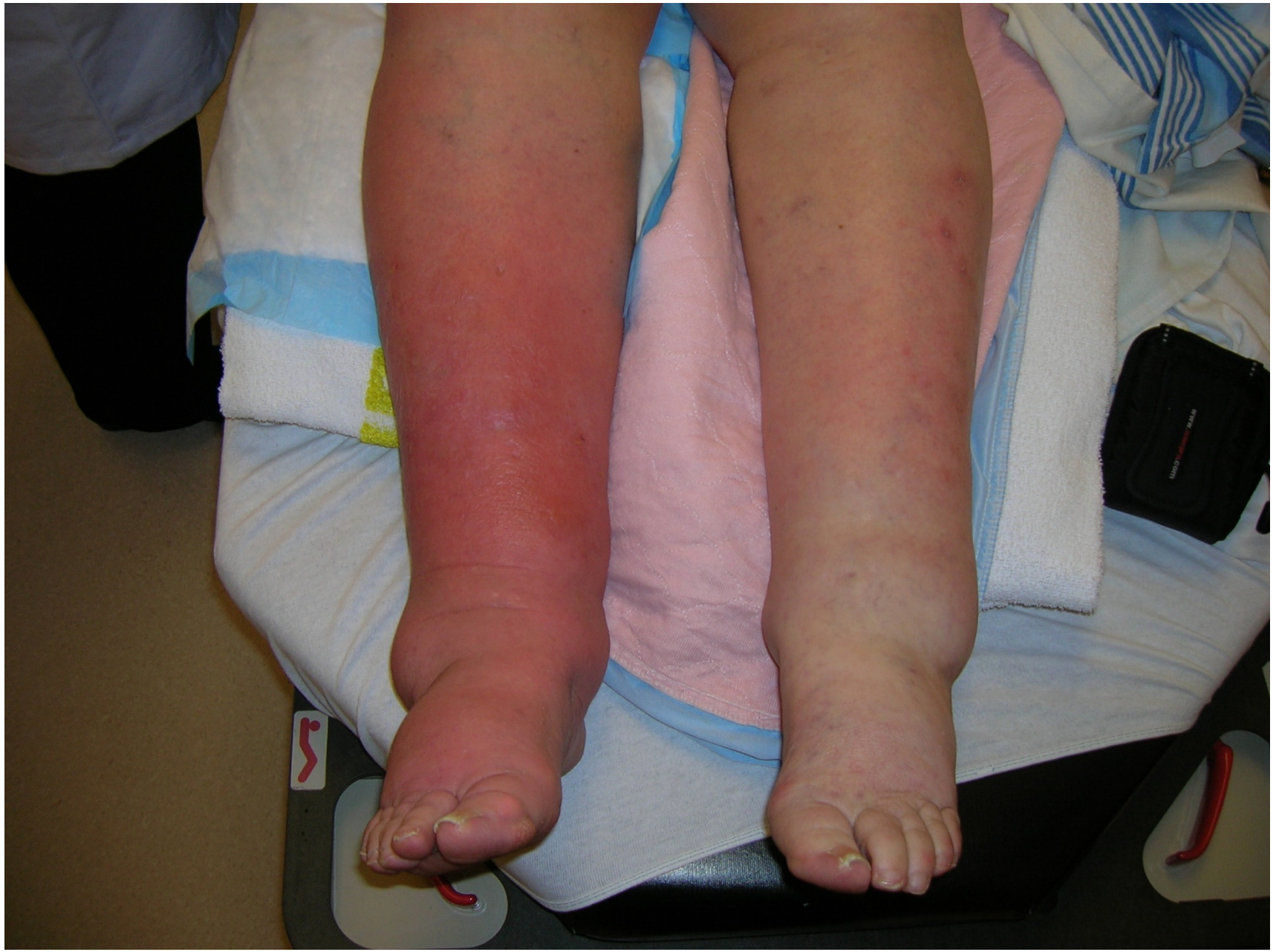
Point #2

- Stasis dermatitis and lipodermatosclerosis are common and
- Diagnosis is clinical

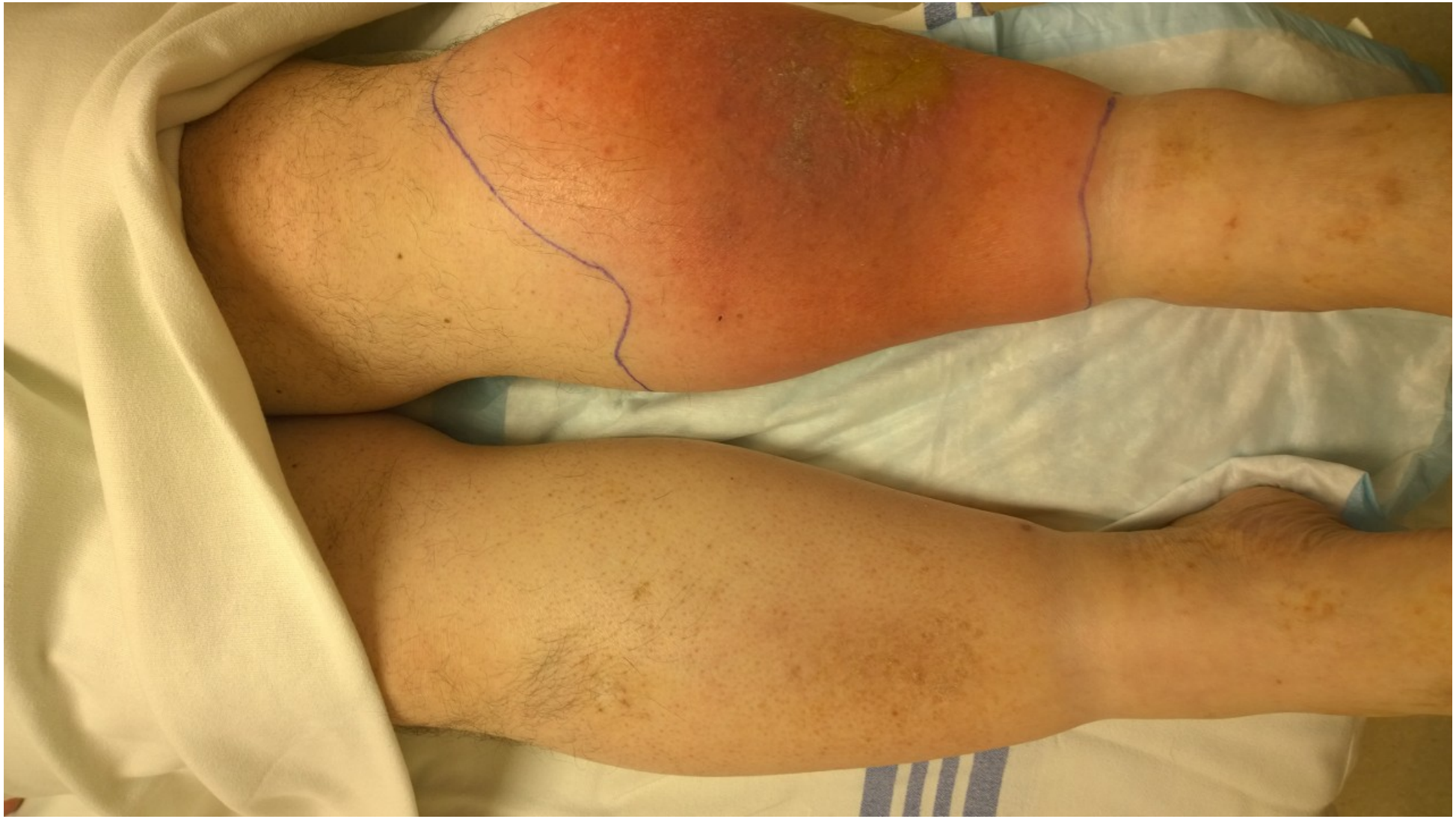
Classification of cellulitis – IDSA guidelines 2011

