Skin & soft tissue infections

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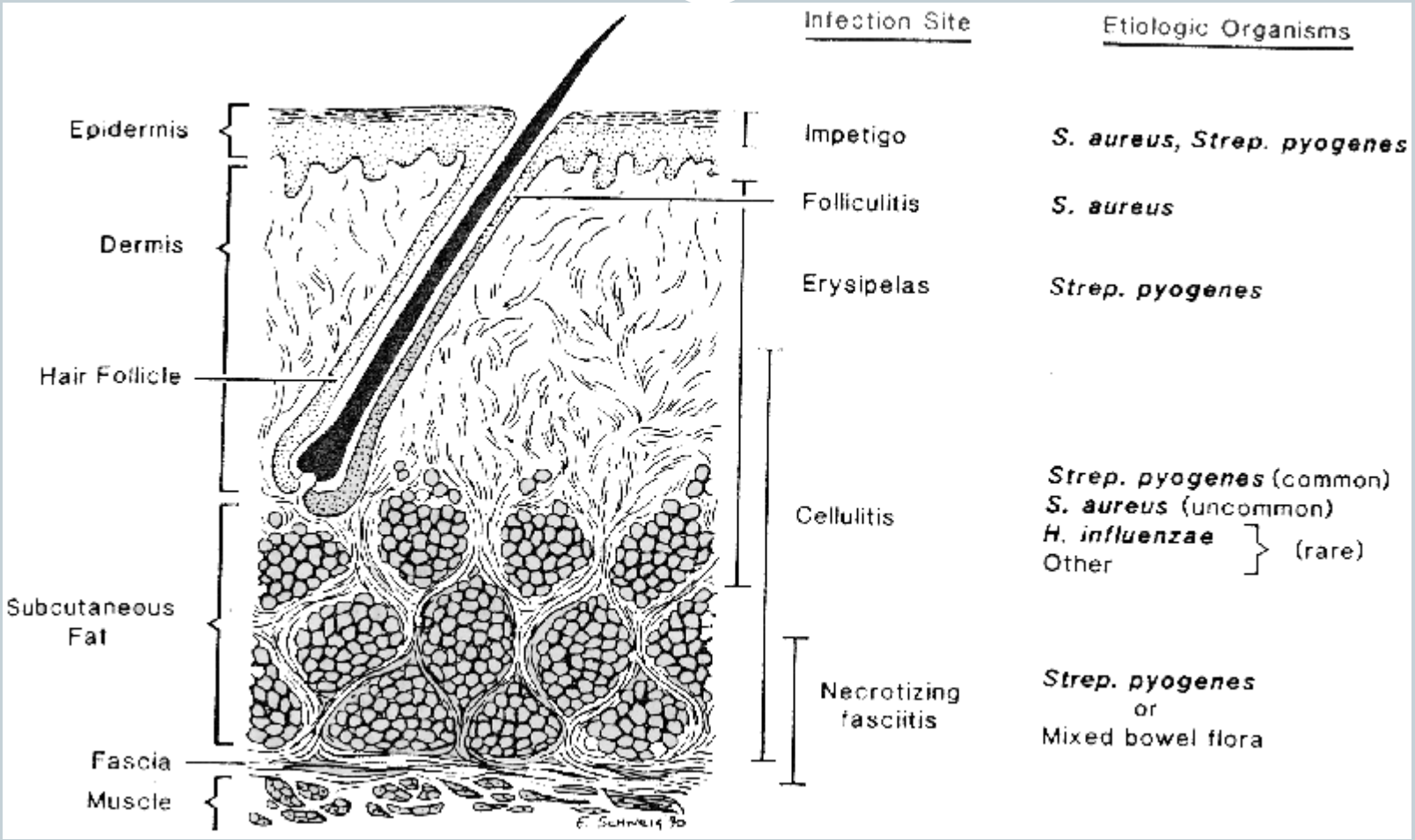
Take home message

