Dermatological manifestations of systemic infectious diseases

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AZ Sint-Jan AV, BRUGGE

1. Introduction

Diagnosis = pattern recognition

Lancet, 1997, 350, 575-80

→ High fever → Sudden onset → Productive cough → Crepitation right lung base = pneumonia	→ High fever → Conjunctivitis → Rhinitis → Muscle aches → headache = flu	→ High fever → Sudden onset → Diarrhea → headache → Just back from safari = malaria

- **Skin lesions** = very common in systemic infectious diseases
- **Skin lesions** = frequently + fever
- DD = often very broad, including many non-infectious diseases

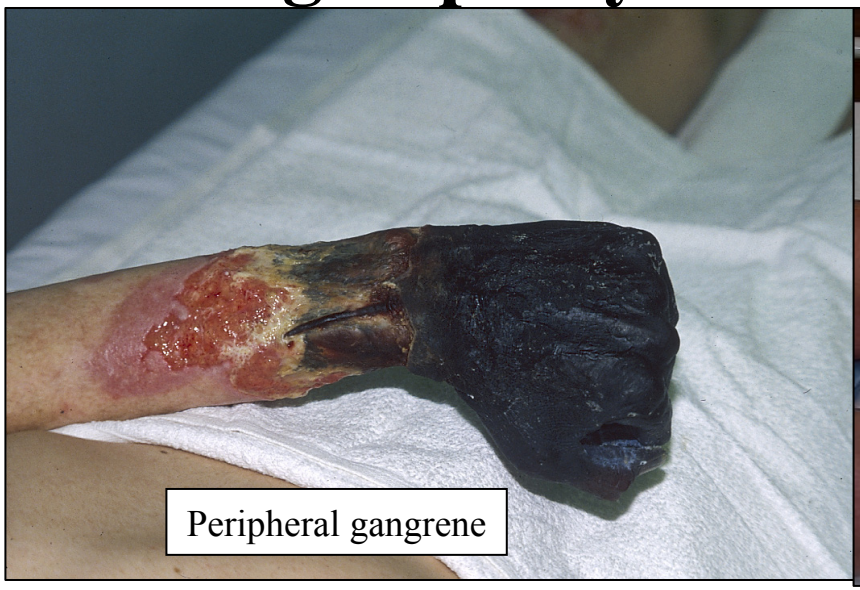
Skin lesions may permit a probable diagnosis based on clinical skills only

Pathogenesis of skin lesions in ID

1. DIC/coagulopathy
2. Direct vascular invasion (bacteria/fungi)
3. Immune vasculitis/immune complex formation/other immune reactions
4. Emboli (IE)
5. Vascular effects of toxins

Rev Infect Dis, 1986, 1-11

DIC/coagulopathy


Peripheral gangrene


Purpura fulminans

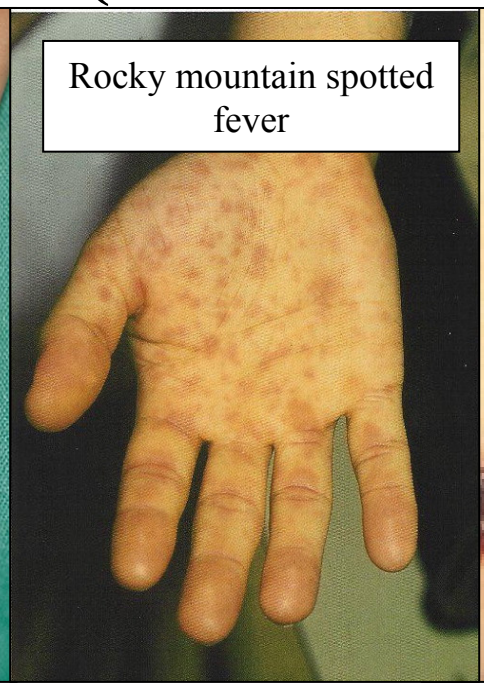
Culture = sterile

Pathology: diffuse hemorraghe, perivascular cuffing, intravascular thrombosis

DD e.g. Cryoglobulin, ergot poisoning, ...

Rev Infect Dis, 1986, 1-11

Direct vascular invasion (bacteria/fungi)

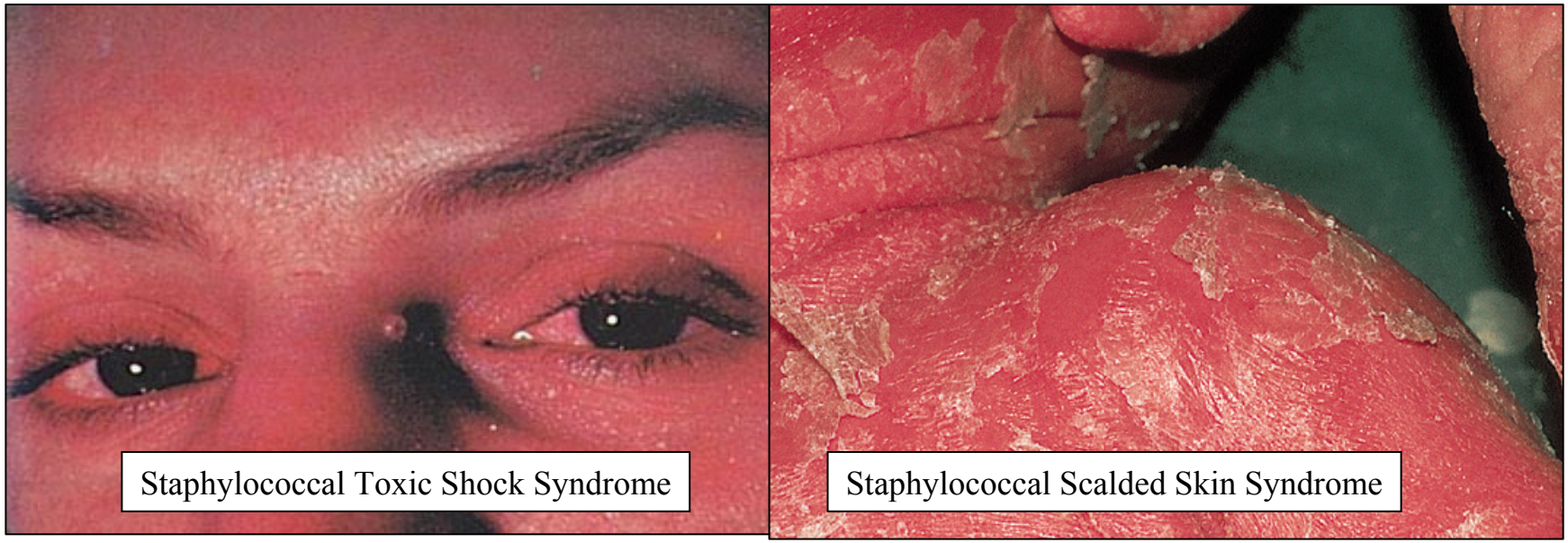


Culture = often non-sterile

Pathology: gram smear +; fibrin thrombi; extravasation of blood cells

Rev Infect Dis, 1986, 1-11

Vascular effects of toxins



Culture = sterile

Pathology: perivascular edema, lymphatic perivascular cuffing, no immune complexes

Rev Infect Dis, 1986, 1-11

I. Dermatological manifestations of systemic infectious diseases in immunocompetent hosts

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Skin Eruption caused by infections Vs non-infectious skin lesions:

- Reactive conditions to underlying infections / drugs
  - Erythema multiforme
  - Erythema nodosum
  - Sweet syndrome
- Drug reactions
  - Urticaria
  - Maculopapular exanthema
  - AGEP/DRESS
  - Stevens Johnson syndrome
  - Toxic epidermal necrolysis

- Skin eruptions caused by infections

Children: viral exanthema

SPECIAL:

- Unilateral laterothoracic exanthema
- Gloves and socks
- Hand-foot-mouth disease
- Kawasaki

Adults: viral exanthema

DD:

- EBV + ampicilline
- Hep B
- Secundary Syphilis
- HIV

- Skin eruptions caused by infections
  - Parvo-virus B19
    -Erythema infectiosum
    -Gloves and Socks Syndrome

- Skin eruptions caused by infections

  Hand-foot-mouth disease: Coxsackie

Ptn : Ptn: 40-year old veterinary;
high fever, rash and diarrhea

•Culture stools: positive for brucella

: Brucellosis

Ptn : Returned from South Africa

Fever, lymphadenopathies,maculopapular rash

- Clinic: ‘tache noire’
- Serology: ricketsia IgM: pos 1/40

: African tick-bite fever

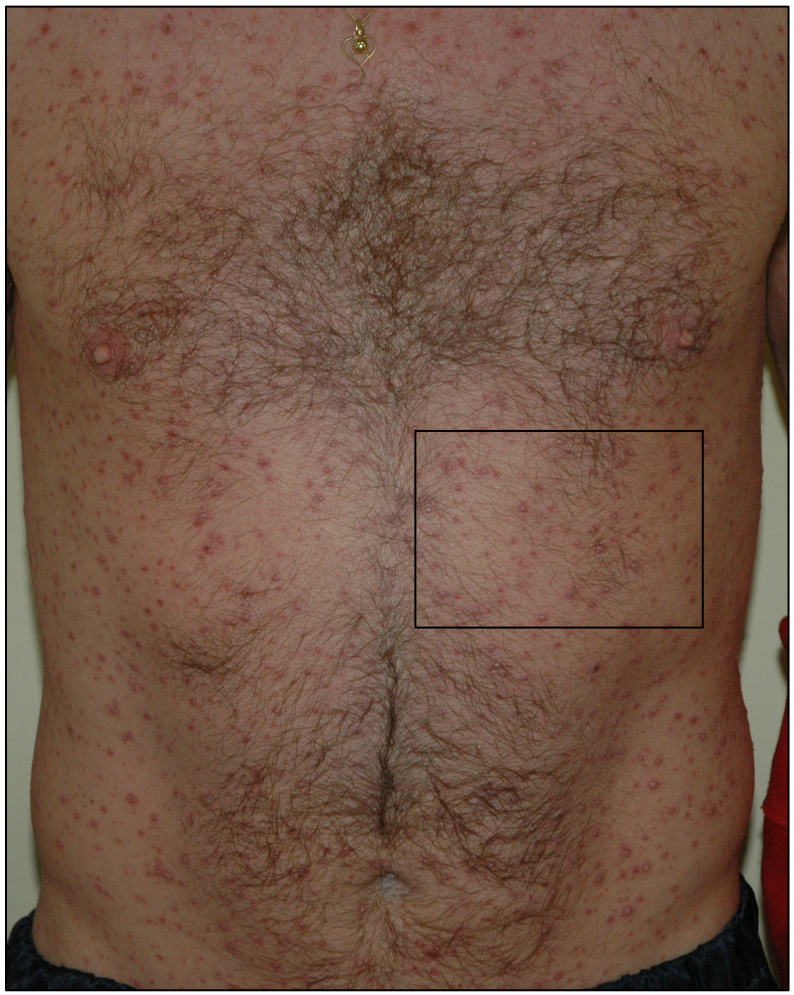
Lyme disease

- Clinical spectrum:
  - erythema chronicum migrans
  - lymphocytoma cutis
  - acrodermatitis atroficans

Vesicular Eruptions

- HS
- HS + EEM

Vesicular Eruptions
- Varicella / Zoster



Gianotti-Crosti Syndrome

Papular acrodermatitis of childhood

Table 81.3 Potential etiologies reported in association with Gianotti–Crosti syndrome. *Reported most commonly in Europe. §Most common cause in United States. DPT, diphtheria–pertussis–tetanus; MMR, measles–mumps–rubella.