- Non – purulent
  - Usually Beta-hemolytic streptococcus but may be Staph aureus
- Purulent
  - May be strep but likely Staph aureus and need to consider MSSA and MRSA
- Erysipelas
  - Usually Beta-hemolytic streptococcus

Non-purulent cellulitis



Non-purulent cellulitis



Non-purulent – etiology

- **Beta-hemolytic streptococcus Gp A, B, C, G**
- **Staph aureus** – can be macrolide or clinda resistant
- MRSA – less frequent in LTC than community
- CoNS
- Gram negative coliforms
- Psuedomonas
- anaerobes

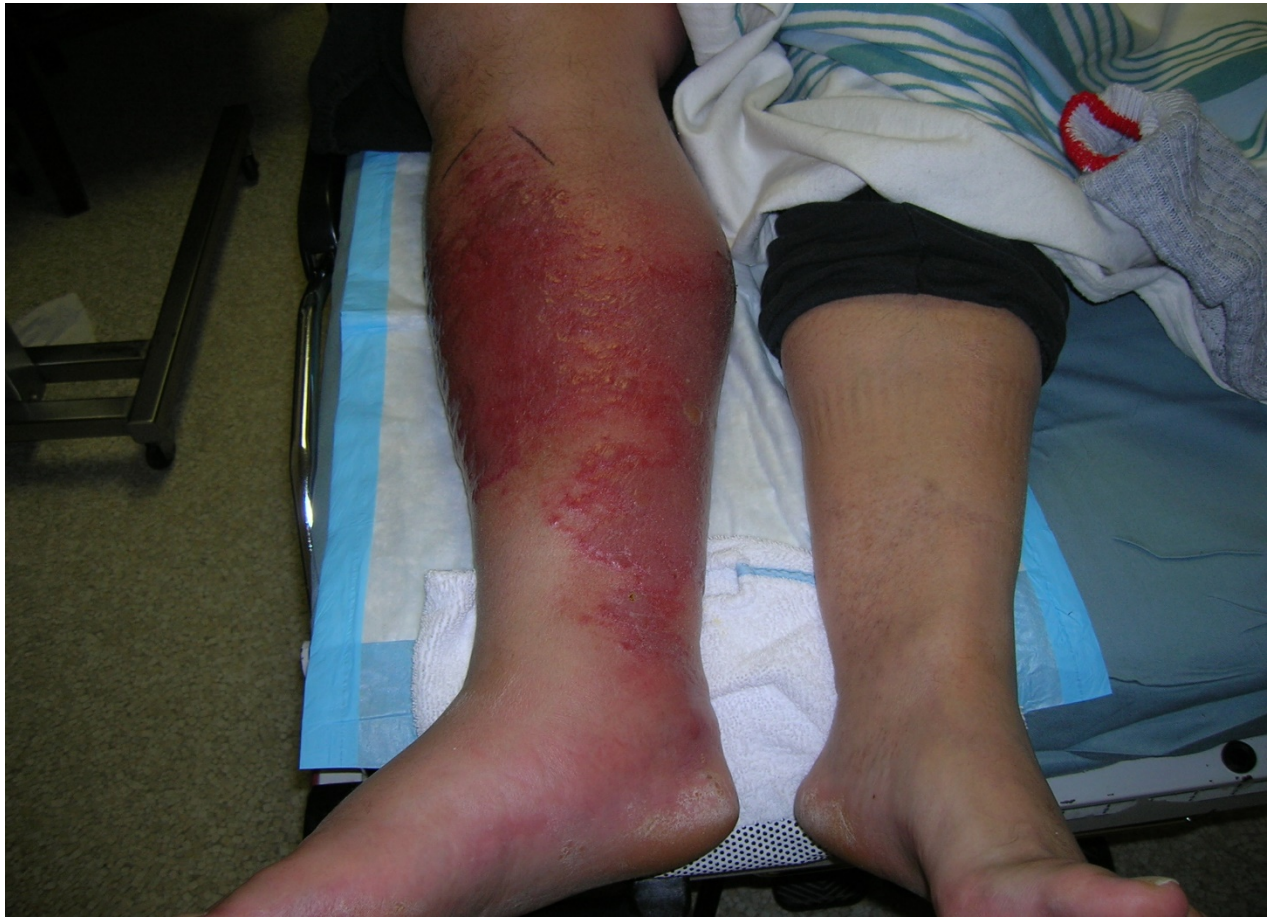
Non-purulent Cellulitis – treatment options

- Cephalexin 500mg qid ; 100mg qid
- Clindamycin 300 qid or 450 tid/qid or 600 tid
- Clavulin 500 tid or 875 bid
- Moxifloxacin 400mg daily
- SXT i-ii po bid
- Doxycycline 100mg bid

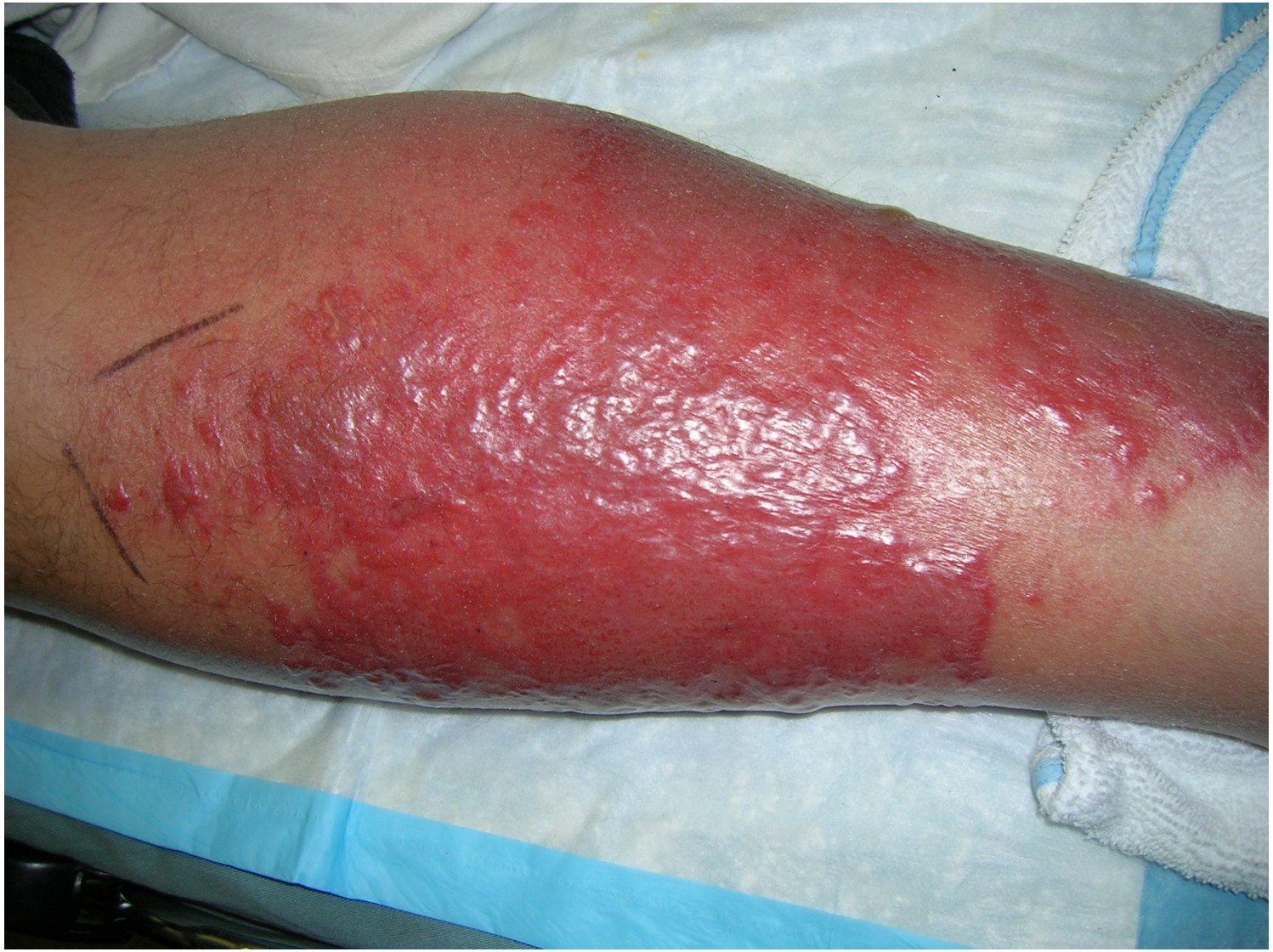
Point #3

- Non – purulent cellulitis – likely strep but treat both Strep and Staph

Erysipelas



Erysipelas



Erysipelas

- Well demarcated raised erythema
- Patient often unwell with systemic symptoms
- Symptoms often precede the STI
- Usually beta-hemolytic strep