- **Erysipelas:** Penicillin 1-(3) g x 4
- **Cellulitis** (with pus): Kloxa/dikloxacillin 1-2 g x 4
- NO effect of «double antibiotic coverage» except i necrotizing fasciitis

Skin & soft tissue infections

- **Common pyogenic skin infections**
  - Folliculitis
  - Furunculosis
  - Carbuncles
  - Impetigo
  - **Cellulitis**
  - **Erysipelas**
  - Surgical wound inf.
- **Complicated soft tissue infections**
  - Gas gangrene
  - Necrotising fasciitis
  - Staphylococcal scalded syndrome
- Prosthesis associated infections
- Osteomyelitis & arthritis

Infections according to wound depth



Diabetic ulcer

Diabetic ulcer

- Diabetic neuropatia
  - Abscence of typical signs
  - Osteomyelitis obs. (50 % serious ulcers?)
- Diabetic ulcer
  - Neuropathic: no pain, antibiotics works,
  - Atherosclerotic: PTC and/or surgery

Cellulitis and erysipelas

- Both: Erythema, oedema and heat
- **Erysipelas**, superficial part of the scin
  - Swelling above the scin, **sharp demarcation**, **acute** start, pain, fever & chills. «deep red»
- **Cellulitis**, deeper in dermis and subcutaneous fat
  Slower start, +- pus

Erysipelas

Serious case of cellulitis

Cellulitis

Predisposing factors

- Trauma
- Bite
- Exzema
- Other skin disease
- **Oedema**
- Surgery
- Mould (intertrigo)

Differential diagnoses

- **Nekrotising fasciitis**
- Gas gangren
- Abscess/bursitt
- Osteomyelitis
- **DVT/erythema migrans/herpes zoster**
- **Arthritis urica (joints)**

Diagnostic approach

- Blood culture (<5%)
- Aspirasjon from rim of infection?
- Bact. Investigation of pus
- X-ray in chronic wounds
- Ultrasound abscess?

Treatment

- Elevation of affected area
- Focus on predisposing factors
- Evacuate absces
- Antibiotics