POTENTIAL ETIOLOGIES REPORTED IN ASSOCIATION WITH GIANOTTI–CROSTI SYNDROME
Viral
• Hepatitis B*
• Epstein–Barr virus§
• Hepatitis A and C virus
• Cytomegalovirus
• Coxsackie virus
• Respiratory syncytial virus
• Adenovirus
• Parainfluenza virus
• Rotavirus
• Parvovirus B19
• Mumps virus
• Human herpesvirus-6
• Human immunodeficiency virus
Non-viral
• Group A -hemolytic streptococci
• *Mycobacterium tuberculosis*
Vaccines
• Polio
• DPT
• MMR

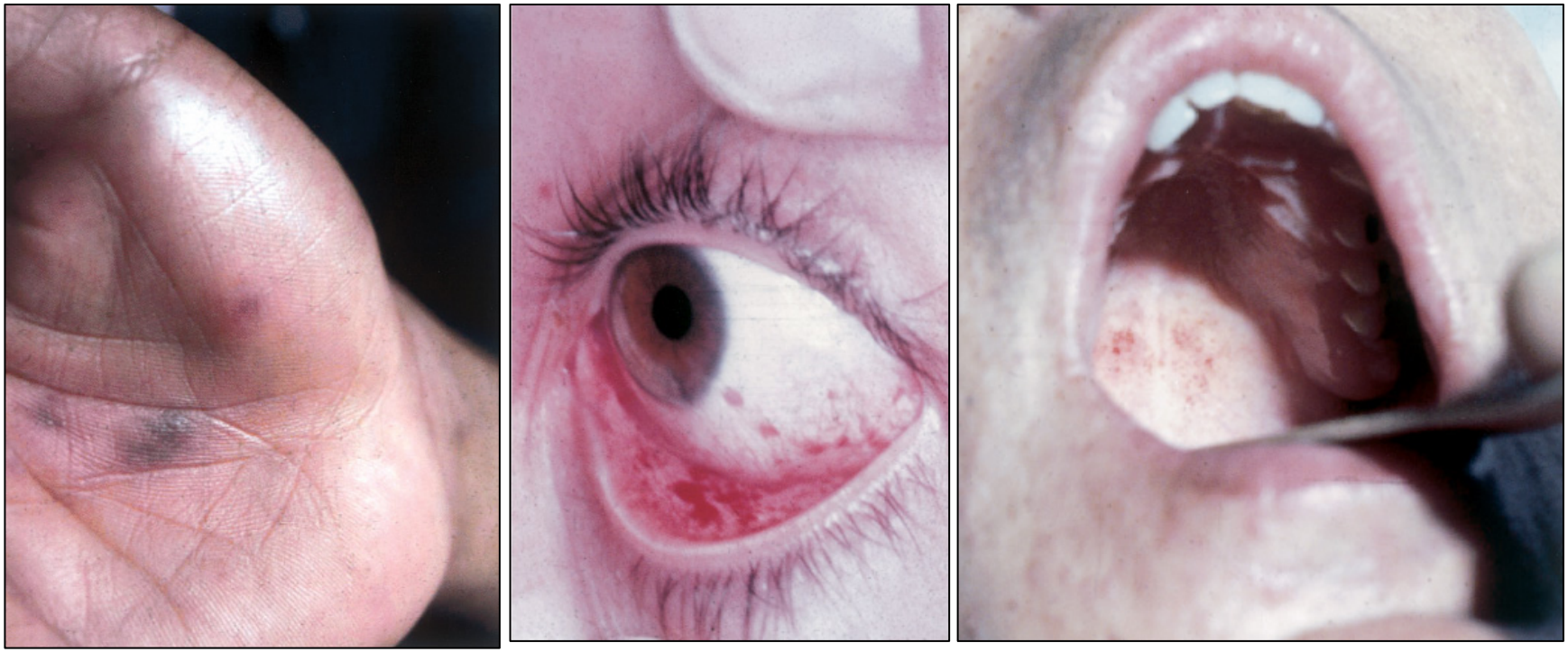
Purpuric Eruptions

- Septic
- Allergic/Immunologic

Purpuric Eruptions

- Septic
- Allergic/Immunologic

Ptn: Chills, nausea and fever since this morning



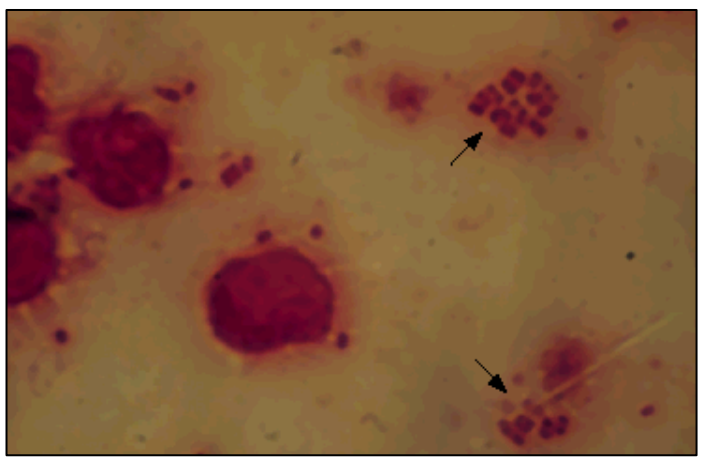
•Petechia on hand, eye and palate

•High fever, toxic patient, low blood pressure, neck stiffness

: meningococemia with bacterial meningitis

Meningococcemia

- Gram- diplococcus *N. meningitidis*
- Outbreaks; CAVE predisposing factors
- Spectrum of diseases
- Rapid progression; mortality 10-25 %
- Skin lesions:
  - 75 % petechial/maculopapular lesions
  - 11 % purpuric/ecchymotic lesions
  - 14 % no skin lesions

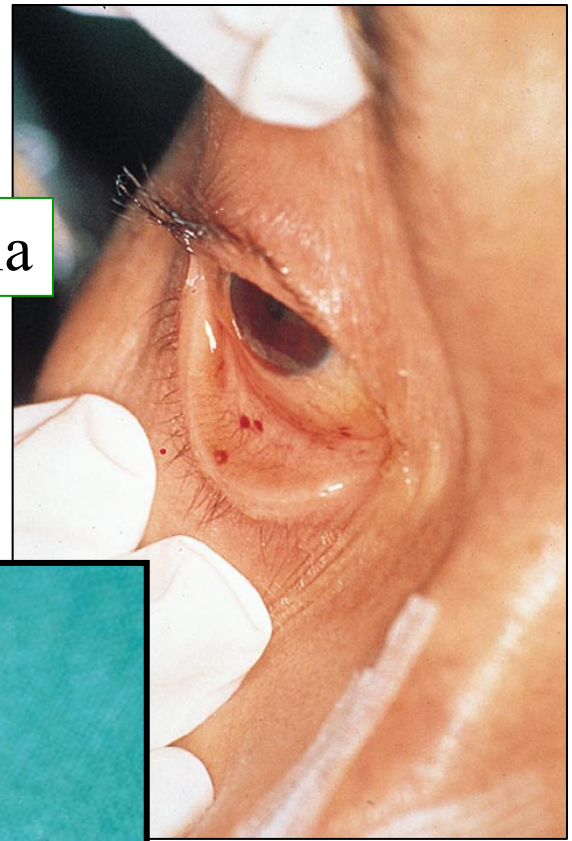


Am J Dis Child, 1974, 127, 173
Mandell, 2005,Ch 208, 2498

Ptn: Chills, nausea and fever since 3 days

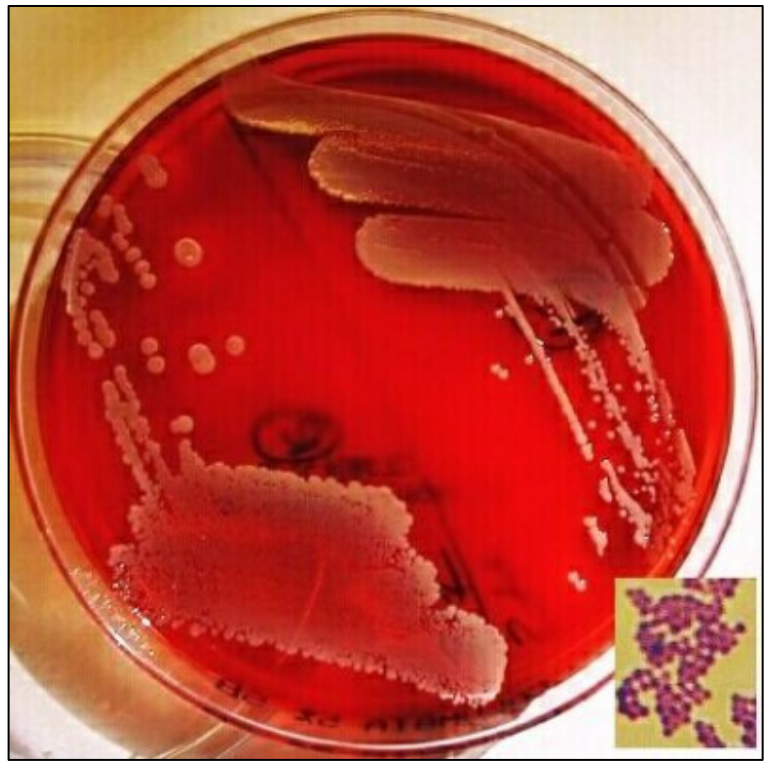
Janeway lesions

Conjunctival petechia



Splinter hemorraghe

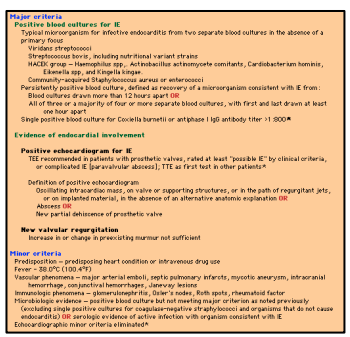
- High fever, accutely sick patient, normal blood pressure, mild neck stiffness, normal heart auscultation
- Normal TEE on day 0, heart murmer on day 2 with mitral valve perforation on TTE
- 8/8 blood cultures grow gram positive cocci in cluster

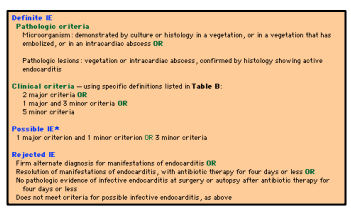


: *S. aureus* acute native valve endocarditis

Endocarditis

- Spectrum of manifestations (acute, subacute, chronic)
- Mainly streptococci, staphylococci and enterococci
- Complicated by valve destruction, thrombotic complications, mycotic aneurysmata, ...
- Mortality remains high
- Skin lesions:
  - Non-specific: petechiae and splinter hemorraghes
  - Specific: Janeway lesions, Osler's nodes, Roth Spots (eye)
- Diagnosis = Modified DUKES criteria





Clin Infect Dis, 2000, 30, 633
Mandell, 2005,Ch 74, 975

Ptn: chills, myalgia, diarrea and weakness since this morning

- Conjunctival injection, erythematous maculo-papular eruption
- toxic patient, low blood pressure, headache

: staphylococcal toxic shock syndrome

Staphylococcal toxic shock syndrome

- TSST-1, enterotoxin A, B, C, D, E and H → superantigen → massive T cell activation
- Rapidely evolutive with multi-system involvement (renal, hepatic, neurological, ...)
- Mortality 10-50 %

Clin Microbiol Rev 1997 Jul;10(3):505-20
Mandell, 2005,Ch 192, 2321

Case definition - Staphylococcal toxic shock syndrome

1. **Fever:** > 38,9 °C
2. **Hypotension:** systolic BP ≤ 90;orthostatic drop diastolic BP ≥ 15 mmHg, orthostatic syncope or dizziness
3. **Rash:** diffuse macular erythema
4. **Desquamation:** 1-2 weeks ofter onset,particulary palms and soles
5. **Multisystem involvement (≥ 3 organ systems):**
   1. GI: vomiting or diarrhea
   2. Muscular: severe myalgia or CK > 2 x ULN
   3. Mucous menbranes: vaginal, oropharyngeal, conjunctival hyperemia
   4. Renal: BUN or creat > 2 x ULN or pyuria (> 5 WBC/hpf)
   5. Hepatic: Bili or transaminases 2 x ULN
   6. Hematological: platelets < 100.000/µl
   7. CNS: desorientation, altered consciousness without focal neural signs and in the absence of high fever or hypotension
6. **Negative tests for:**
   1. Blood, CNS and throat cultures (exept blood cultures for S. aureus)
   2. Serology for Rocky Mountain spotted fever, leptospirosis, measles

→ Confirmed case = 6 criteria; probable case = 5 criteria

MMWR, 1990, 39(RR-13):1

Staphylococcal Scalded Skin Syndrome

Drug eruptions

- Urticaria
- Morbiliform/ Maculopapular exanthema
- AGEP: acute generalized exanthemic pustulosis
- DRESS: drug reaction, eosinophilia, systemic symptoms
- Stevens Johnson syndrome
- Toxic Epidermal Necrolysis /Lyel' syndrome

- Urticaria
- Acute hemorrhagic edema (Finkelstein)

Erythema Exudativum Multiforme

= Mostly associated with infections

Stevens Johnson Syndrome

= Mostly associated with drugs

Stevens Johnson Syndrome (BSA < 10%)

Toxic Epidermal Necrolysis (BSA > 30%)

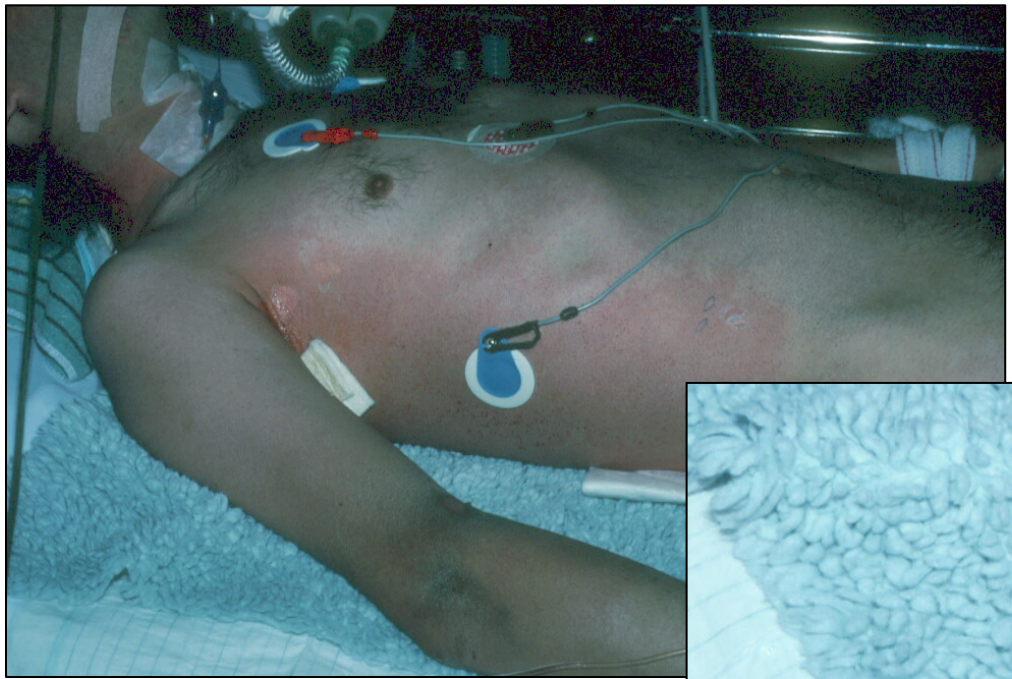


Table 21.2 Precipitating factors in Stevens–Johnson syndrome.