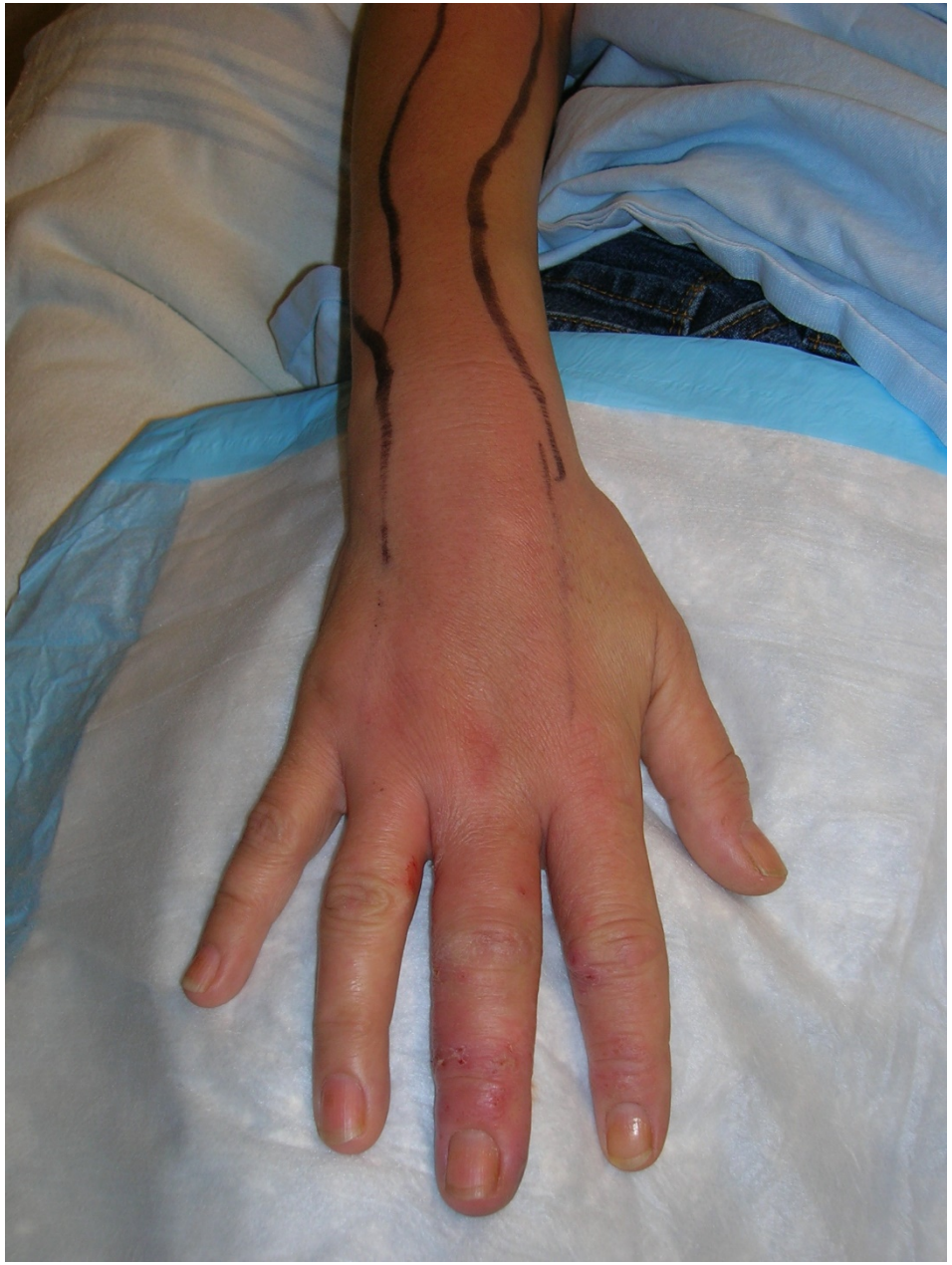
Erysipelas treatment

- Can focus therapy
  - Amoxacillin 500 mg tid
  - Amox 1000 mg tid for more severe or in obese pt
  - Clindamycin
  - Cephalexin
  - moxifloxacin

Streptococcal Infections

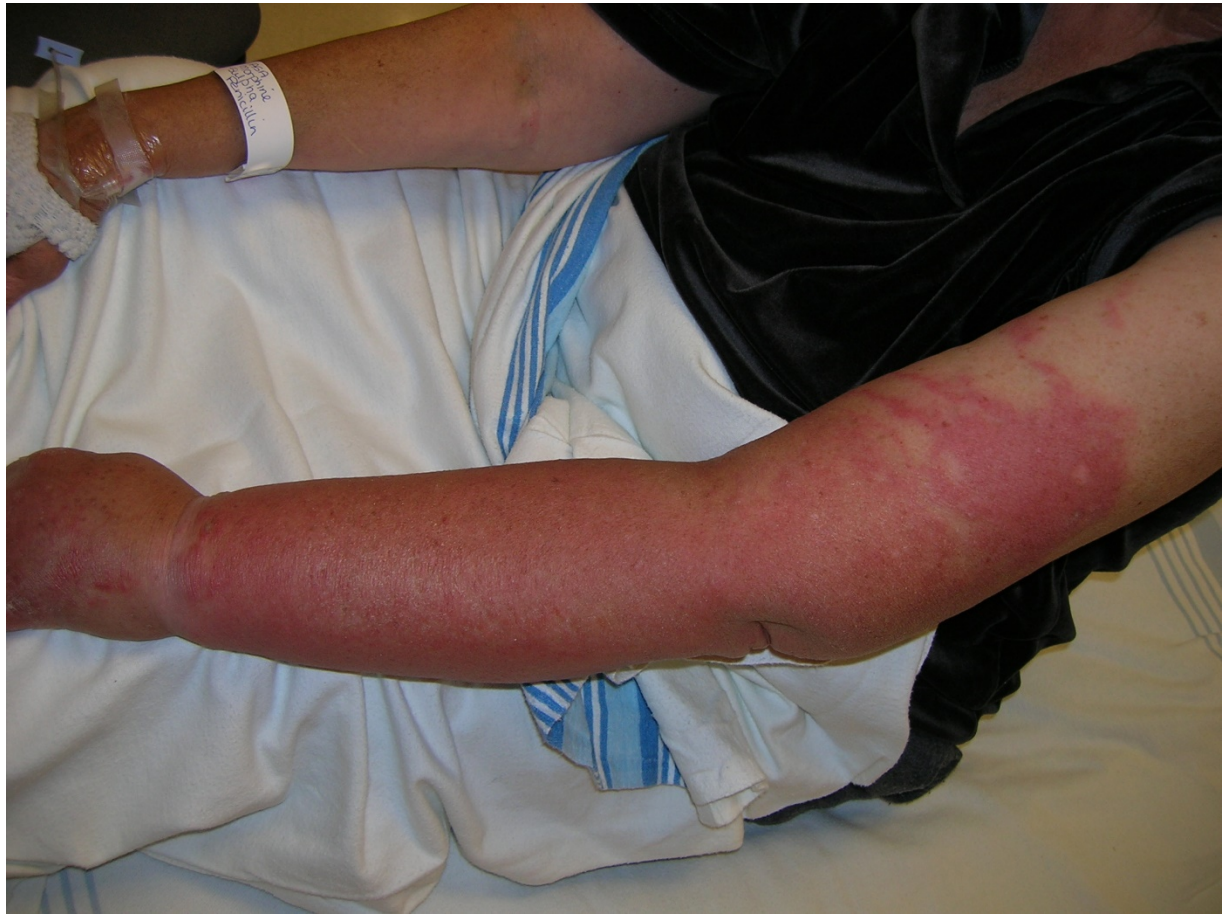
- Erysipelas
- Lymphangitis
- Acute onset rigors, fever, HA, malaise
- Systemic symptoms precede local by up to 2 days