Antibiotics

Leman P. Emerg Med J 2005;22:342-6

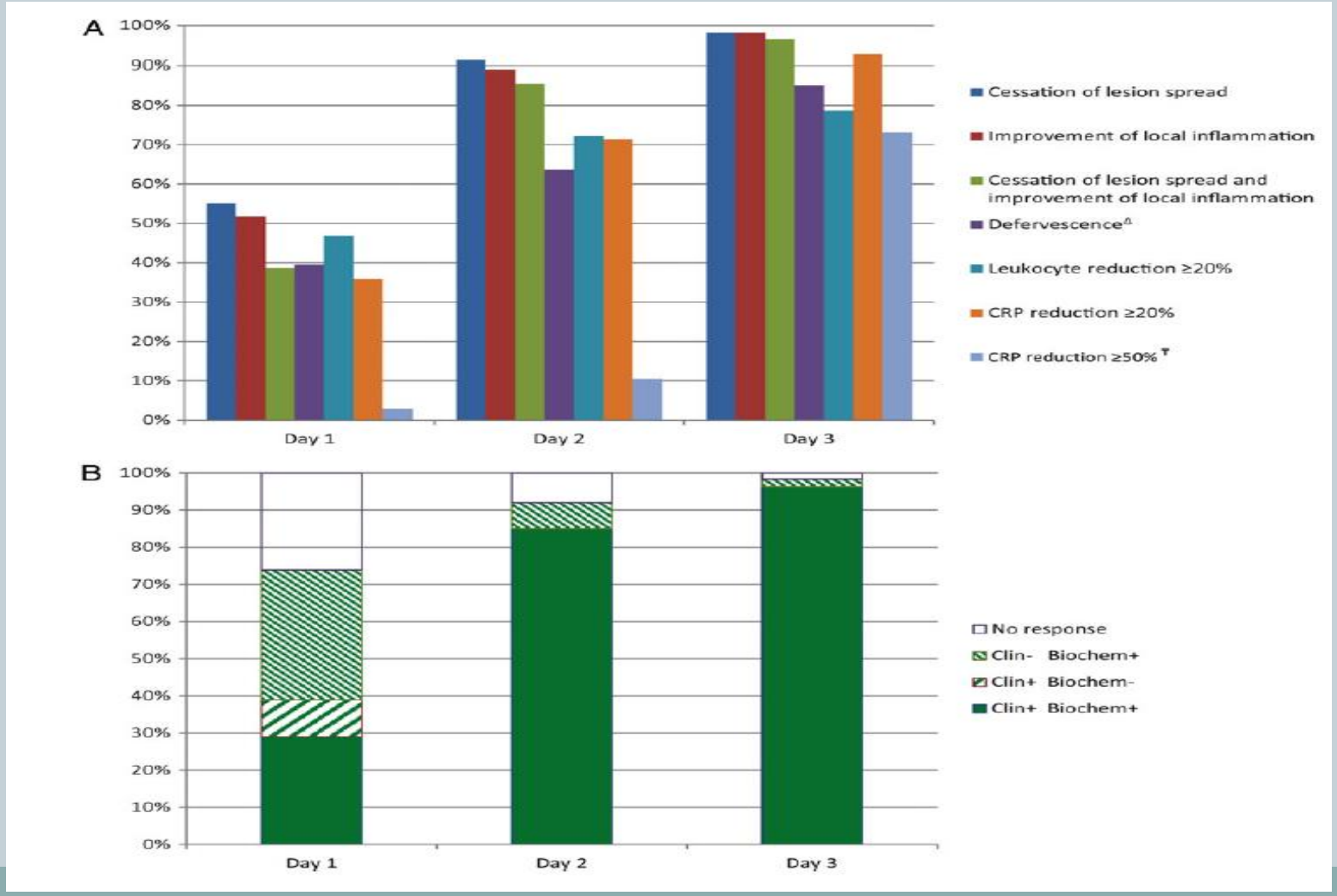
- Pus
  - Probably Staf. aureus
  - Kloksa/dikloksacillin 1-2 g x 4 (also effect. against strept.)
- Non purulent
  - Probably β-hemolytic streptococci
  - Penicillin G 1.3-2 g x 4
  - No effect av ”double coverage”

How long treatment?

- 5-7-10 d.?
  - Biomarkers CRP or Procalcitonin
- Respons
  - common after 1-2-3 d
- Visible respons within 3 d.
- Progression? Revise the diagnose/treatment

Early Response in Cellulitis: A Prospective Study of Dynamics and Predictors

Trond Bruun,[1,2] Oddvar Oppegaard,[1,2] Karl Ove Hufthammer,[3] Nina Langeland,[1,4] and Steinar Skrede[1,2]



RCT 5 vs. 10 days cellulitis

Comparison of Short-Course (5 Days) and Standard (10 Days) Treatment for Uncomplicated Cellulitis

MAJ Matthew J. Hepburn, MC, USA; COL David P. Dooley, MC, USA; MAJ Peter J. Skidmore, MC, USA; MAJ Michael W. Ellis, MC, USA; MAJ William F. Starnes, MSC, USA; LTC William C. Hasewinkle, MC, USA

Background: Cellulitis is a condition routinely encountered in the primary care setting. No previous study has compared a short (5 days) vs standard (10 days) course of therapy of the same antibiotic in patients with uncomplicated cellulitis.

Methods: We performed a randomized, double-blind, placebo-controlled trial to determine if 5 days of therapy has equal efficacy to 10 days of therapy for patients with cellulitis. Of 121 enrolled subjects evaluated after 5 days of therapy for cellulitis, 43 were randomized to receive 5 more days of levofloxacin therapy (10 days total antibiotic treatment), and 44 subjects to receive 5 more days of placebo therapy (5 days of total antibiotic treatment). Levofloxacin was given at a dose of 500 mg/d. Subjects were not randomized if they had worsening cellulitis, a persistent nidus of infection, a lack of any clinical improvement, or abscess formation within the first 5 days of therapy. The main outcome measure was resolution of cellulitis at 14 days, with absence of relapse by 28 days, after study enrollment.