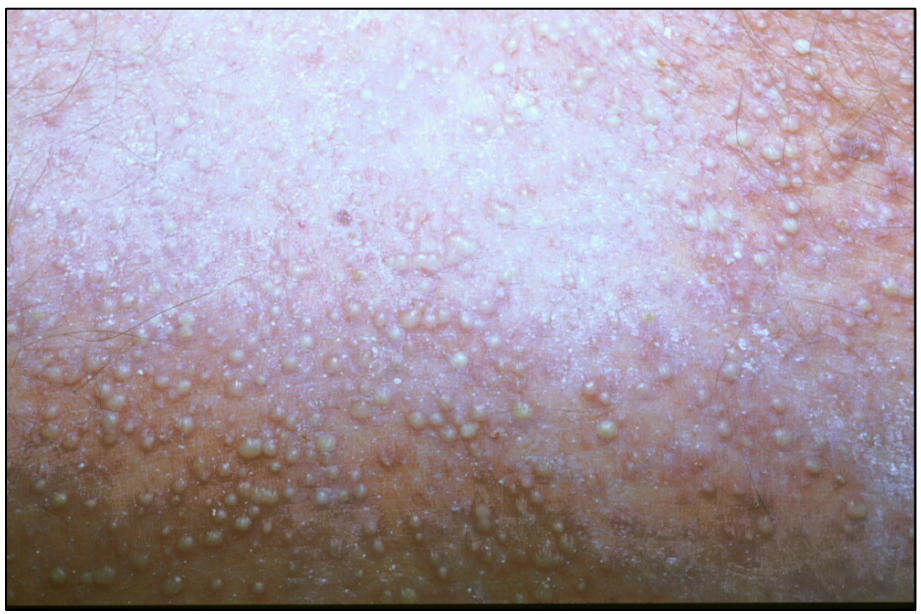
PRECIPITATING FACTORS IN STEVENS–JOHNSON SYNDROME	
Drugs	NSAIDs, especially ibuprofen and naproxen Sulfonamides Anticonvulsants (see Table 21.3) Penicillins, doxycycline, tetracyclines Others
Bacterial infections	*Mycoplasma pneumoniae* *Yersinia* *Mycobacterium tuberculosis* *Treponema pallidum* *Chlamydia* Others (*Streptococcus, Salmonella typhi, Pneumococcus*, Enterobacteria)
Fungal infections	Coccidioidomycosis Histoplasmosis
Viral infections	Enteroviruses Adenoviruses Measles Mumps Influenza Others
X-irradiation	
Inflammatory bowel disease	
Vaccines BCG	

Table 22.3 SCORTEN severity-of-illness score.

SCORTEN SEVERITY-OF-ILLNESS SCORE			
SCORTEN Parameter	**Individual score**	**SCORTEN (sum of individual scores)**	**Predicted mortality (%)**
Age > 40 years	Yes=1, No=0	0–1	3.2
Malignancy	Yes=1, No=0	2	12.1
Tachycardia (>120/min)	Yes=1, No=0	3	35.8
Initial surface of epidermal detachment >10%	Yes=1, No=0	4	58.3
Serum urea >10 mmol/l	Yes=1, No=0	≥5	90
Serum glucose >14 mmol/l	Yes=1, No=0		
Bicarbonate <20 mmol/l	Yes=1, No=0		

Acute Generalized Exanthematous Pustulosis:

AGEP



DRESS: Drug Reaction Eosinophilia and Systemic Symptoms

- Lymphadenopathies
- PBO: eosinophilia
- LFT ↑
- Lung infiltrate

Table 23.5 Characteristics of major drug-induced eruptions. *Also referred to as hypersensitivity syndrome. **Nonpigmenting.

CHARACTERISTICS OF MAJOR DRUG-INDUCED ERUPTIONS				
Clinical presentation	**Percentage that are drug-induced (%)**	**Time interval**	**Mortality (%)**	**Responsible drugs**
Exanthematous eruption	Child: 10–20 Adult: 50–70	4–14 days	0	Aminopenicillins Sulfonamides Cephalosporins Anticonvulsants Allopurinol
Urticaria Anaphylaxis 30	<10	Minutes Hours	0 5	Penicillins Cephalosporins NSAIDs Monoclonal antibodies Contrast media
Fixed drug eruption	100	<48 hours	0	TMP-SMX NSAIDs Tetracyclines Pseudoephedrine**
Acute generalized exanthematous pustulosis (AGEP)	70–90	<4 days	1–2	-Lactam antibiotics Macrolides Calcium channel blockers
Drug reaction with eosinophilia and systemic symptoms (DRESS)*	70–90	15–40 days	5–10	Anticonvulsants Sulfonamides Allopurinol Minocycline
Stevens-Johnson syndrome (SJS) Toxic epidermal necrolysis	70–90	7–21 days	5 30	Sulfonamides Anticonvulsants NSAIDs Allopurinol

Diagnosis of drug reaction

Anamnesis: chronology
Clinical characteristics
- -itch or pain
- -mucous membrane involvement
- -systemic symptoms (fever, adenopathies)

Histology
LAB: RAST
Patch testing / Photopatch testing

When you suspect a serious cutaneous drug reaction:
Stop the suspected drug!!!

Pleva

Psoriasis Erythroderma

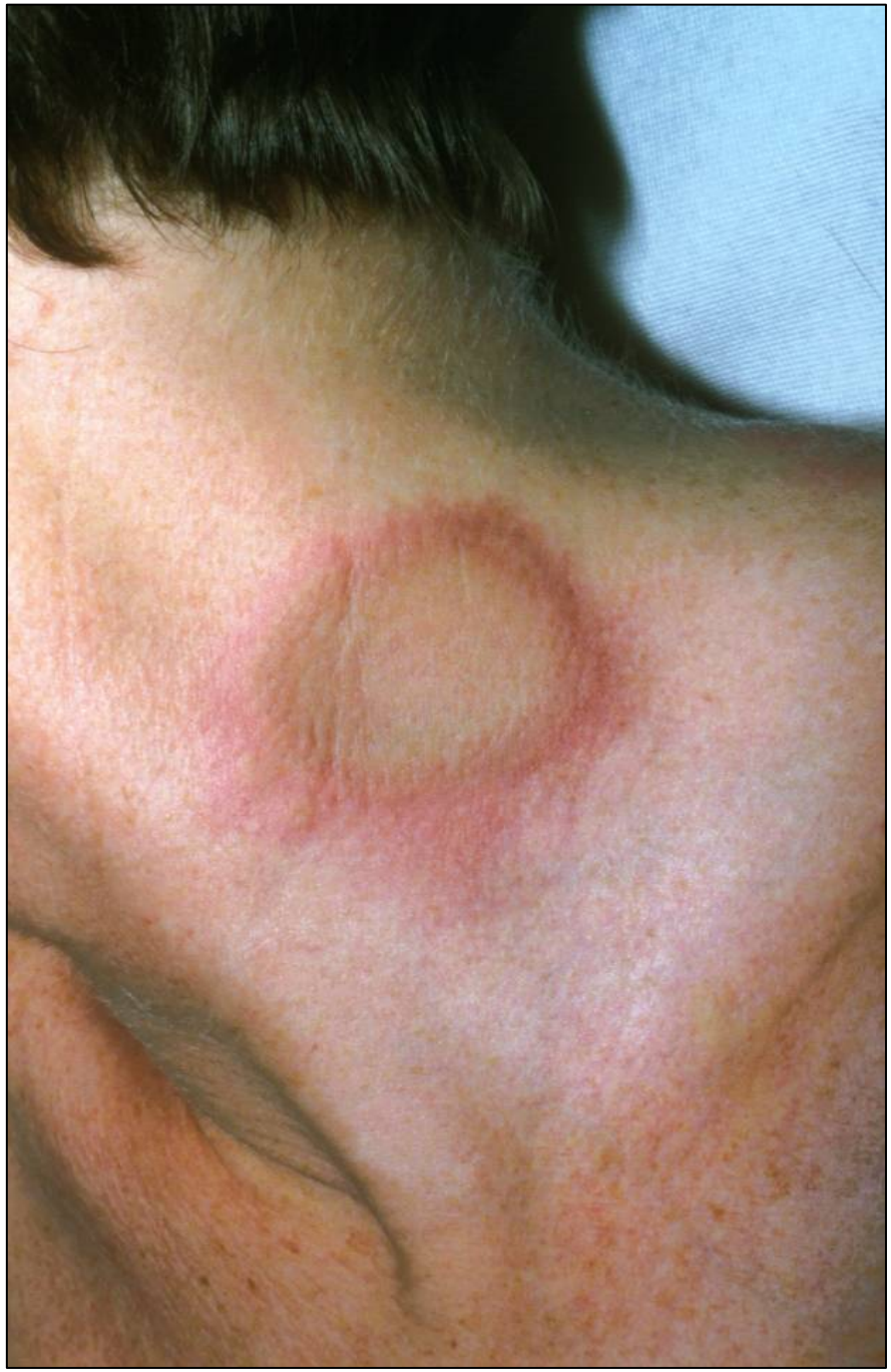
Erythema Nodosum

Table 101.3 Causes of erythema nodosum.

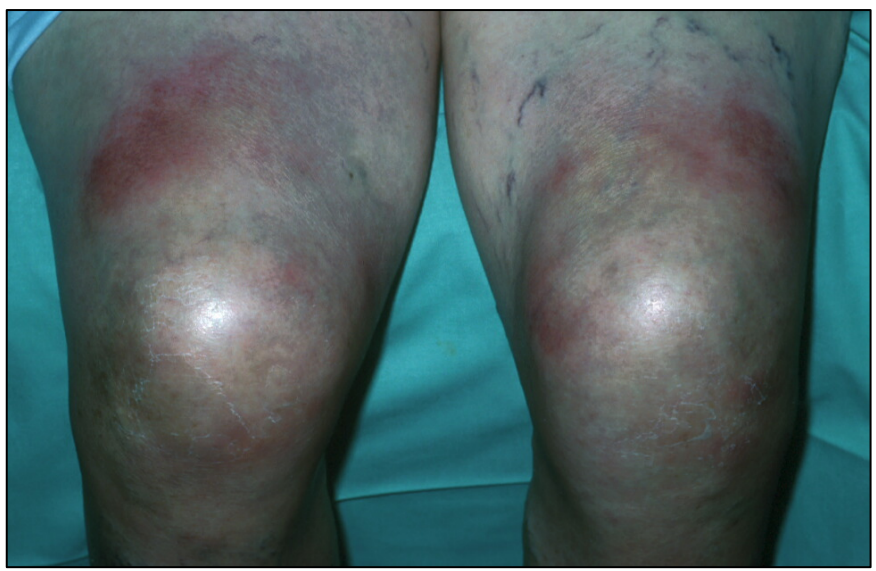
CAUSES OF ERYTHEMA NODOSUM		
Incidence	**Cause**	**Comments**
Most common	Idiopathic	Still the largest single category, ranging from 35 to 55% of cases
	Streptococcal infections, especially upper respiratory tract	The largest single infectious cause
	Some other infections (e.g. upper respiratory tract viruses, *Mycoplasma*, tuberculosis)	Infection in general may account for 1/3 or more of cases
	Drugs	Especially estrogens and birth control pills, also sulfonamides, penicillin, bromides, iodides
	Sarcoidosis	11–22% of cases in some series
	Inflammatory bowel disease	Crohn's disease has a stronger association with erythema nodosum than does ulcerative colitis
	Coccidioidomycosis	Erythema nodosum appears to have a protective effect, with lower incidence of disseminated disease
Uncommon	Uncommon infectious associations: *Yersinia*, hepatitis B Behçet's disease Sweet's syndrome Pregnancy	
Rare or newly described	Rare infectious associations: Brucellosis Meningococcosis Gonococcus *Escherichia coli* Pertussis Syphilis Leprosy Cat scratch disease *Chlamydia* Blastomycosis Histoplasmosis HIV infection	Erythema nodosum leprosum is really a different disease with leukocytoclastic vasculitis

Sweet Syndrome

- Fever
- PBC: neutrophilia
- Hist: Neutroph. Infiltr.



