CHILDHOOD SKIN DISEASES

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Všeobecná fakultní nemocnice v Praze

skin rash: well visible X similar appearance

HISTORY and **CLINICAL EXAMINATION**

- **WHAT?** type of lesion
  PRIMARY AND SECONDARY LESIONS
- **WHERE?** localization and distribution
  PREDILECTION SITES
- **WHEN?** duration, changes, age of manifestation
  TEMPORAL COURSE
- **HOW?** other symptoms

FURTHER EXAMINATION?

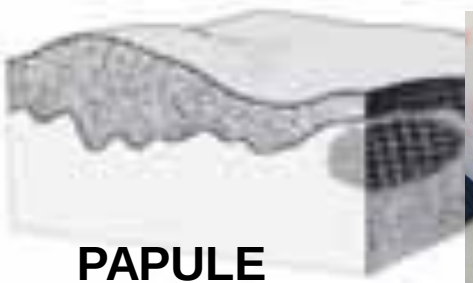
SYSTEMIC TREATMENT?

CONSULT A SPECIALIST?

PRIMARY LESIONS

MACULE

URTICA/ WHEAL
less than 24h



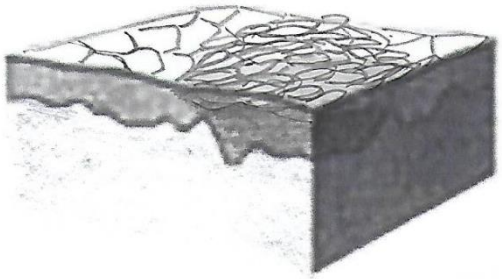
PAPULE

VESICLE/BULLA
1cm

NODULE/TUMOR
1cm

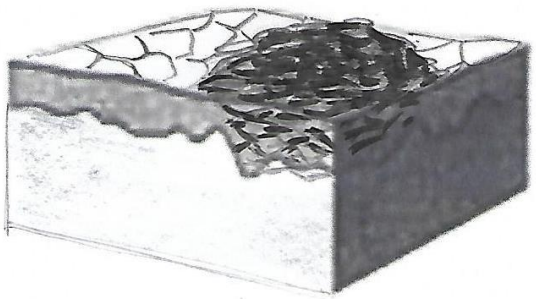
PUSTULE

SECONDARY LESIONS



SCALE

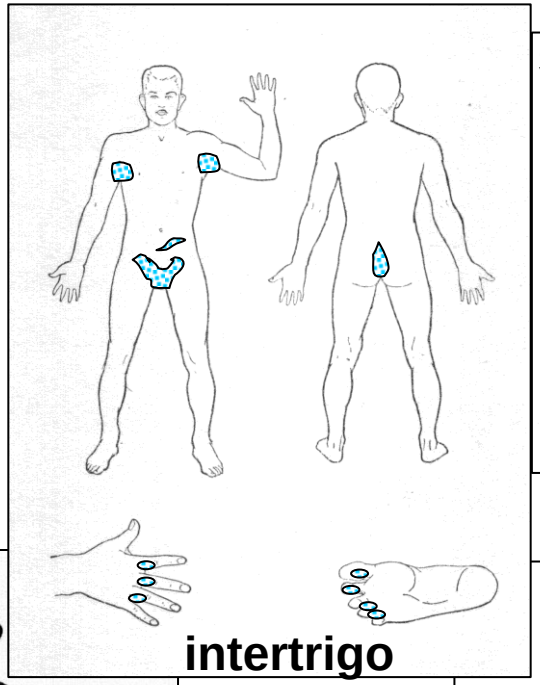
EROSION
EXCORIATION
ULCER

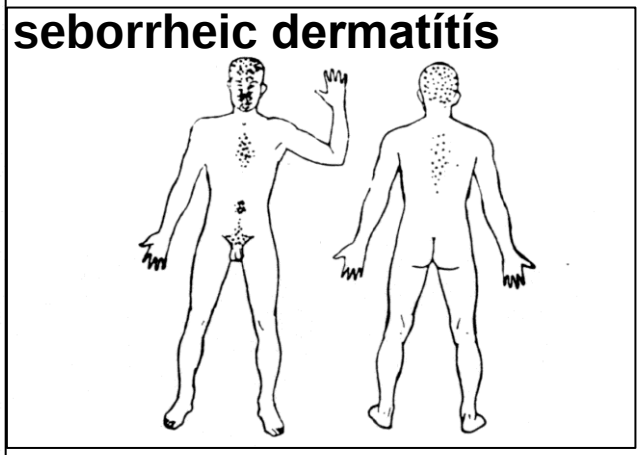


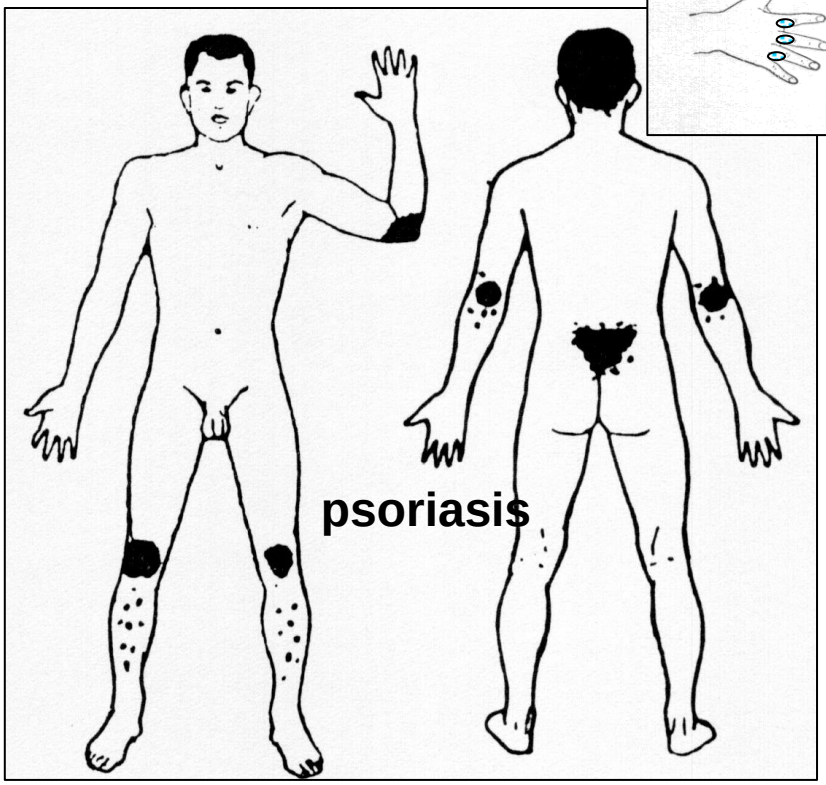
CRUST

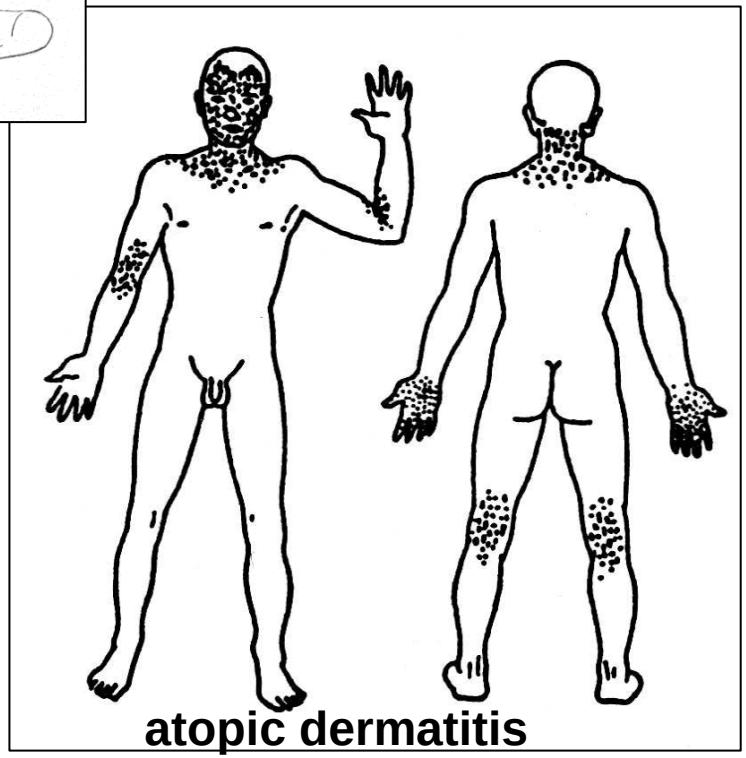
RHAGADE
FISSURE

DISTRIBUTION PATTERNS