Results: Eighty-seven subjects were randomized and analyzed by intention to treat. There was no significant difference in clinical outcome between the 2 courses of therapy (success in 42 [98%] of 43 subjects receiving 10 days of antibiotic, and 43 [98%] of 44 subjects receiving 5 days of antibiotic) at both 14 and 28 days of therapy.

Conclusion: In patients with uncomplicated cellulitis, 5 days of therapy with levofloxacin appears to be as effective as 10 days of therapy.

Arch Intern Med. 2004;164:1669-1674

Treatment British Lymphology Society

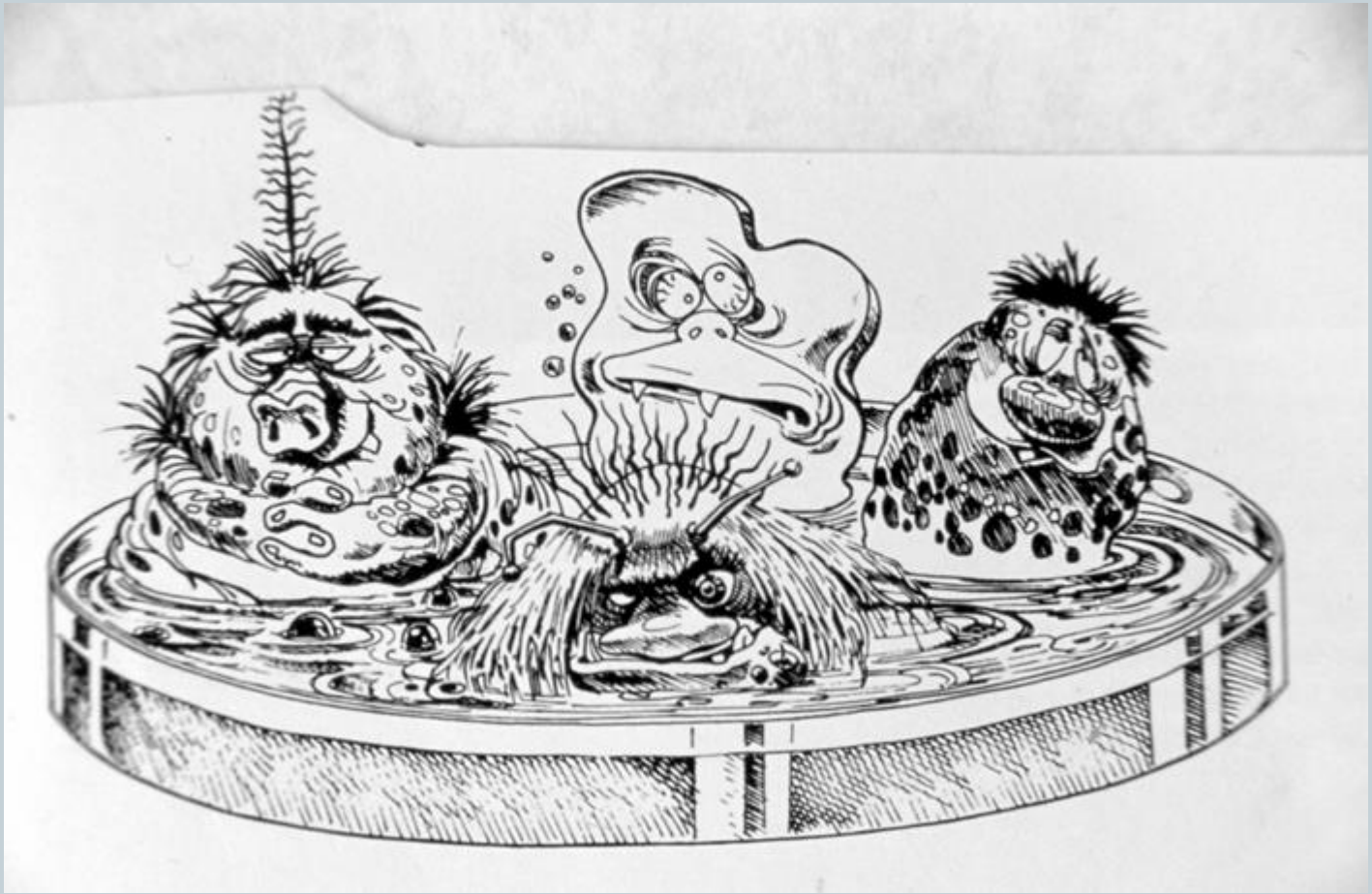
- Treatment duration > 14 days

- A switch to oral treatment
  - Temperature down for 48 h.
    Inflammation much resolved
    CRP falling

Treatment in Norway SSTI

- Primary
  - **Penicillin**
  - **Dicloxacillin & cloxacillin**
  - In septicaemia, add gentamicin
  - In necrotising fasciitis: Add clindamycin + gentamicin
- Secondary
  - Claritromycin
  - Clindamycin