Erythema Nodosum + Sweet Syndrome

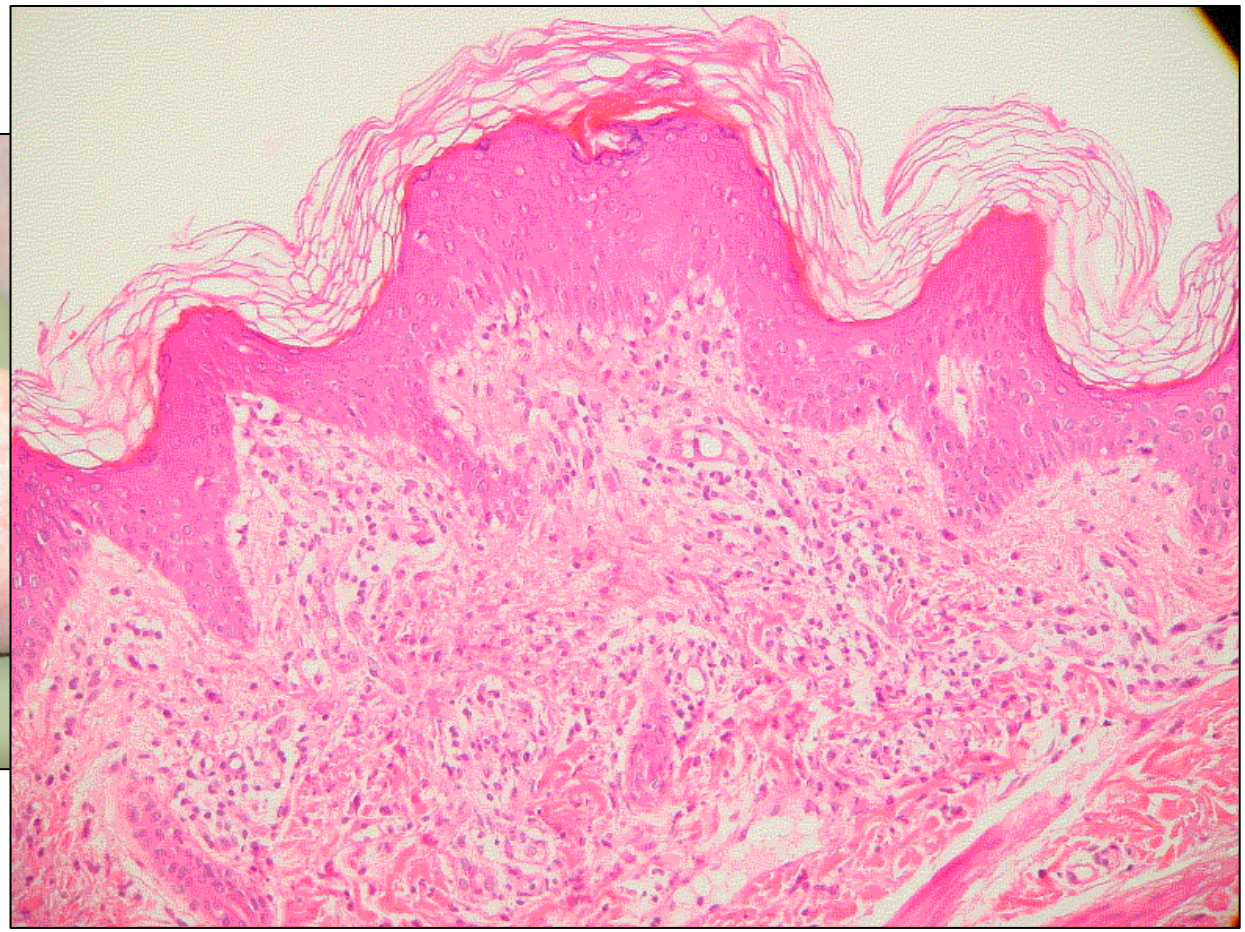


Ptn : Fever, rash, rhinitis.

- PBC : eosinophilia
- History: epilepsy R/lamotrigine

: Viral infection or DRESS

Ptn : Fever, rash, rhinitis.



- Serology: coxsackie IgM: positive

: coxsackie infection

II. Dermatological manifestations of systemic infectious diseases in immunocompromised hosts

S.J. Vandecasteele, MD, PhD

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C. De Cuyper, MD

Dienst Dermatologie

AZ Sint-Jan AV, BRUGGE

1. Introduction

- > 20 % of immunocompromised patients will develop skin lesions, often with fever

Infect Dis Clin North Am 1996, 10:129-48.

- Occasionaly, these lesions reflect disseminated infection

Medicine, 1985, 64: 115-33.

- These lesions are of significant importance: they permit early recognition and treatment of disseminated infection (“early warning”)

Medicine, 1985, 64: 115-33.
Clin Infect Dis, 2006, 42:296-297
Rev Infect Dis, 1986, 8:1-11

Different kinds of defects in host defence:

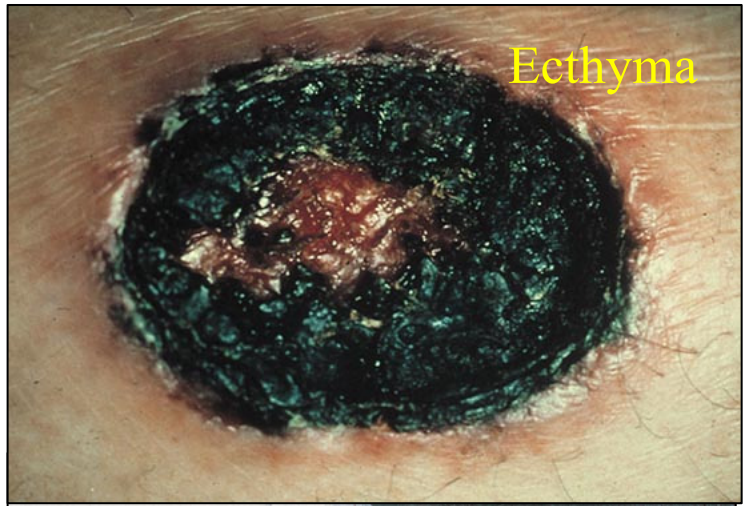
1. Neutropenia/neutrophil dysfunction disorders
2. Humoral dysfunction disorders
3. Cell mediated immune dysfunction disorders
4. Diseases associated with immune dysfunction
    - Chirrosis
    - Diabetes
    - SLE
    - Uremia/dialysis

2. Neutropenia or neutrophil dysfunction

→ Prolonged or profound neutropenia
→ Increased risk for infection with gram - and gram + bacteria, anaerobic bacteria and fungi
→ Causes:
- Chemotherapeutic agents (cancer/leukemia)
- Myeloproliferative, myelodysplastic disorders, aplastic anemia
- Congenital/cyclic neutropenia
- Felty syndrome, overwhelming sepsis, some drugs

- BACTERIAL INFECTIONS
  - *Pseudomonas aeruginosa*
  - *Stenotrophomonas maltophilia*
  - *Aeromonas hydrophila*
  - *Streptococcus viridans*
  - *Clostridium spc*
- FUNGAL INFECTIONS
  - *Candidiasis*
  - *Aspergillus spc*
  - *Trichosporon beigelii*
  - *Fusarium spc*

Infect Dis Clin North Am, 1994, 655-76



Ptn: Treatment for AML, neutropenic for 15 days

- New episod of fever with dyspnea and several painful erythematous papels on the thrunk
- Papels rapidly evolve → bullae → hemorraghic bullae → gangrenous ulcer + halo

: Ecthyma gangrenosum (*Pseudomonas spc*)

Ecthyma gangrenosum

- Perivascular invasion veins/arteria + secondary ischemic necrosis
- Mainly caused *Pseudomonas spc*, also described with staphylococci, streptococci, numerous gram- bacteria, fungi and HSV
- Septic form and non-septic form (local inoculation)
- Located on gluteal or perineal region (57%), extremities (30%), trunk (6%), and face (6%)
- High mortality, lower in non-septic form
- Importance of skin biopsy (culture and pathology) in diagnosis

Mandell, 2005,Ch 216, 2599; Mandell, 2005,Ch 307, 3432
Primary Care, 2000, 27:459-73

Ptn: Patient with CLL and pneumonia; receiving steroids and antibiotics for 14 days

•Low grade fever, anorexia and CRP 12 mg/dl since a few days

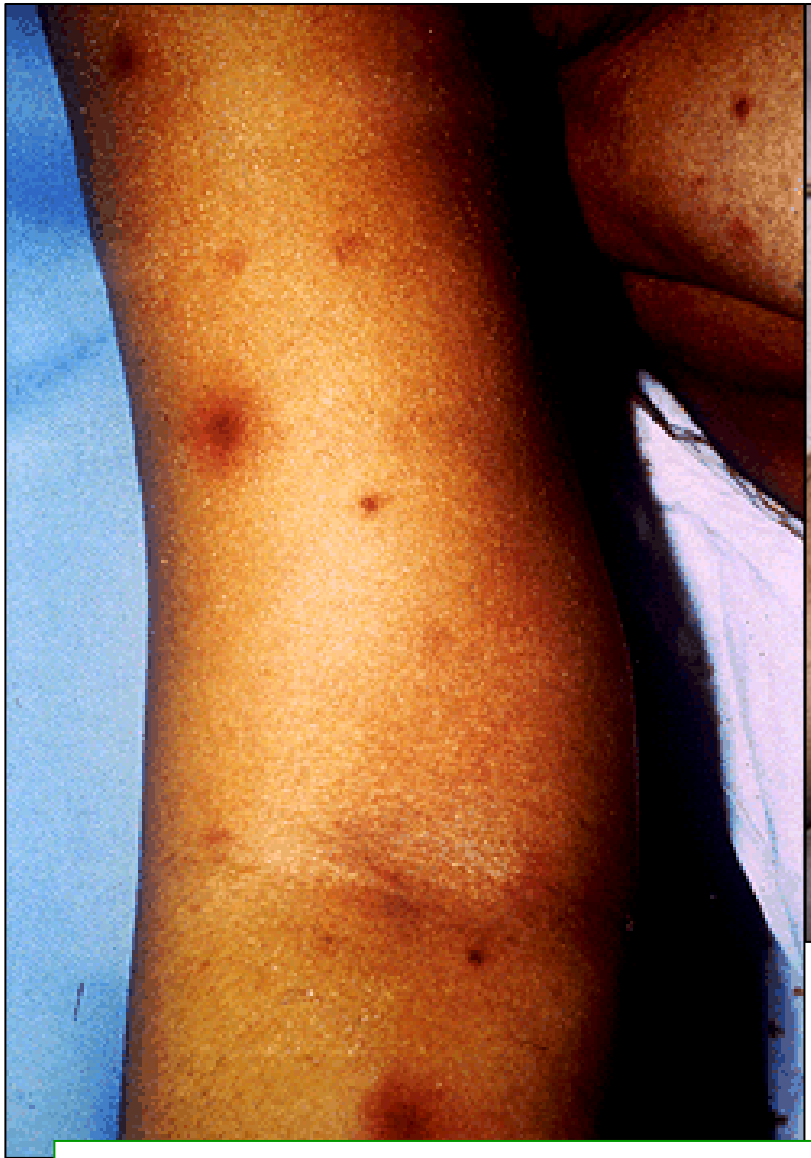
•Blurred vision and hemodynamic deterioration

: candida sepsis with dissiminated candidiasis

Candida sepsis with disseminated candidiasis

- Presentation: minimal fever → full-blown sepsis
- Hematogenic spread → visceral involvement (eye, brain, kidney, heart)= disseminated candidiasis
- Skin lesions = clue to disseminated disease:
  painless pustules on erythematous base
  ↔ nodular lesions with central necrosis
- Diagnosis: blood cultures, skin biopsy
- High mortality, especially when treatment is delayed (up to 45 %)

Mandell, 2005,Ch 255, 2938

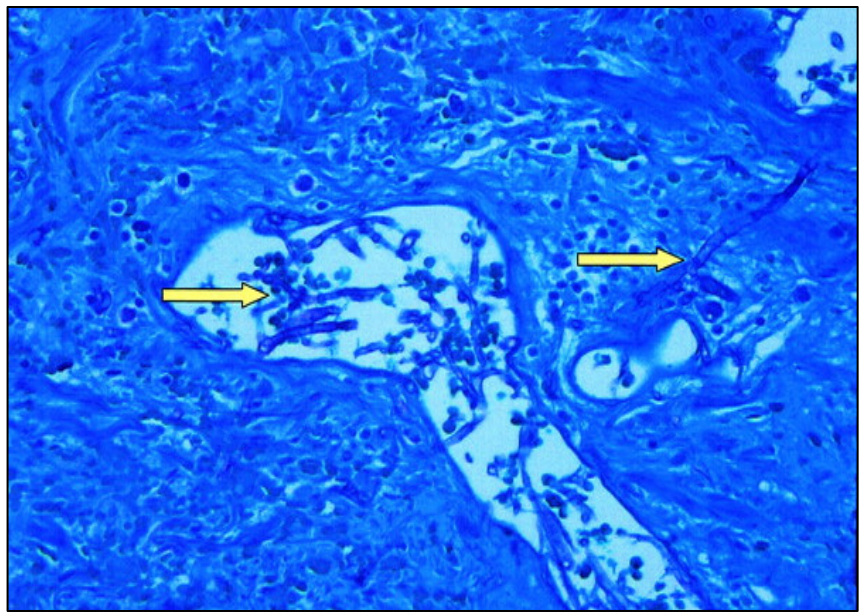


Nodular lesions in neutropenic patient

Disseminated lesions, later stage

Ptn: 53 years; AML, DMII

- New episod of fever at the end of chemotherapy
- Tender lesion on cheek, turning black over night