Streptococcal lymphangitis

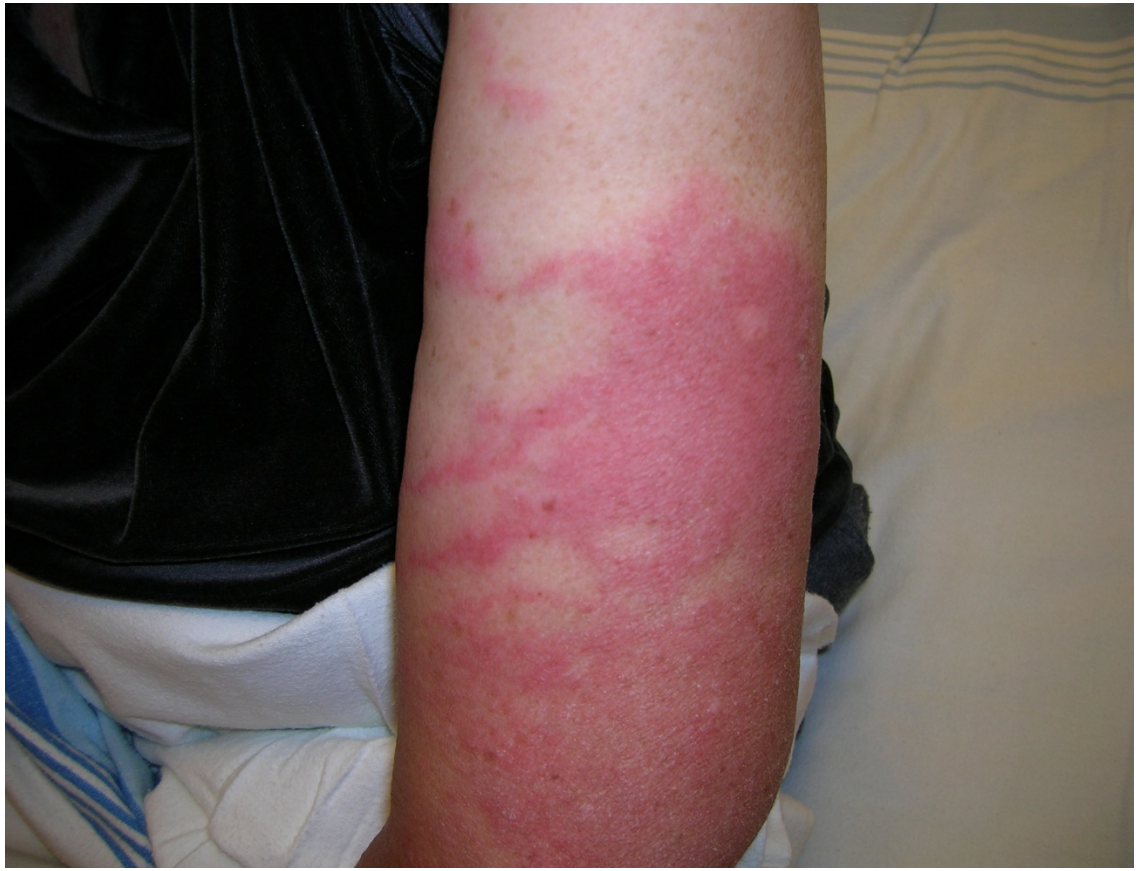


Streptococcal cellulitis and lymphangitis

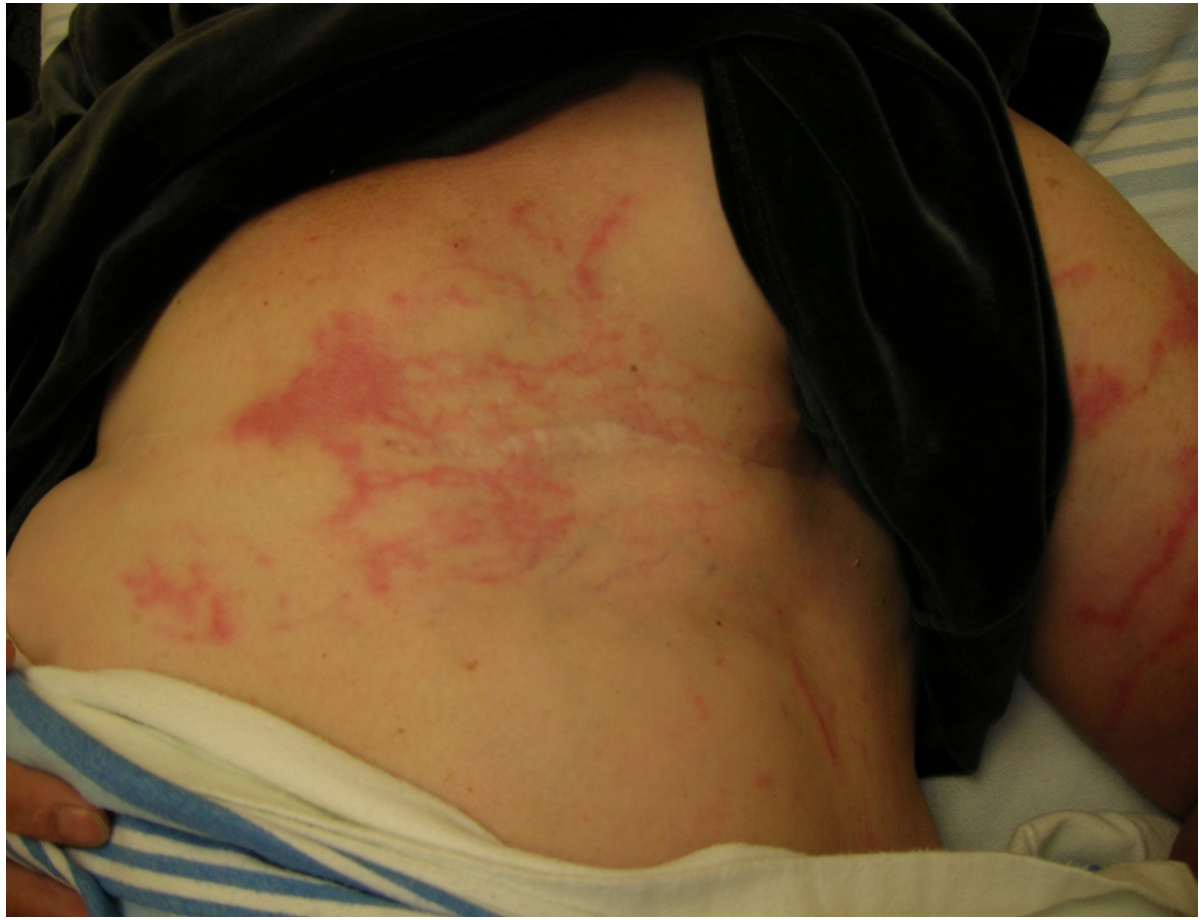
- Post-mastectomy
- Recurrent attacks