Thank you



Clinical composite score cellulitis

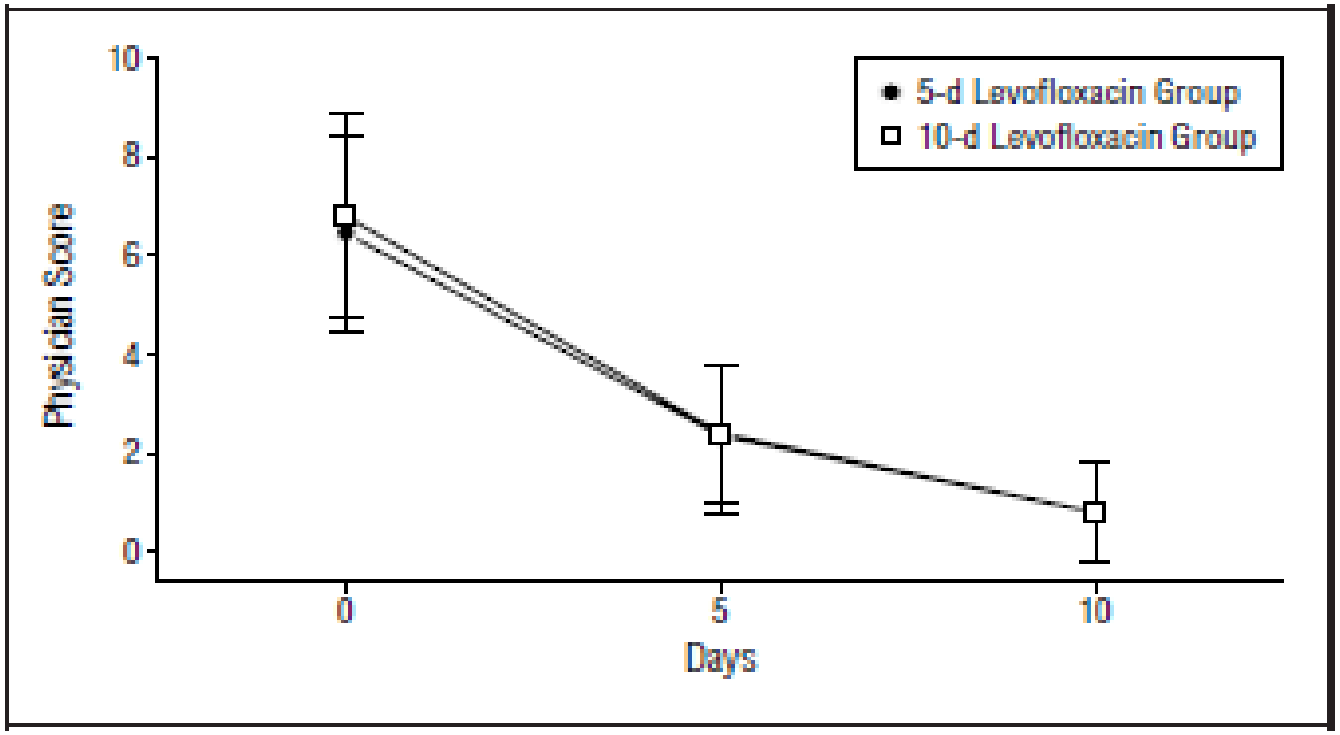
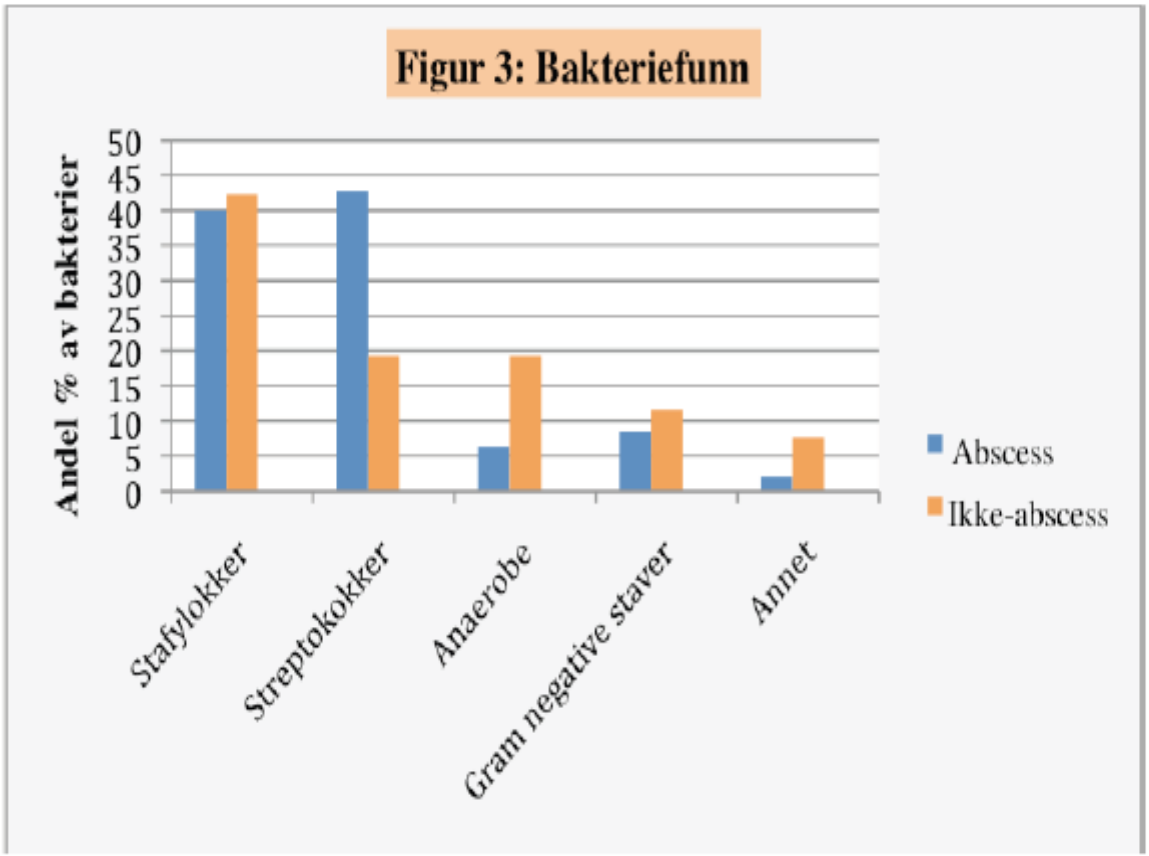


Figure 2. Serial physician composite scores for cellulitis with 5 vs 10 days of therapy. Physician composite score was a summation of 7 clinical indicators of cellulitis; maximum score 21 (see text for details). Error bars indicate SD.