: Ecthyma gangrenosum (*Zygomycosis*)

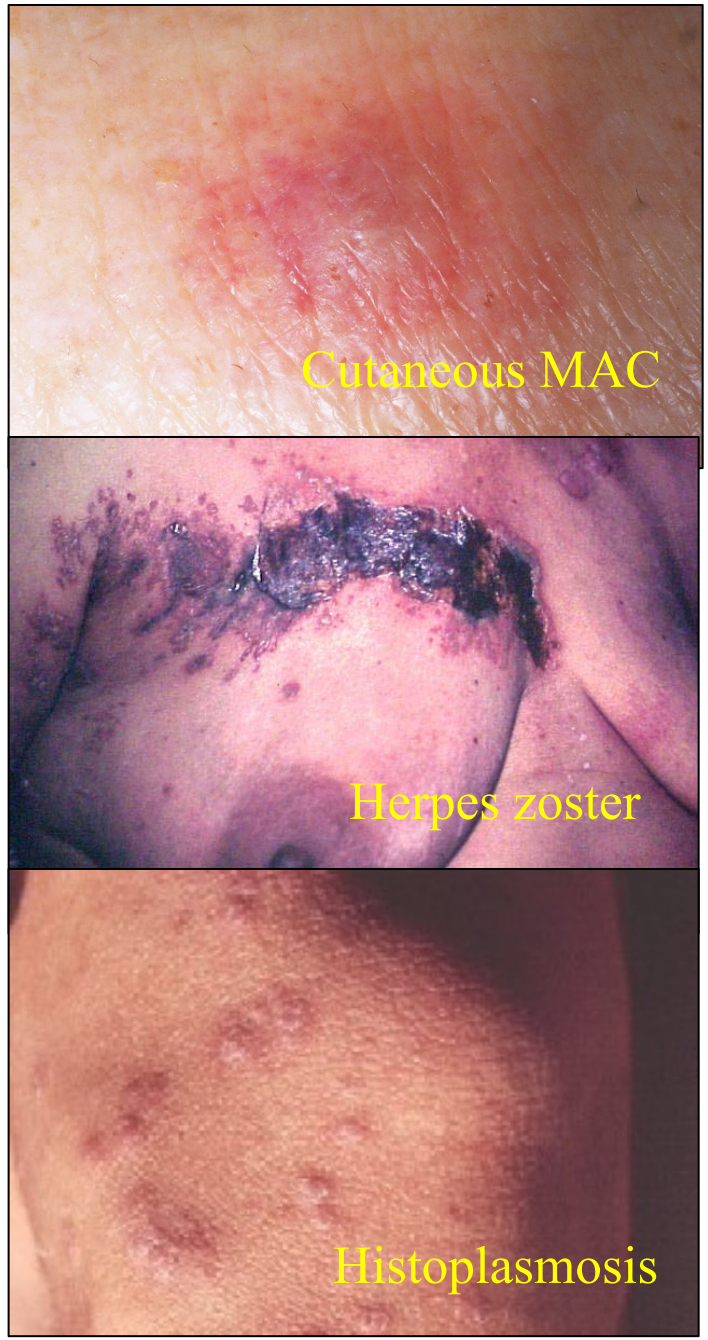
Clin Infect Dis, 2006, 42:296-297

3. Cell-mediated immune dysfunction

→ Increased risk of infection with intracellular bacteria, viruses, fungi and parasites

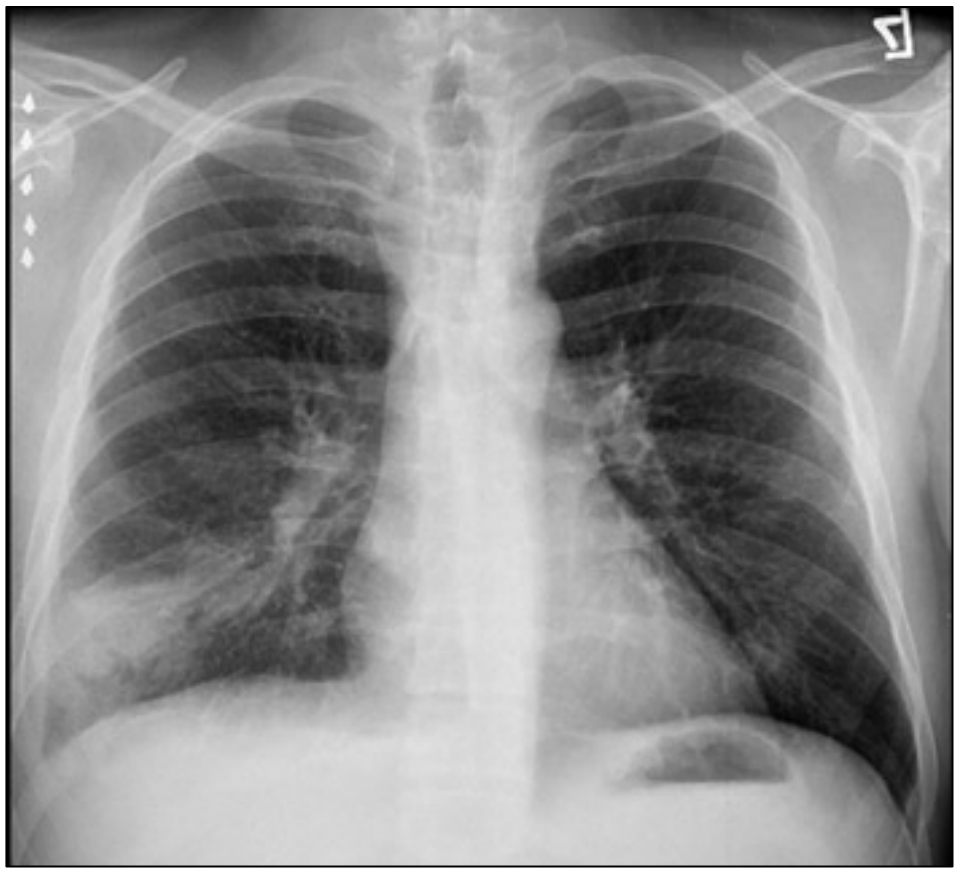
→ Increased risk of extracellular pathogens such as Pneumocystis carinii, strongyloides, candida

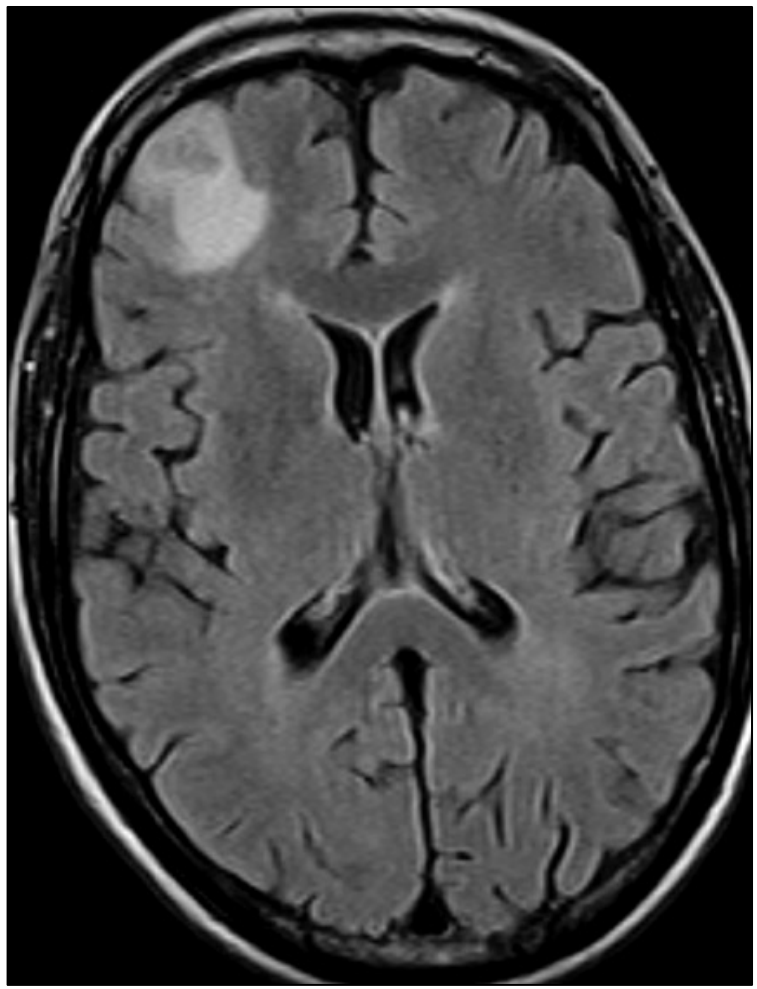
- BACTERIAL INFECTIONS
  - *Nocardia*
  - *Tuberculosis*
  - Non-tuberculous mycobacteria
- VIRAL INFECTIONS
  - HSV
  - VZV
- FUNGAL INFECTIONS
  - *Cryptococccus neoformans*
  - Endemic fungi (*Histoplasma, Blastomyces, Coccidioides*)
  - *Pseudo-allescheria boydii*



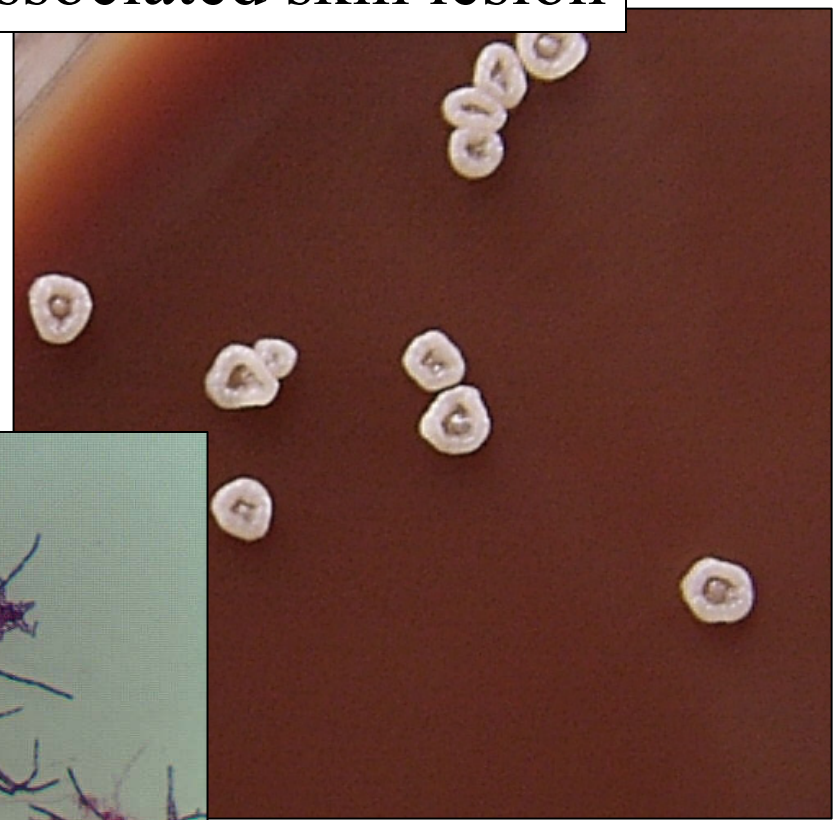
Ptn: 45 y old recipient of kidney/pancreatic transplant since 6 months

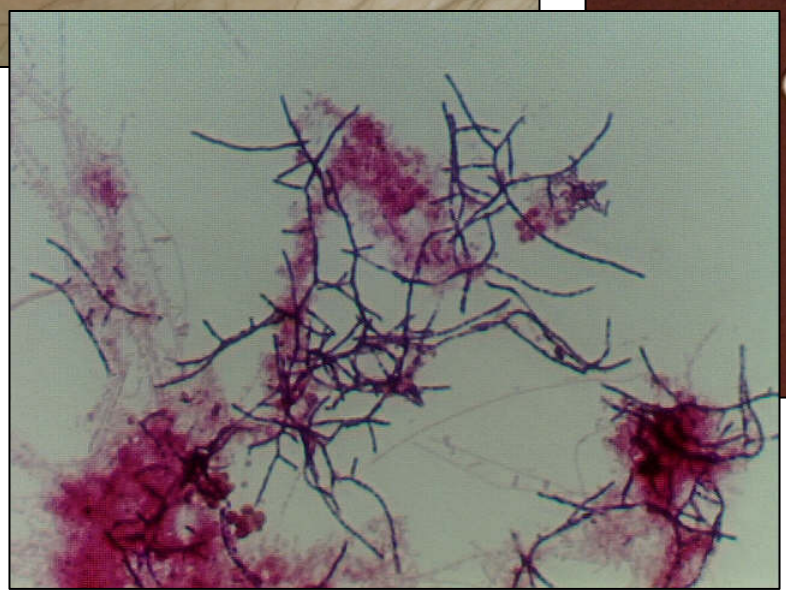
- Persistent cough since weeks and new onset hallucinations





Associated skin lesion





: disseminated nocardia infection

Nocardia infections

- Immune deficiency is major risk factor; associated with disseminated/more severe infection
- gram-positive, partially acid-fast, soil-born aerobic actinomycete – prolonged incubation !!
- Actinomycetomata: progressive local destructive infection
- Pathology: suppurative granulomata, progressive fibrosis and necrosis, sinus formation with destruction of adjacent structures, and macroscopically visible infective granules
- Disseminated infection mainly affecting lung, CNS, kidney