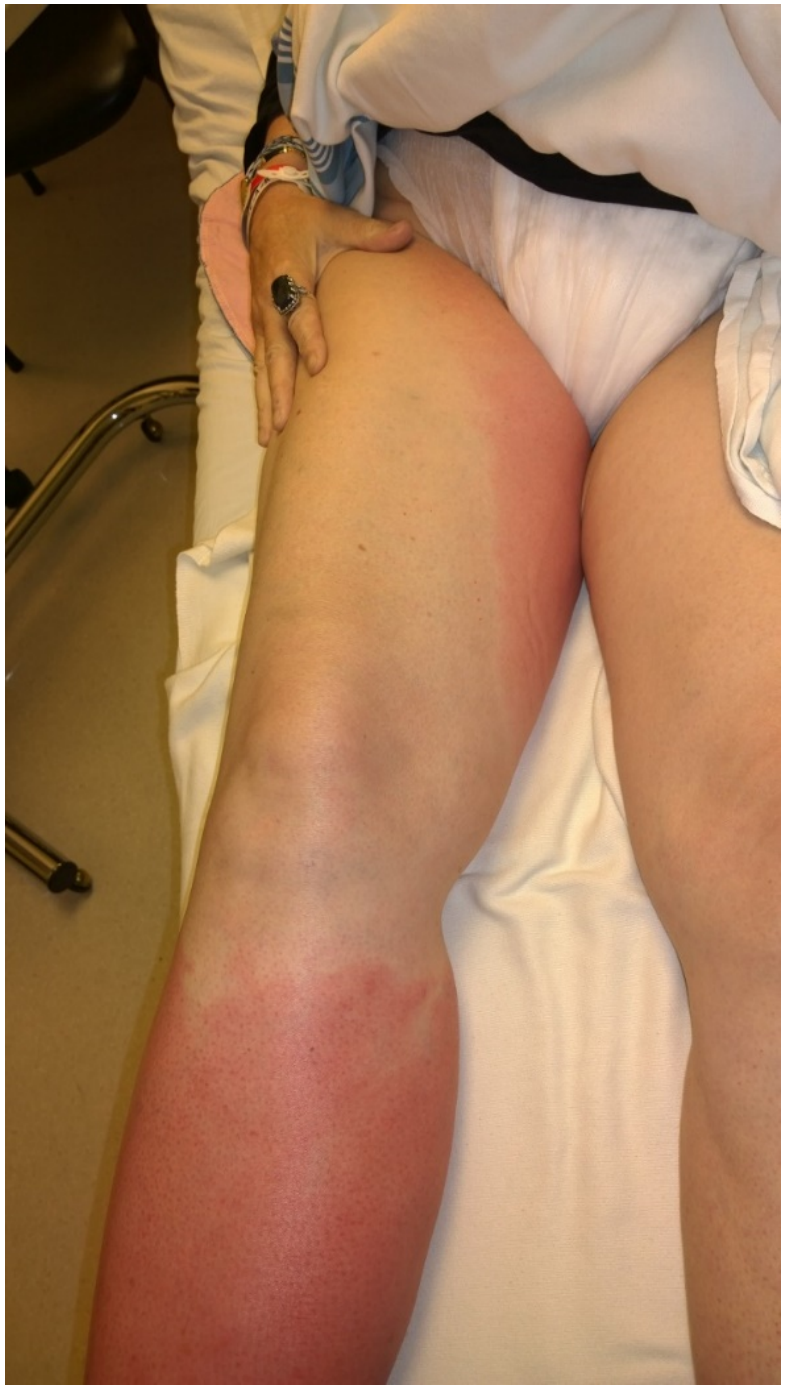
Lymphangitis



Leaping Lymphangitis



Lymphangitis



Point #4

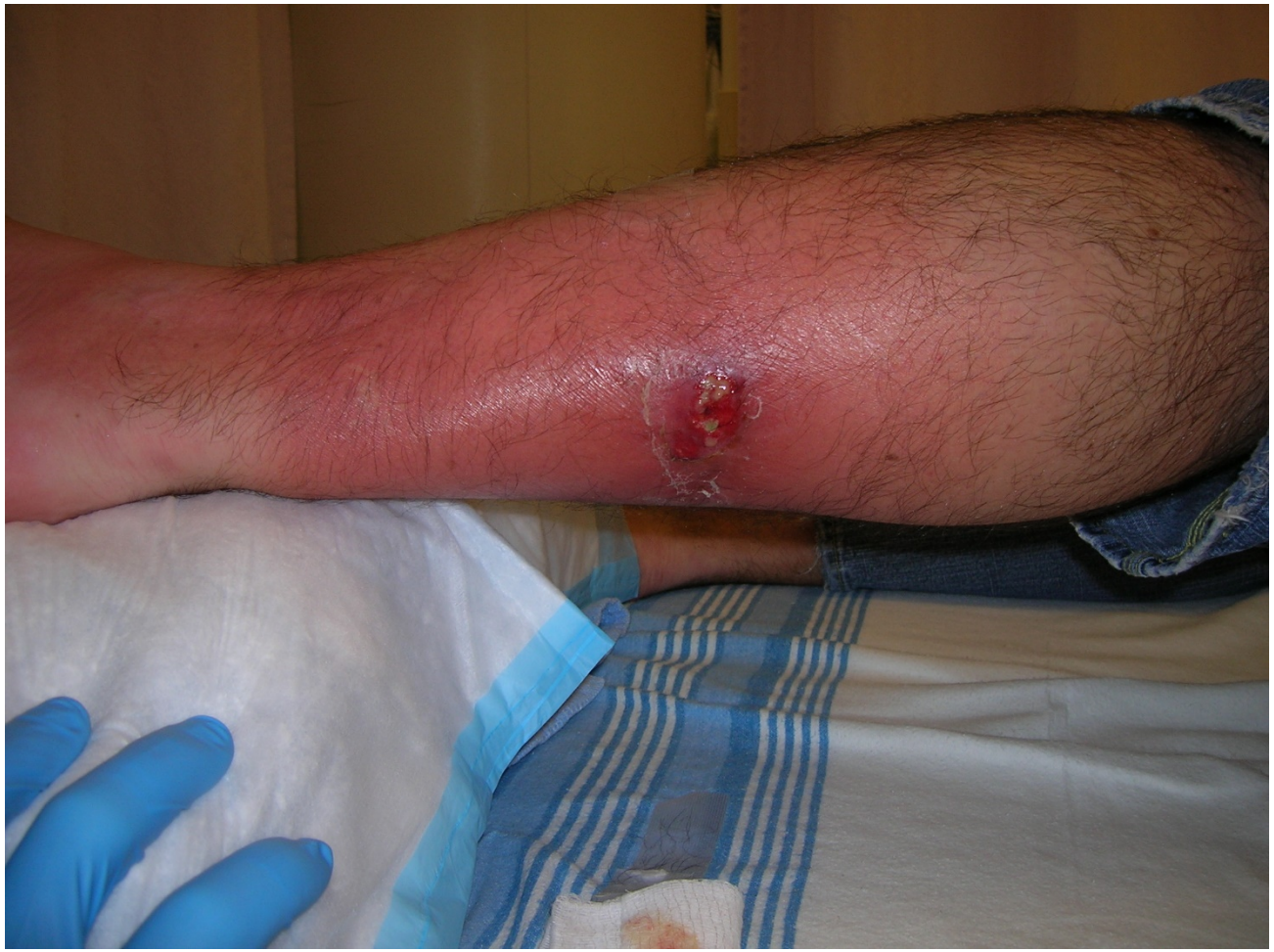
- Erysipelas and lymphangitis are usually beta hemolytic and therapy can be targeted