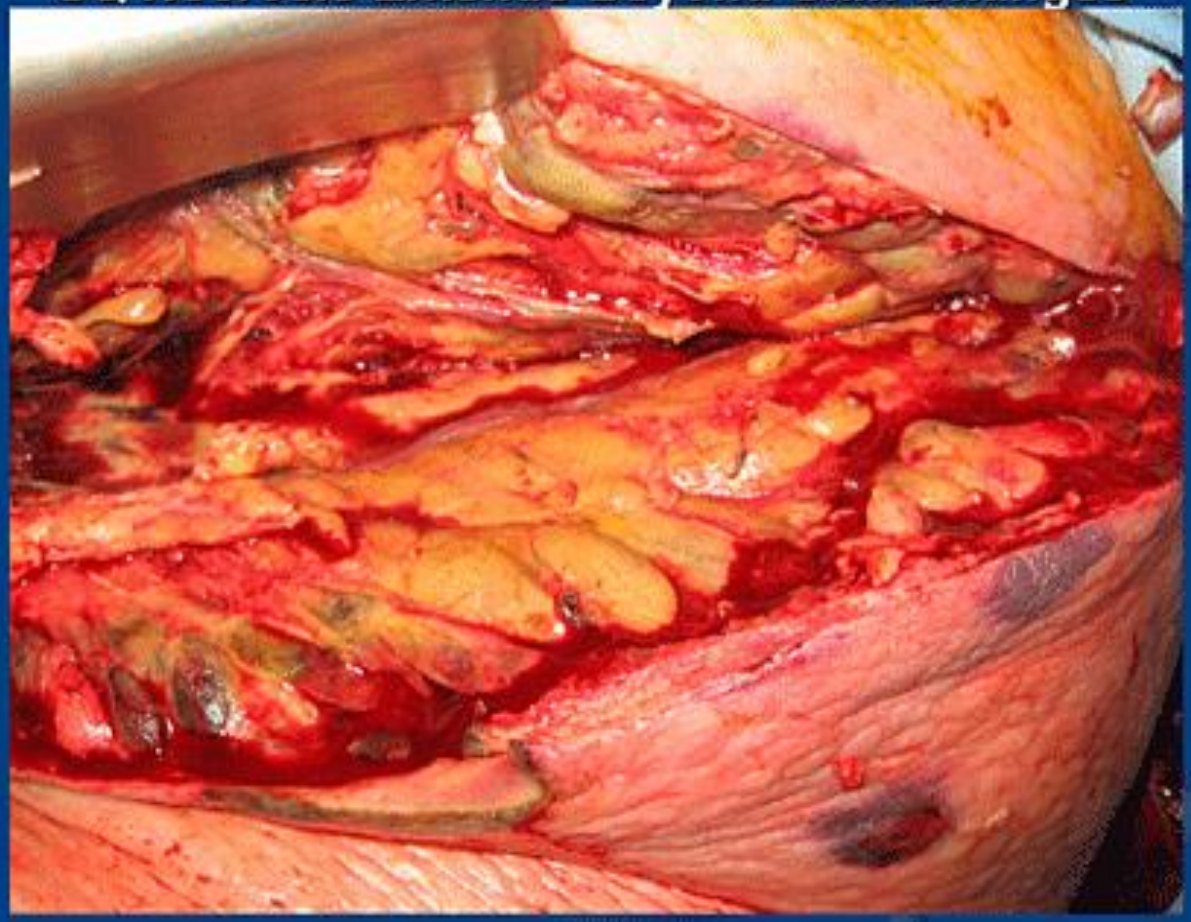
Impetigo

Bacteria in SSTI in drug addicts



Abscess N=140. Ikke-abscess N=26. Det ble i tillegg funnet to stammer stafylokokker, en stamme streptokokker og en stamme gram negative staver i foci hvor det var ukjent om det var abscess eller ikke

SQ Necrosis Extends Beyond Skin Changes



Fournier's Gangrene:

Skin Changes Often an Understatement

Klinikk

- Rask progresjon
- Smerter (cave diabetikere)
- Diskrepans mellom moderat erythem og alvorlig smertefull tilstand