Mandell, 2005,Ch 252, 2916

Ptn: Kidney transplantation 25 years ago

- Chronic, small, intermittent draining lesions on the left index finger
- Slowly deformative artritis of all fingers of the same hand

: *Mycobacterium chelonae* infection + tuberculous pseudo-rheuma

Non-tuberculous mycobacterial infections

- Skin/soft tissue + disseminated infections in compromized hosts
- MAC, *M. kansasii*, Rapidly growing mycobacteria (*M. fortuitum*, *M. chelonae*, and *M. abscessus*), *M. marinum*
- Painless nodules; abcesses; cellulitis; intermittent draining (watery) lesions; ...
- Notify laboratory: prolonged incubation, optimal temperature
- R/ clarithromycin + rifampin/ethambutol + ...: prolonged therapy

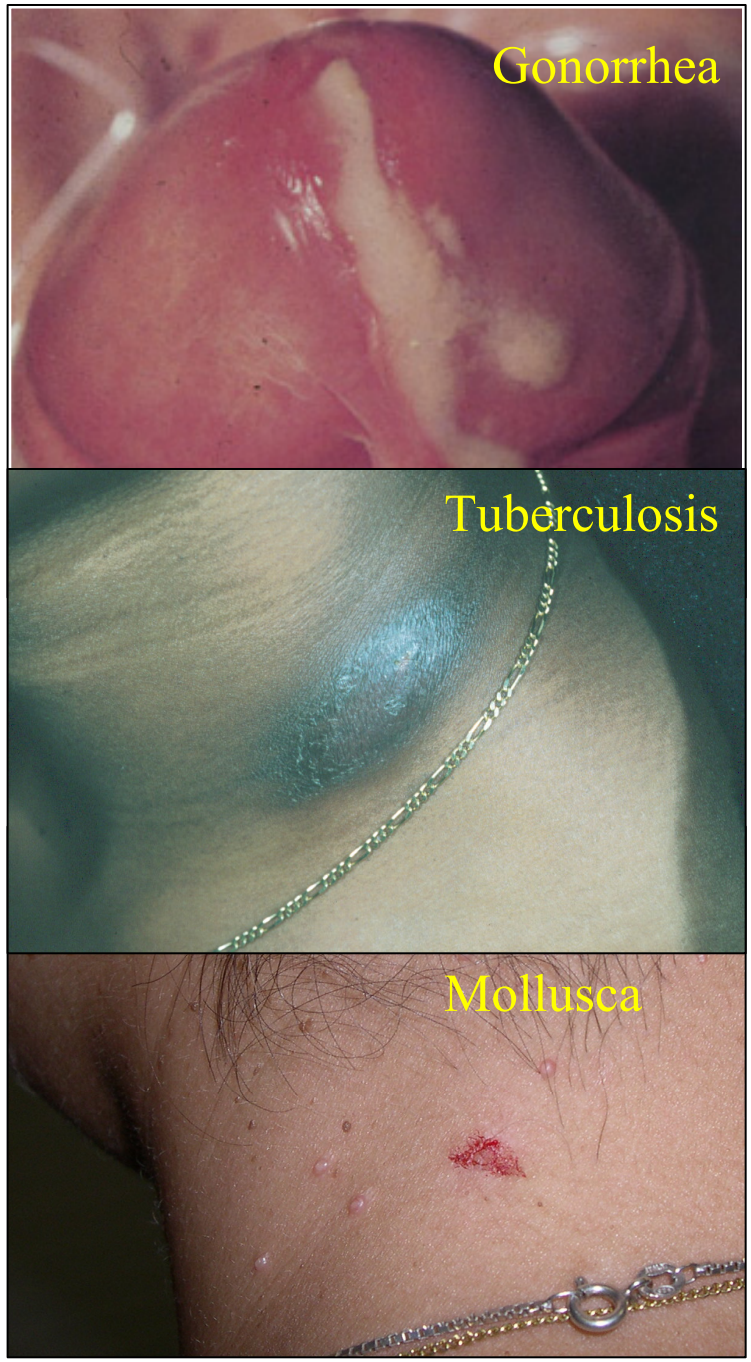
Mandell, 2005,Ch 251, 2909
Infect Dis Clin North Am, 1994, 677-88

4. HIV infected hosts

- Progressive and ultimately severe defect in cellulary immunity (T4-lymphocytes)
- Cutaneous reactions are extremely common in HIV infected ptns (79 % of ptns over 3 y)
- Drug reactions are the leading cause of skin problems
- Patients with AIDS used to be/are much more likely to have skin problems than HIV positives

NEJM, 1993, 328:1670-1674
Arch Intern Med, 1991, 1295-1303

- BACTERIAL INFECTIONS
  - *Staphylococcus aureus*
  - Bacillary angiomatosis
  - *Neisseria gonorrhea*
  - Syphilis
    - Primary syphilis
    - Secondary syphilis
    - Tertiary syphilis
  - *Pneumococcus*
  - *Helicobacter cinadei*
- MYCOBACTERIAL INFECTIONS
- VIRAL INFECTIONS
  - Acute HIV infection
  - Genital herpes virus
  - Varicella zoster virus
  - Parvovirus
  - Hepatitis B
  - *Molluscum contagiosum*
  - Human papillomavirus



- PARASITIC INFECTIONS
  - Scabies
  - Leishmaniasis
- KAPOSI'S SARCOMA
- DRUG REACTIONS
- FUNGAL INFECTIONS
  - Cutaneous and/or systemic
    - *Cryptococcosis*
    - *Histoplasmosis*
    - *Blastomycosis*
    - *Coccidioidomycosis*
    - *Sporotrichosis*
    - *Penicillium marneffei*
    - *Pneumocystis*
  - Candidiasis
  - *Pityriasis versicolor*
  - *Pityrosporon folliculitis*
  - Proximal subungual onychomycosis

Diagnosis	Total Patients	HIV Status at 1st Visit for Skin Condition†					
		Before HIV Documentation		HIV without AIDS		AIDS	
		no.	*rate/1000 person-yr*	*no.*	*rate/1000 person-yr*	*no.*	*rate/1000 person-yr*
Dermatitis							
Seborrheic	92	18	42	48	64	26	87
Contact	34	9	21	18	23	7	21
Nummular	16	2	5	6	8	8	24
Other or unspecified‡	183	43	104	86	113	54	207
Viral infections							
Herpes simplex	133	30	70	61	86	42	156
Herpes zoster	67	15	34	32	42	20	63
Verruca vulgaris	83	24	56	43	59	16	52
Condyloma	45	9	21	27	36	9	28
Molluscum	55	7	16	19	24	29	96
Oral hairy leukoplakia	29	1	2	17	22	11	32
Infections, often bacterial							
Folliculitis	75	18	42	37	49	20	64
Cellulitis	70	18	42	17	22	35	113
Skin abscess	57	9	21	18	23	30	94
Impetigo	26	6	14	10	13	10	30
Furunculosis	25	9	21	8	10	8	24
Paronychia	22	2	5	12	15	8	24

NEJM, 1993, 328:1670-1674

4.1. Lesions indicative for HIV infection

Ptn: male, 34 y, fever, headache, sore throat and anorexia 3 weeks after a great trip to Thailand

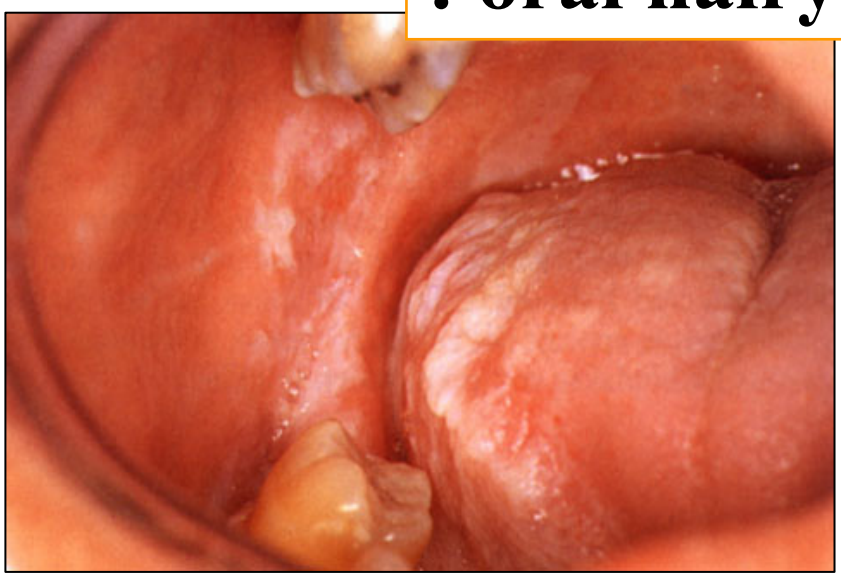
•Enlarged lymphe nodes, moderately ill patient

: primary HIV infection

Mandell, 2005,Ch 117, 1546

Ptn: male, 34 y, fatigue and moderate weigth loss

: oral hairy leukoplakia



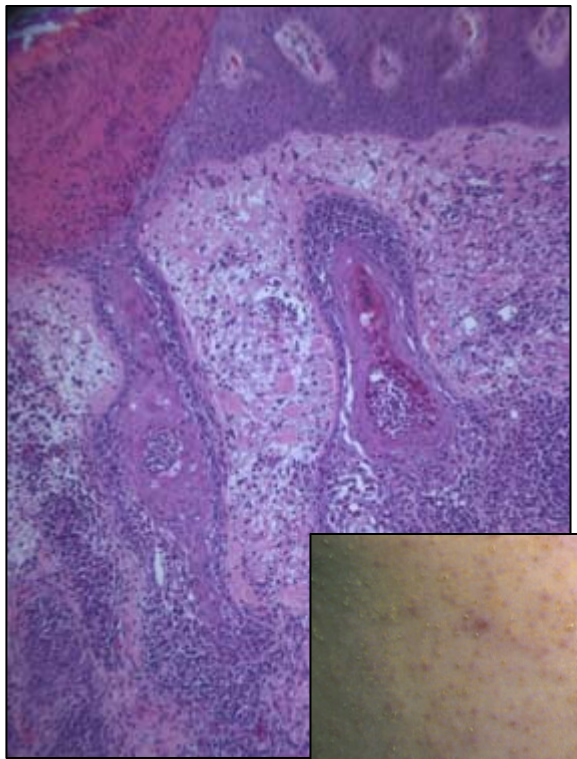
Hairy leukoplakia

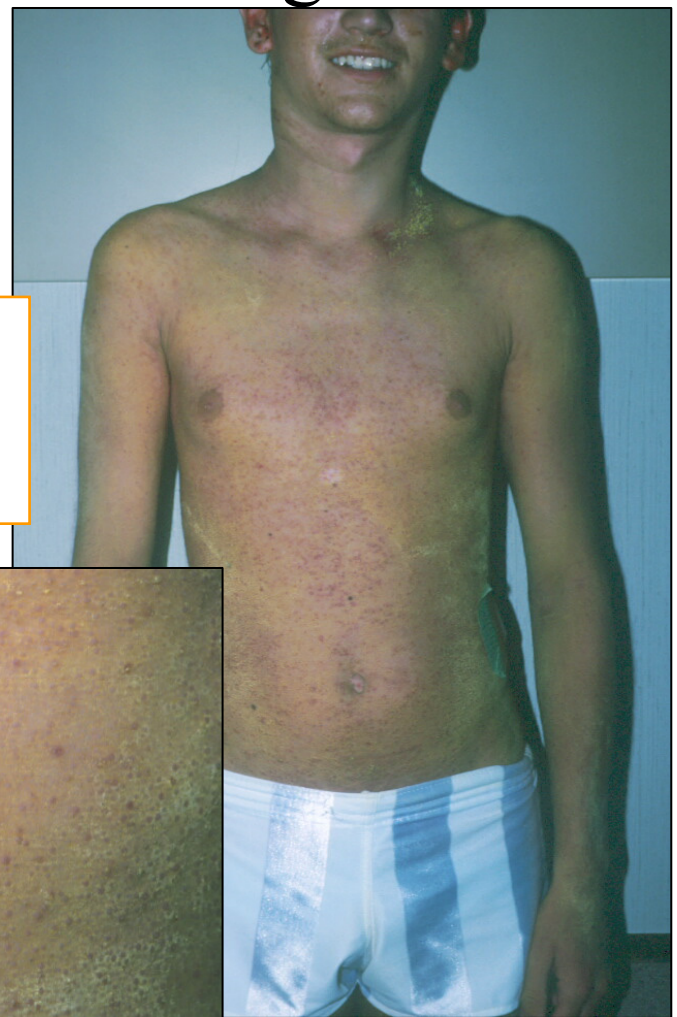
- Most frequently, but not exclusively associated with HIV
- Indicates bad HIV prognosis (without cART)
- Florid EBV replication *in vivo*
- **Table 1.** Clinical features of oral hairy leukoplakia.