Purulent Cellulitis

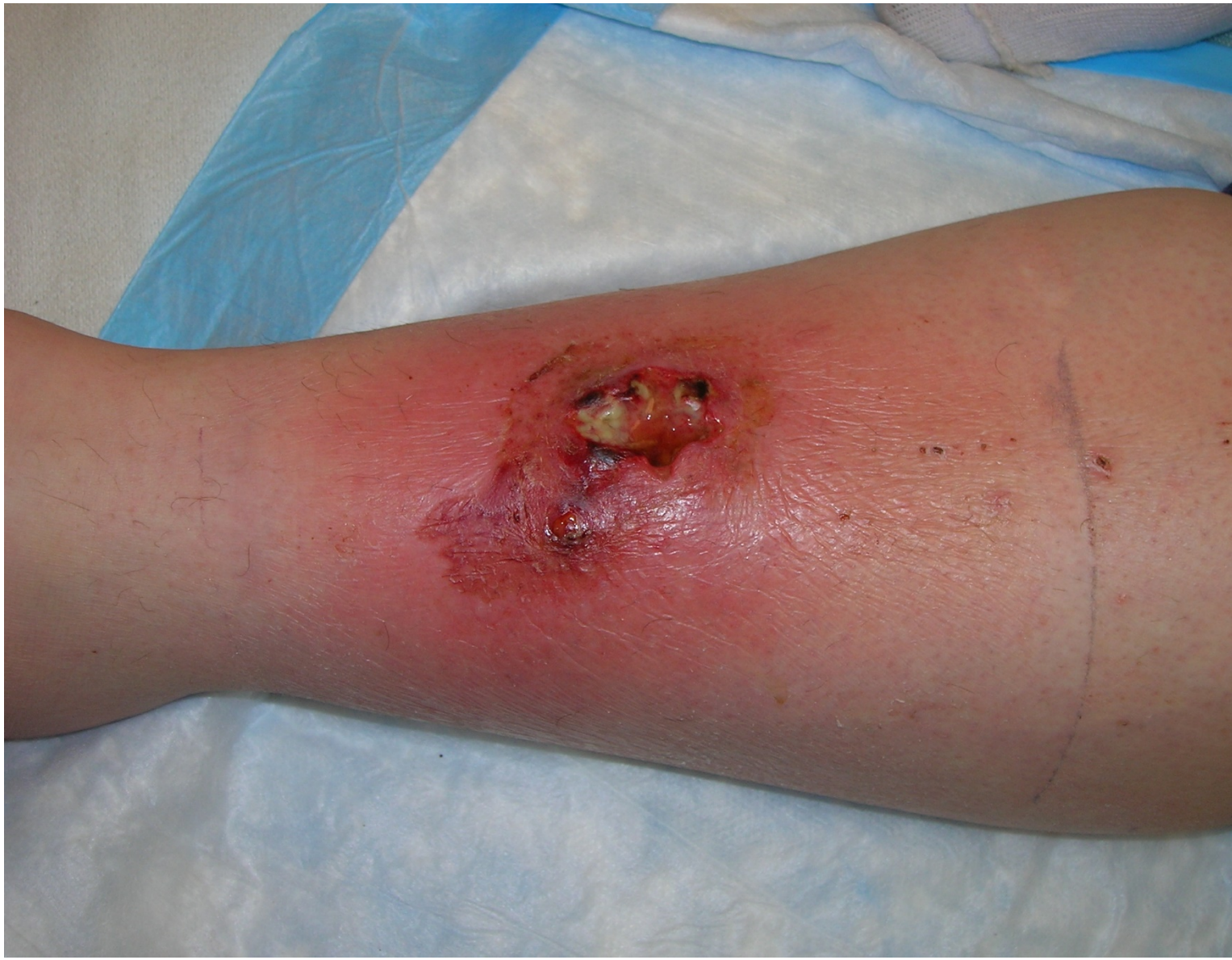
- either with pustule or abscess as primary focus or as secondary complication
- Must consider Staph as very likely and if risk factors exist must cover MRSA
- If no MRSA risk then : cephalexin, clinda, clavulin
- If MRSA risk factors exist then must cover with:
  - SXT + amox
  - clindamycin
  - doxy +amox

Purulent cellulitis

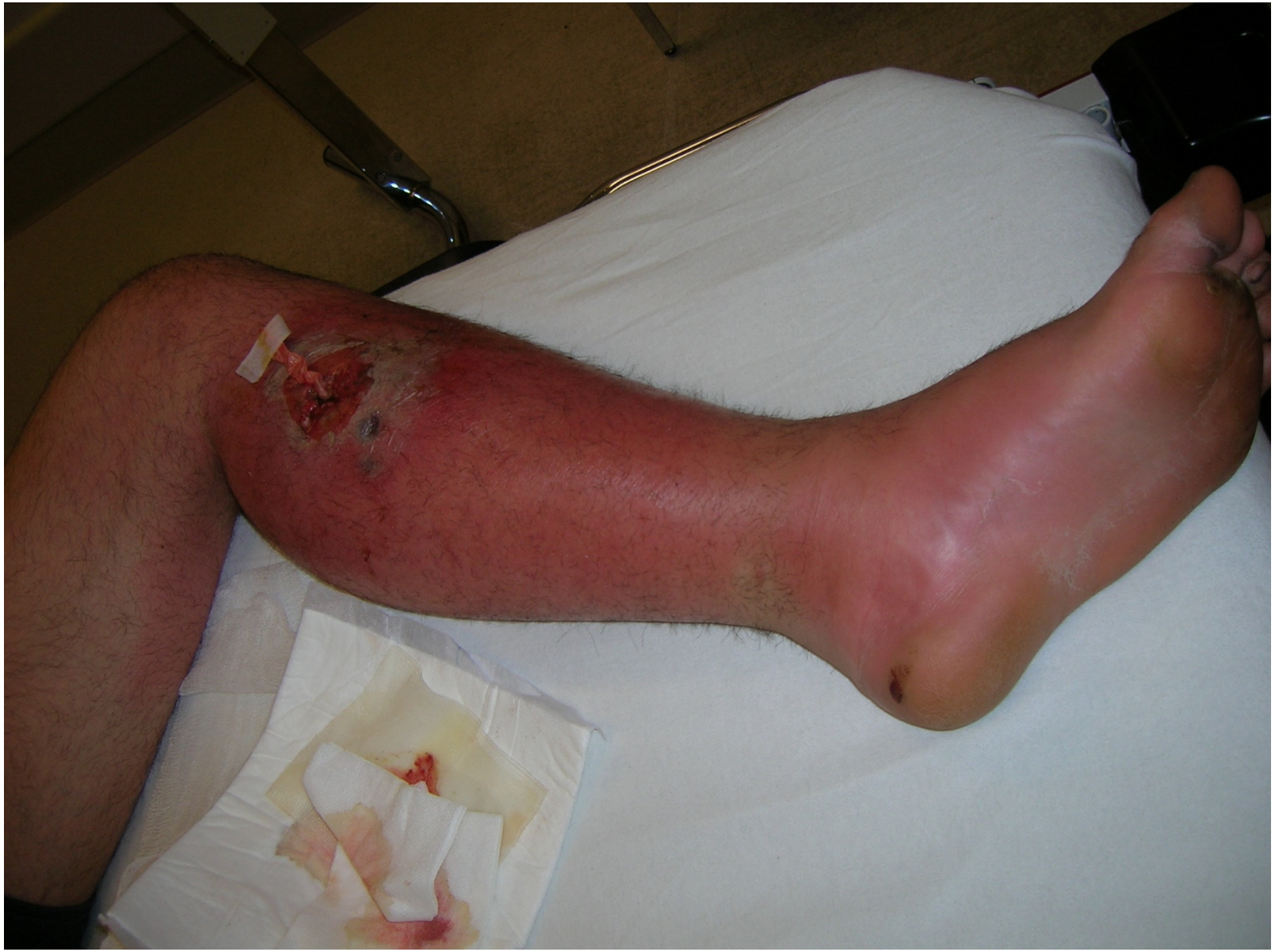
- Usually staphylococcal
- Ensure adequate drainage
- Drainage may be adequate
- Get cultures
- Treat staph and strep



Purulent cellulitis



Purulent cellulitis - severe



Point #5

- Purulent cellulitis – usually Staph aureus but treat both staph and strep while waiting for cultures.

When do we need to treat MRSA too?

Empiric therapy – coverage depends on:

- Clinical process
- Severity of infection – how sick is patient
- Host factors – compromised?

MRSA risk factors and indicators

A) colonization status – usually known or documented

B) risk factors – dialysis, hospitalization

C) LTC patient population

– usually predictable exposure

Populations at Risk

- Injection drug use
- Homelessness
- Incarceration
- First nations
- Close contacts of these risk groups
- Travel to endemic region
- Resident of LTC facility?