Nekrotiserende fasciit

- Type 1:Blandet aerob/anaerob infeksjon
  - Polymikrobiell; 4-5 isolater/prøve
  - Diabetes mellitus
  - Cervikal NF
  - Fourniers gangren
  - Sårinfeksjon (kirurgi)

Type 2 NF

- Monomikrobiell infeksjon: Strep-A (CA-MRSA)
- Friske individer, men traumer, injeksjon, etc. i anamnesen

Diagnose

- Raskt utvikling av smerter
- Erythem: Diffust/lokalisert, smertefullt. Kan endre farge (mørkere) med evt. bullae
- Pasienten er dårlig
- Rtg/CT
- Kirurgi er **eneste** sikre diagnostikk
- Blodkulturer & sårprøver

Laboratorierisiko indikator

75 % med NF hadde score >8
7-10% hadde score <6

Labfunn	Verdier	Score
CRP	>150 mg(l	4
LPK	15.000-25.000	1-2
Hemoglobin	11.0-13.5 eller <11.0	1-2
Se-natrium	<135	2
Se-kreatinin	>141	2
S-glucose	>10 mmol/l	1

Behandling

- Kirurgi
- Bredspektret antibiotika inkludert clindamycin
- Iv immunglobulin? Strep A
- Trykktank?

Antibiotic susceptibility drug addicts Norway

Tabell 4: Antibiotikafølsomhet

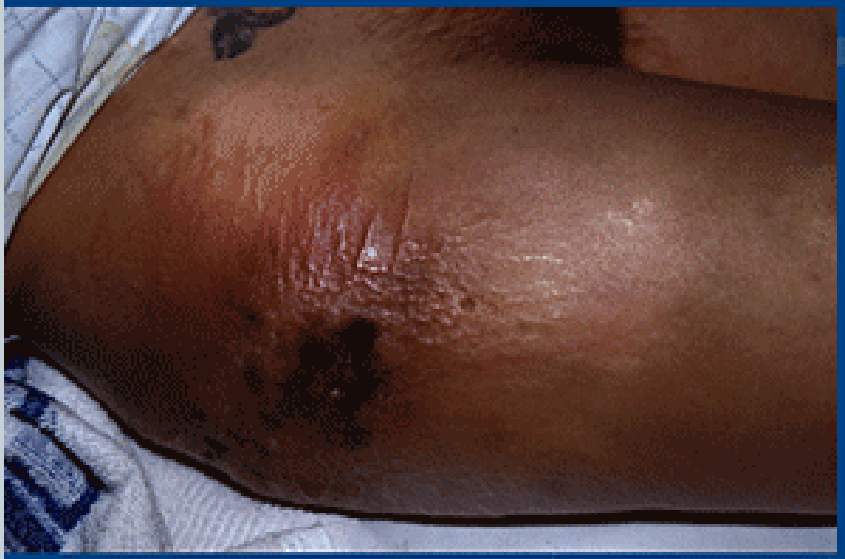
Andel % av testede bakterier sensitive

	Penicillin	Methicillin	Klindamycin	Fusidin	Erythromycin
Streptokokker	100%	Ikke testet	88,9%	Ikke testet	84,9%
Gule stafylokokker	15,9%	96,9%	90,5%	90,5%	Ikke testet

Antimicrobial spectrum

	Staphylo-cocci	MRSA/ MRSE	Strepto-cocci	Entero-cocci	Gram-negatives
Penicillin	++	0	++ (0.04)	+	0
Cloxa/ dicloxacill.	++	0	++ (0.04)	0	0
Macolides	+	+	++	0	0
Clindam.	++	++	++	0	0
Tetracycl.	++	++	++	+	+
Fucidic ac	++	++	+	0	0
Rifampicin	++	+	+	0	0
Glycopep.	+	+	++	+	0

Gas-gangrene



- Tense edema
- Purple discoloration
- Cutaneous gangrene

Hard Signs

- Gas on radiograph

Treatment

- Surgery
- Antimicrobial therapy
  - Empirical therapy should cover primary pathogens