Typically unilateral or bilateral, adherent, slightly elevated whitish or gray patches
Principally located mainly on lateral margins, dorsum, or ventrum of the tongue
Occasionally observed over the floor of the mouth, palate, or oropharynx
Usually asymptomatic

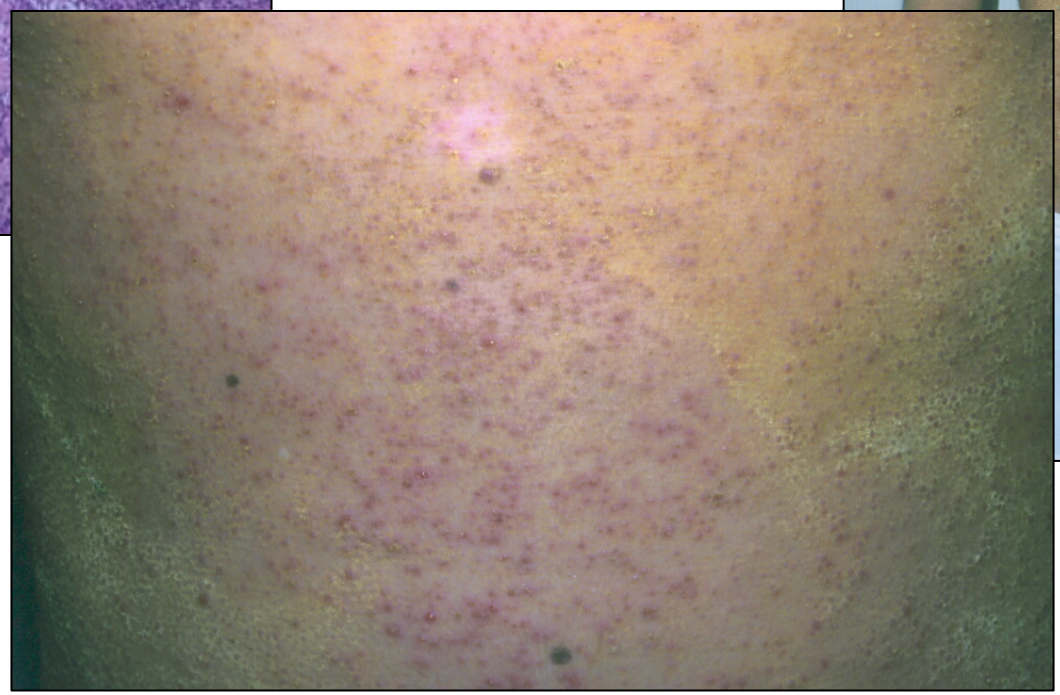
Clin Infect Dis, 1997;25:1392–6

Ptn: 34 y, fatigue, weight loss and itching





: eosinophilic folliculitis



HIV-associated eosinophilic folliculitis

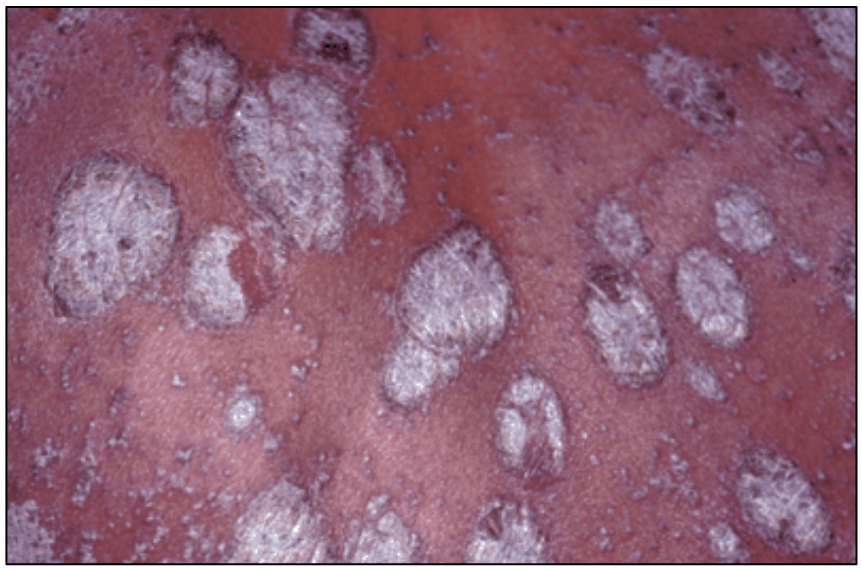
- chronic pruritic skin eruption of uncertain etiology, associated with low CD4 counts and later stage disease
- Diagnosis:
  - clinical suspicion with intensely pruritic follicular lesions (generally on the upper trunk, face, neck, or scalp)
  - histological confirmation
  - Eosinophilia, increased IgE
- Treatment: cART

Am Fam Phys, 1995, 625-630.
Arch Dermatol, 1991; 127:206.

Ptn: 54 y, long standing lesions on nails

: Proximal subungual onychomycosis, HIV related

Ptn: 34 y, new onset generalized skin lesions since 3 months

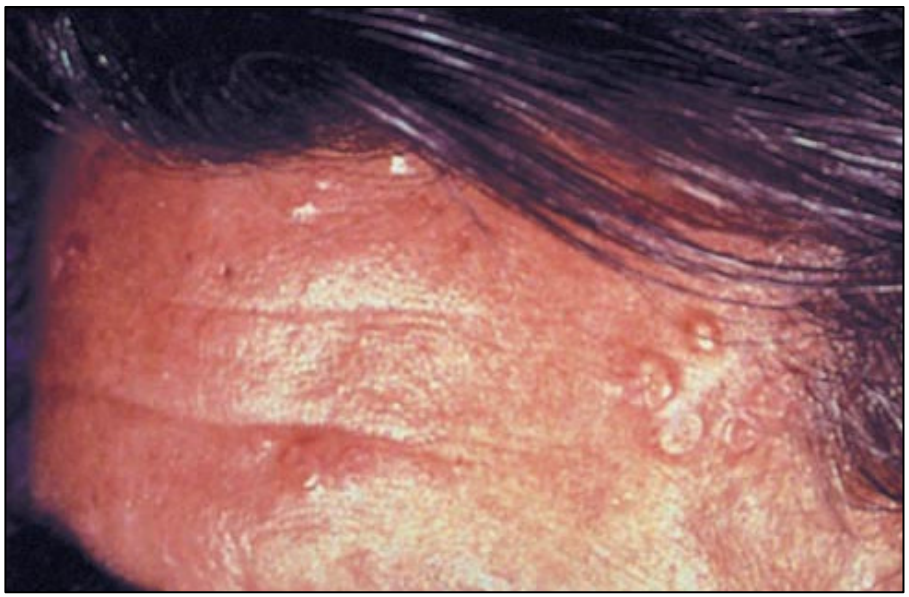


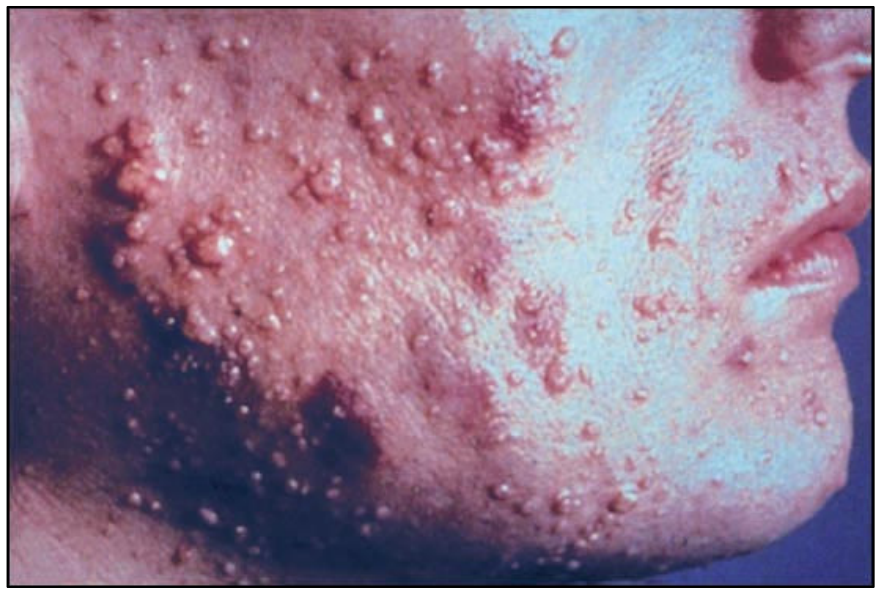
: psoriasis, associated to HIV

- Incidence ~ general presentation, but generalisation and atypic presentation (erythrodermic, pustular, with arthropathy)

Infect Dis Clin North Am, 1994, 583-606

Ptn: 34 y, new onset generalized skin lesions since 3 months





: molluscum contagiosum, associated to HIV

- Incidence ~ 10-20 %
- More and bigger lesions in HIV
- Extensive molluscum → HIV ??

Infect Dis Clin North Am, 1994, 583-606

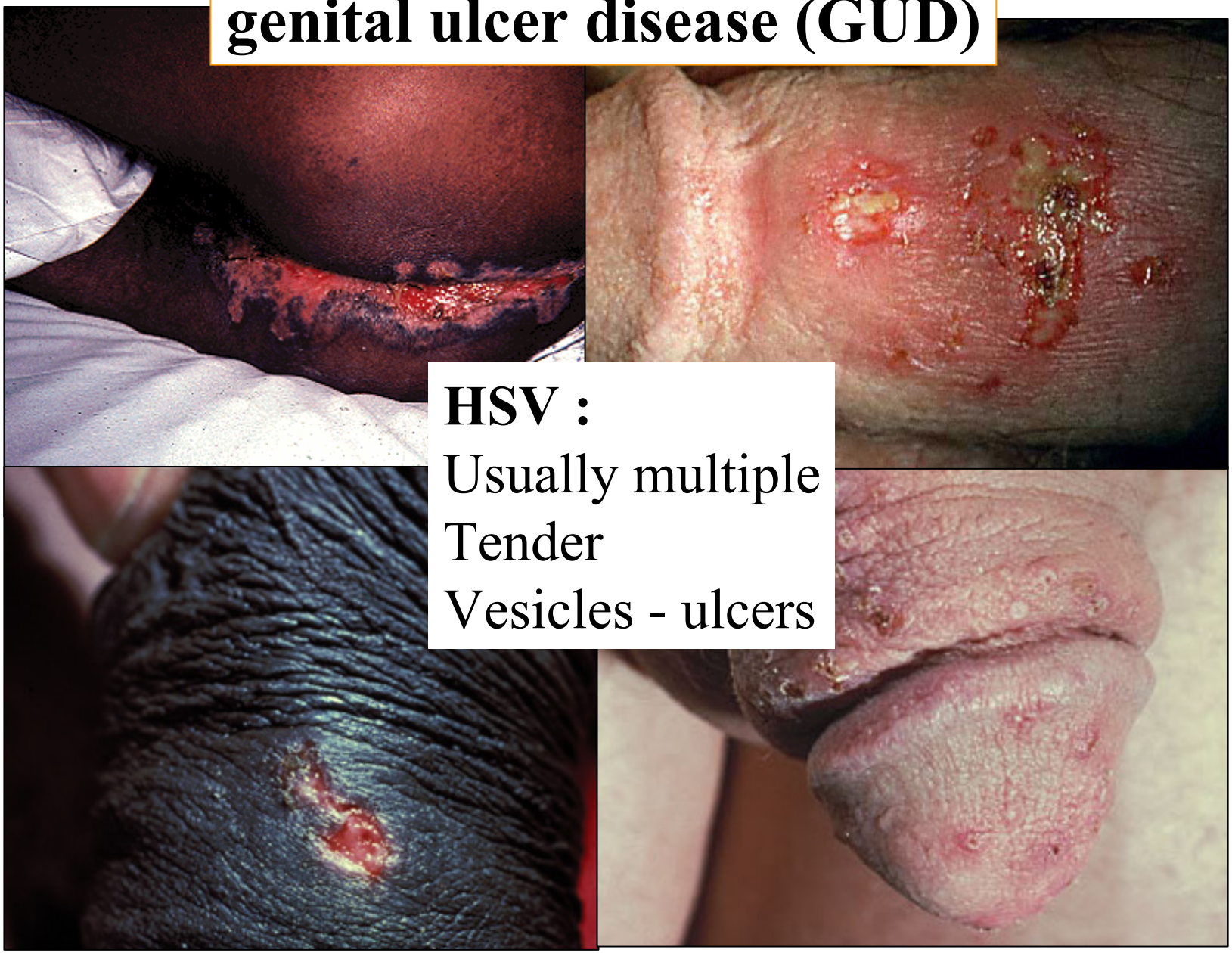
Ptn: 34 y, male, painful skin lesions peri-anal initially frequently recurrent, now persistent

: Chronic HSV-2 ulcus, HIV associated

- HSV-2 → OR 3.1 HIV
- More asymptomatic and symptomatic episodes
- Very frequently recurrent/ persistent HSV-2 → HIV ?