Consider treating empirically for MRSA when:

- Patient from high risk group or has close contact with high risk individual
- Recent history of furunculosis, folliculitis, impetigo
- Present with multiple lesions
- Failure to respond to standard therapy

MRSA SSTI management

Many **oral options for SSTI** - if mild to mod disease and otherwise stable for outpatient management

- SXT (97%) DS i or ii bid or
- Doxy (96%) 100 mg bid or
- Clinda (81%) 300-450 mg qid
- +/- Rifampin (99%) 600 mg daily if serious
- Linezolid (99%) 600mg bid ($160/day)

Point #6

- MRSA is relatively rare in LTC setting but can be effectively treated with oral antibiotics

Consider Decolonization

- Staph furunculosis - ongoing and active
- Recurrent infections – 2 or more episodes of SSTI
- Severe infection
- Symptomatic contacts – mult family members
- If children or compromised individuals in the house
- If patient involved in outbreak

Do not decolonize if:

- Single episode of symptomatic infection
- Open draining wounds - let them heal first
- Chronic ulcers/wounds, indwelling device
- Respiratory tract colonization
- Non-compliant patient

But Do provide information on preventing personal and household transmission

Point #7

- Consider decolonization if not contraindicated

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Clindamycin versus Trimethoprim–Sulfamethoxazole for Uncomplicated Skin Infections

Loren G. Miller, M.D., M.P.H., Robert S. Daum, M.D., C.M., C. Buddy Creech, M.D., M.P.H., David Young, M.D., Michele D. Downing, R.N., M.S.N., Samantha J. Eells, M.P.H., Stephanie Pettibone, B.S., Rebecca J. Hoagland, M.S., and Henry F. Chambers, M.D., for the DMID 07-0051 Team*

Clinda vs Bactrim

- 524 patients RDBCT
- Cure at 7-10 days
- 30% had abscess, 53% had cellulitis, 15% had mixed
- S aureus isolated in 44% - 77% was MRSA
- **Cure rates**: SXT 77.7%; clinda 80.3%
- **Conclusion:** no difference in efficacy or SE profile for treatment of skin infection, including both cellulitis and abscesses

So is SXT good for strep?

- SXT may miss some strep
- Clinda may miss some MRSA

- I would not use SXT alone when streptococcus most likely pathogen

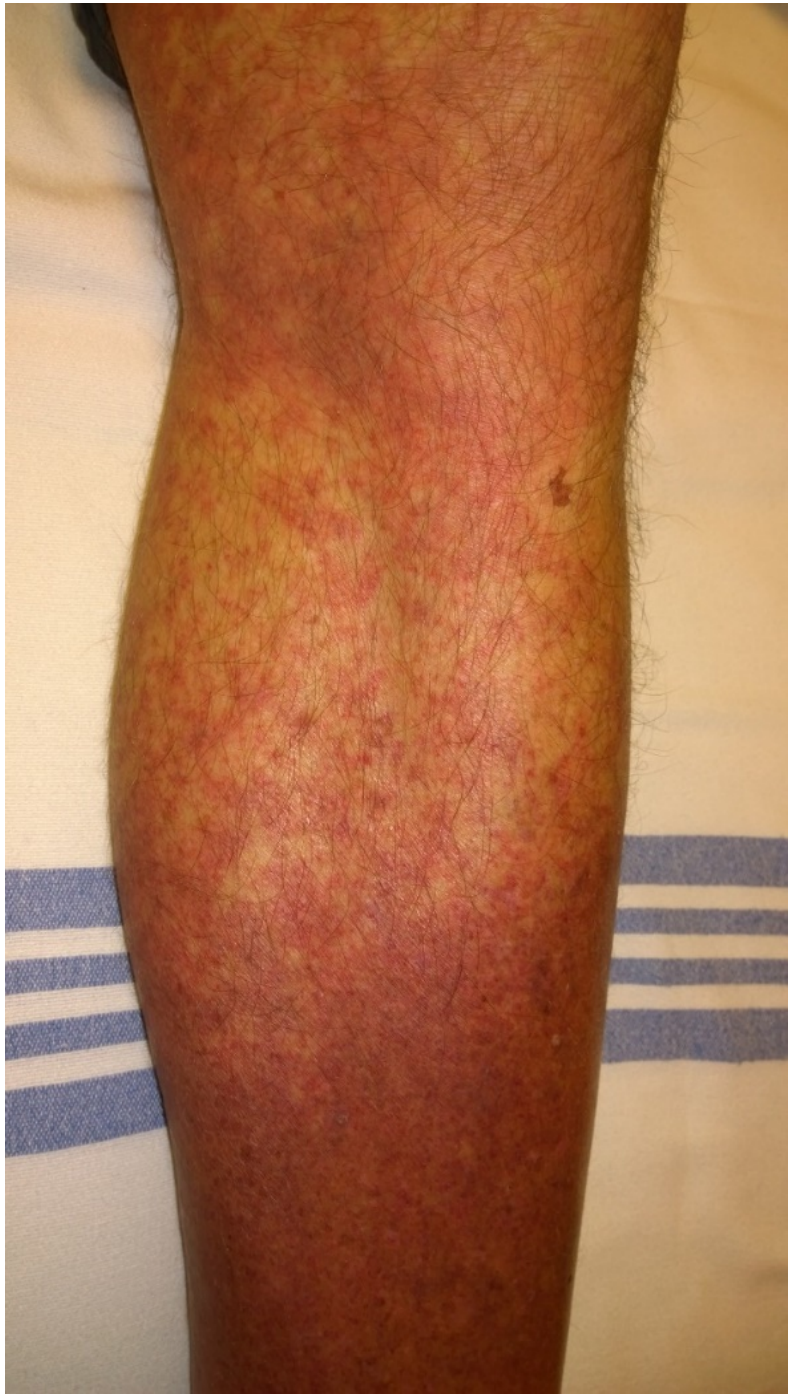
Point #8

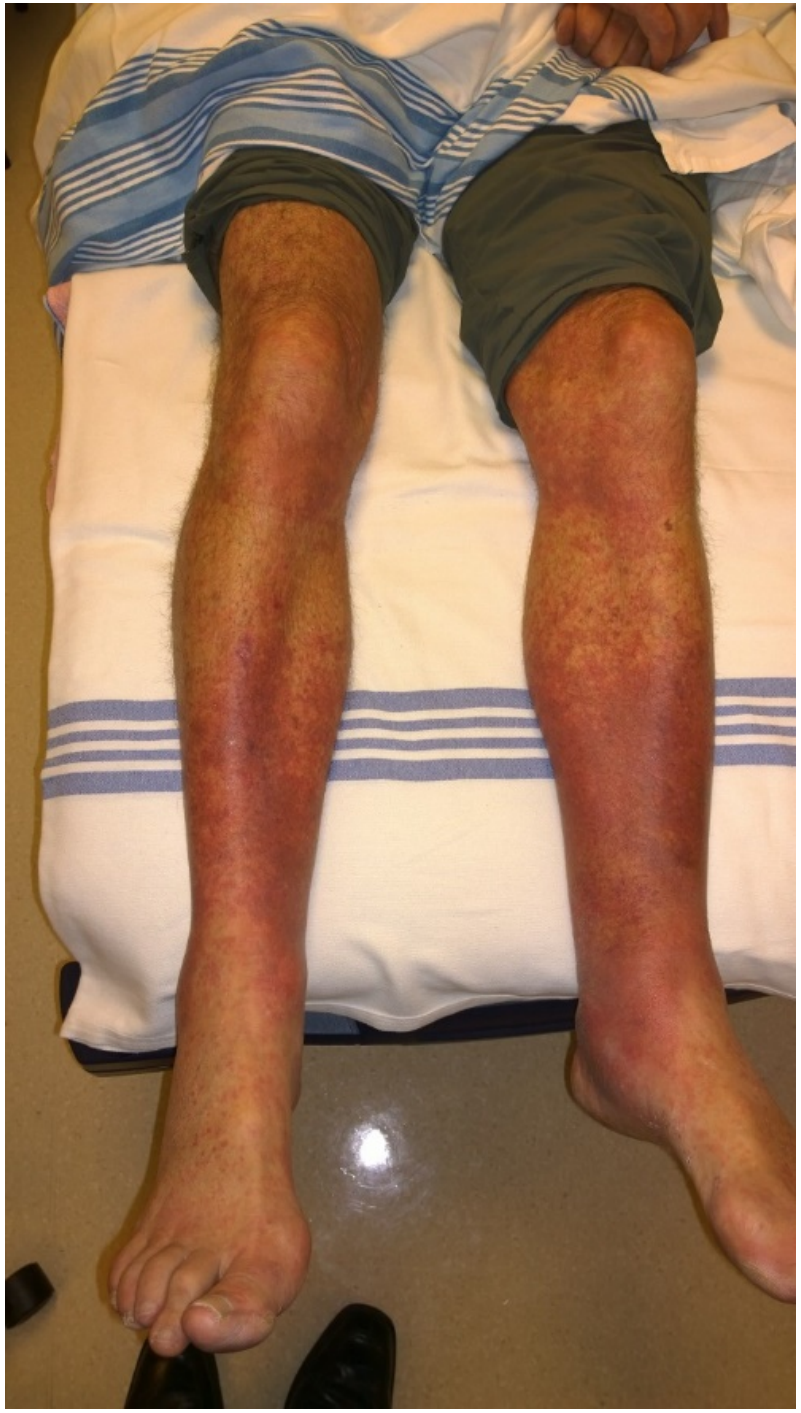
- Treat MRSA only when you have to.