J AIDS, 2004, 35:435-445,
Infect Dis Clin North Am, 1994, 583-606

genital ulcer disease (GUD)

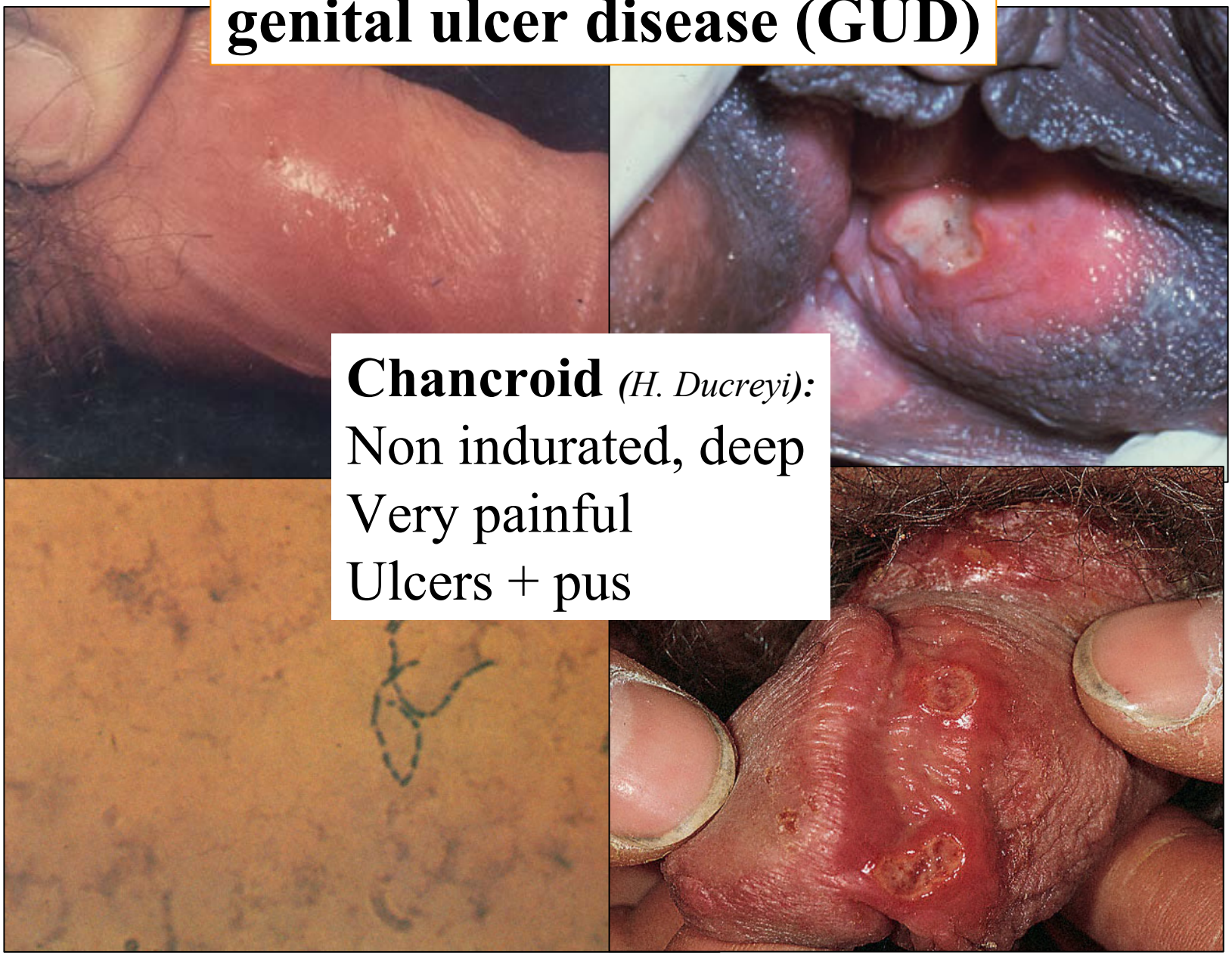


HSV :
Usually multiple
Tender
Vesicles - ulcers

genital ulcer disease (GUD)

Lues chancre :
Indurated
Smooth firm borders
painless

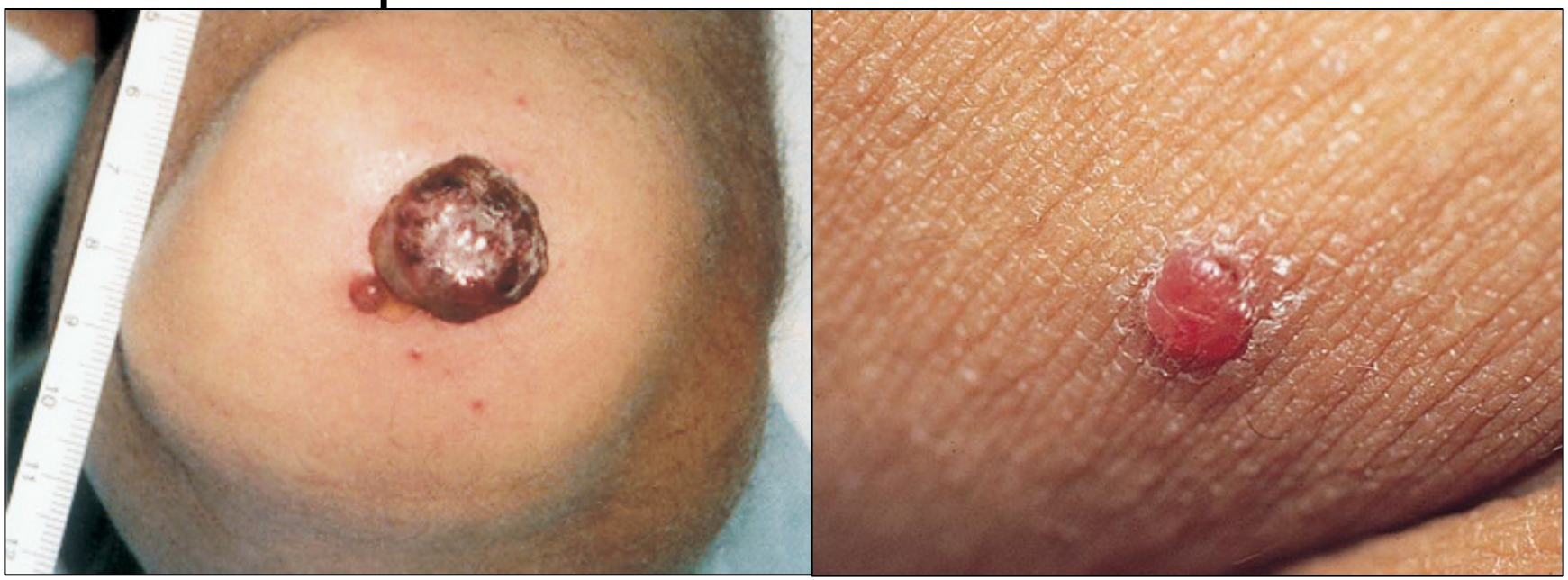
genital ulcer disease (GUD)



Chancroid *(H. Ducreyi)*:
Non indurated, deep
Very painful
Ulcers + pus

4.2. Dermatological complications of AIDS

Ptn: 25 T4 cells; prolonged fever; weight loss; non-tender adenopathia

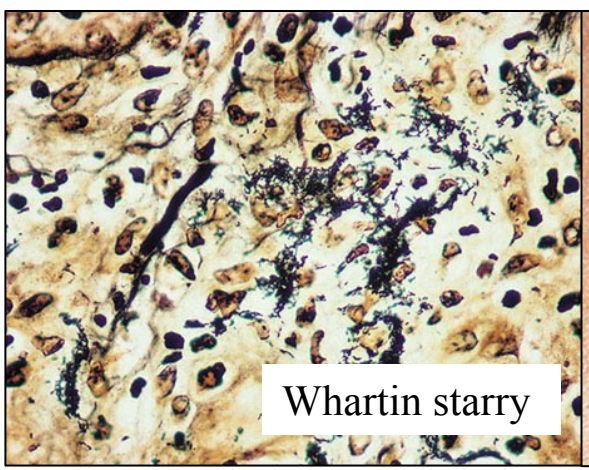


: bacillary angiomatosis

Bacillary angiomatosis

- *Bartonella quintana* > *B. henselae*
- Cutaneous lesions:
  - papular, nodular, pedunculated, verrucous
  - Purple papels ↔ friable lesions
- Subcutaneous nodules; mucosal lesions; osseous lesions
- D/ biopsy/culture/pathology/(serology)

Clin Infect Dis 1996 May;22(5):794-800.



Ptn: 25 T4 cells; pauci-symptomatic nodular skin lesions

•Presentation with gastro-intestinal bleeding

: AIDS Kaposi Sarcoma

Kaposi sarcoma

- HHV-8 associated vascular tumor
- Frequency in AIDS: 20.000× (population); 300× (other immunodeficiency)
- Skin: legs, face, mouth, genital
- Visceral involvement
- D/ biopsy/culture/pathology/(serology)

Clin Infect Dis 1996 May;22(5):794-800.

5. Diseases with immunodeficiency

- **Cirrhosis:**
  - phagocytosis, chemotaxis, complement levels
  - More bacterial infections
- **Diabetes mellitus:**
  - Neutrophilic and T-cell function
  - Skin and soft tissue infections (ulcers, abcesses, cellulitis, necrotizing infections)
  - Keto-acidosis: mucormycosis
- **SLE:**
  - Bacterial skin infections, HSV

Diabetes mellitus

- Affects +/- 5 % of population
- Diabetic foot infections = leading cause of amputation in western world
  - Superficial infections
  - Cellulitis
  - Osteomyelitis

Infect Dis Clin North Am, 1994, 523-32.
Clin Infect Dis 2004; 39:885-910

Diabetes mellitus:

- paronychia, skin and soft tissue infections
- Necrotizing soft tissue infections
- osteomyelitis
- Superficial yeast infections

III. Conclusions

- **Skin lesions may be:**
  - An early clue to underlying infectious disease
  - The hallmark of contagious diseases
  - The first signs of life-threatening infections

Secondary syphilis

Meningococcal meningitis

Epidemiologic clues:

- Age of the patient, immunization and history of childhood illnesses: chickenpox, erythema infectiosum, exanthem subitum, ...
- Season of the year: non-polio enteroviruses (summer and fall), parvovirus (winter/early fall), tick-borne diseases (spring/summer), ...
- Geographic location and travel history: cutaneous leishmaniasis (old world/new world), dengue (caribbean, latin america, asia, ...), creeping eruption, onchocerciasis, ...
- Occupational history/exposure history: toxoplasma/cat scratch (kitten), cryptococcosis (pigeon), rat bite fever (rats), fish tank granuloma (mycobacterium marinum), sporothrix schenckii (florist, gardeners), ...
- Medication history (do not over-estimate relationship between rash and drug fever)

NEJM, 1994, 331, 1272

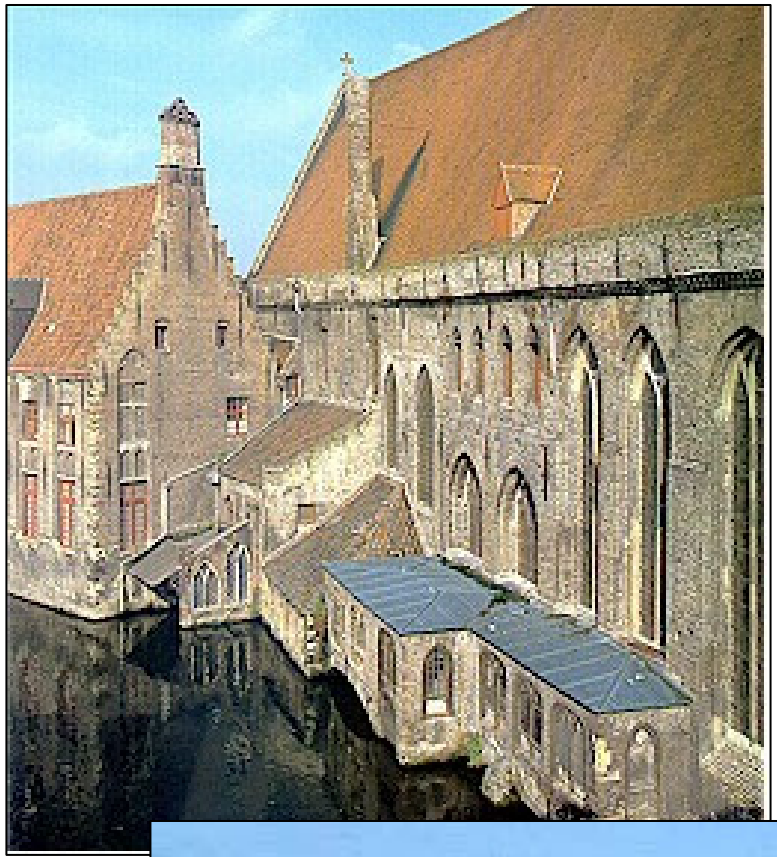
- Immune state of the host ...

Mandell, 2005,Ch 49, 729-746

Diagnostic approach:

- HISTORY
- CLINICAL ASPECT (macula, papule, nodule, plaque, vesicle, pustule, bulla, ulcer, ...)
- PHYSICAL EXAM (vital signs, general appearance, lymph nodes, mucous membranes, conjunctivae, genitalia, meningism, HSM, joints, ...)
- LAB (blood count, urinalysis, blood cultures, serology when appropriate)
- MICROBIOLOGY (fluid, viral culture, darkfield microscopy, ...)
- SKIN BIOPSY(for microbiology and pathology)

Lopez and Sanders, www.uptodate.com, Febr 2006



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