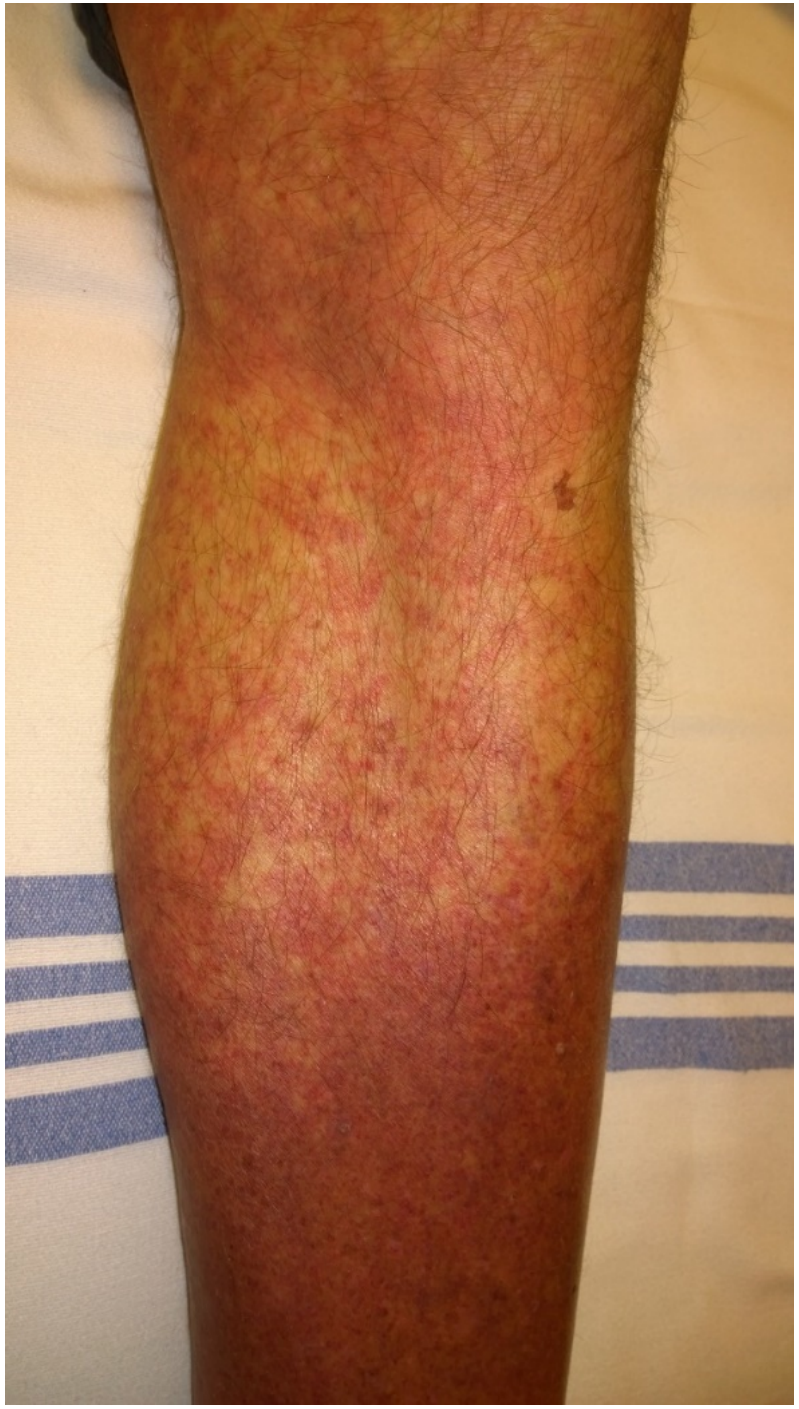
General Management of Cellulitis

- ABX – according to cellulitis type and risk of MRSA
- Edema reduction
  - Elevate
  - Compression – tubigrip
- Drain abscess
- Optimize blood sugars
- Wound care

Cellulitis?





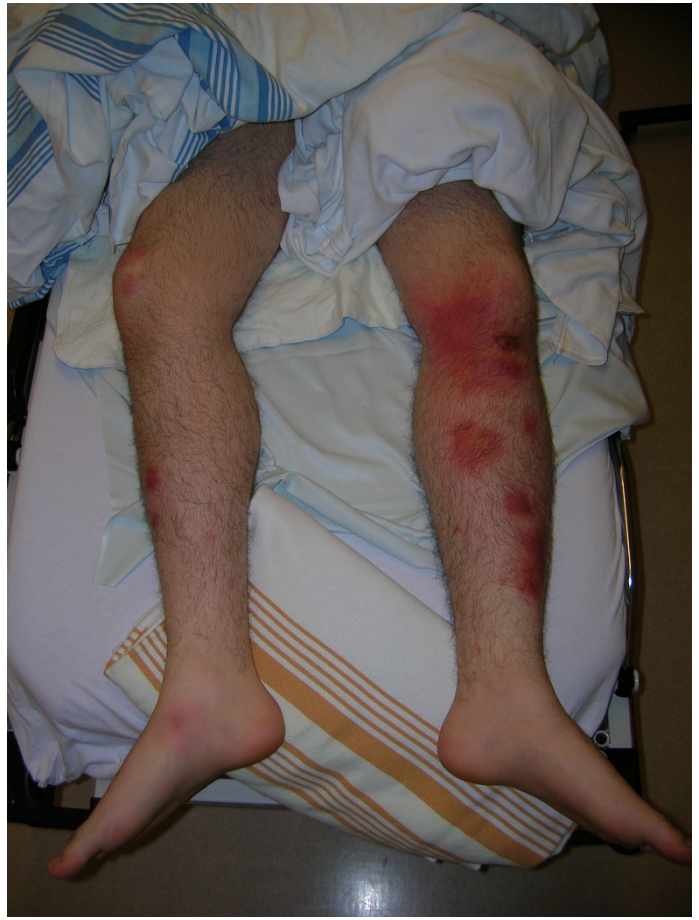


Drug Reaction

- Many different forms of reaction which could mimic or complicate infection
- Drug fever – infectious febrile illness
- Diffuse rash or vasculitic rash – purpura, meningococcemia
- Severe rash, bullae, TEN, SJS – toxic shock, sepsis
- Fixed drug eruption - cellulitis

Panniculitis

- EN
- Lipodermosclerosis
- Erythema induratum
- Vasculitis – PAN, SLE
- Dermatomyositis
- Necrobiosis lipoidica diabeticorum
- Sarcoidosis
- gouty
- Infection related – TB, Leprosy, AFB, parasites



Point #9

- Other causes of rash must be considered

The End