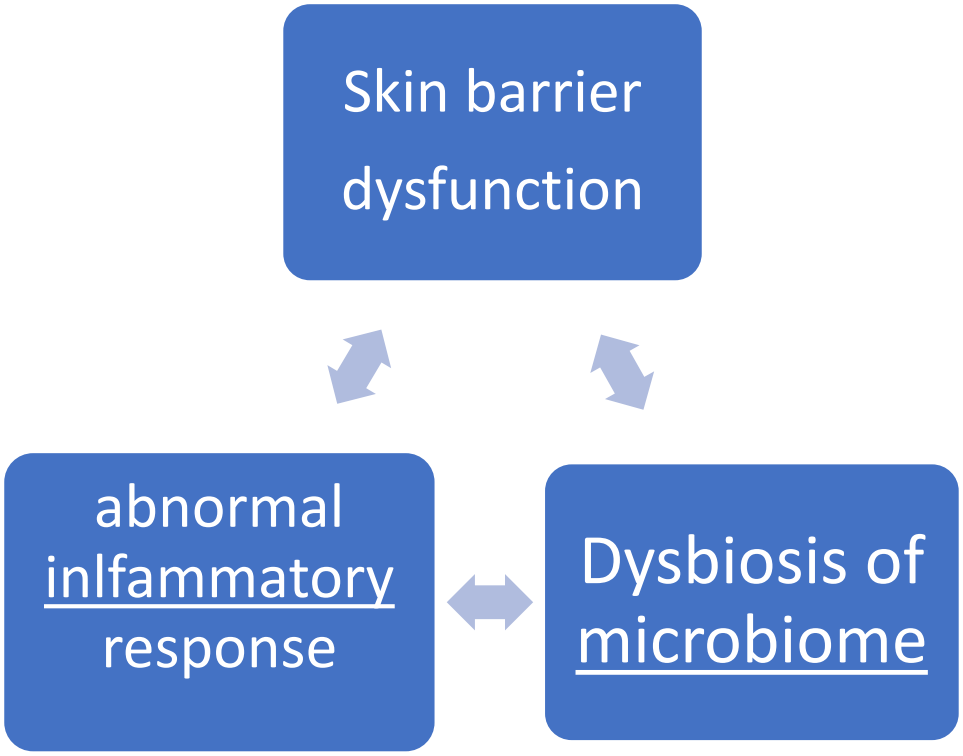


ATOPIC DERMATITIS

chronic inflammatory disease

increasing incidence

PATHOGENESIS
multifactorial inheritance



DIAGNOSIS

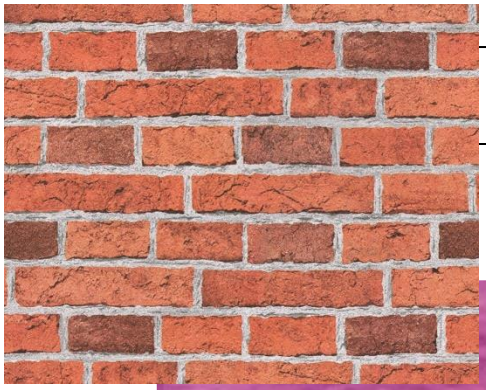
clinical picture, family history, other symptoms of atopy

atopy – IgE mediated immunopathologic reaction (allergic reaction with ↑IgE)

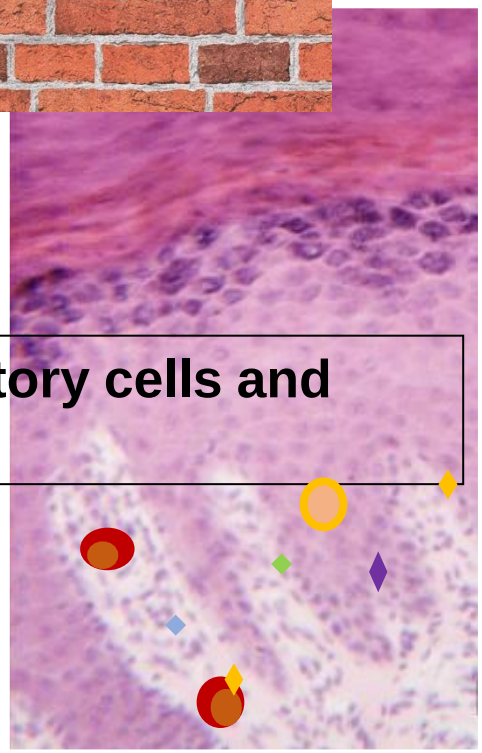
associated food allergy (infants 30%) – extrinsic type

atopic triad:
AD
alergic rhinitis and conjuctivitis
allergic asthma

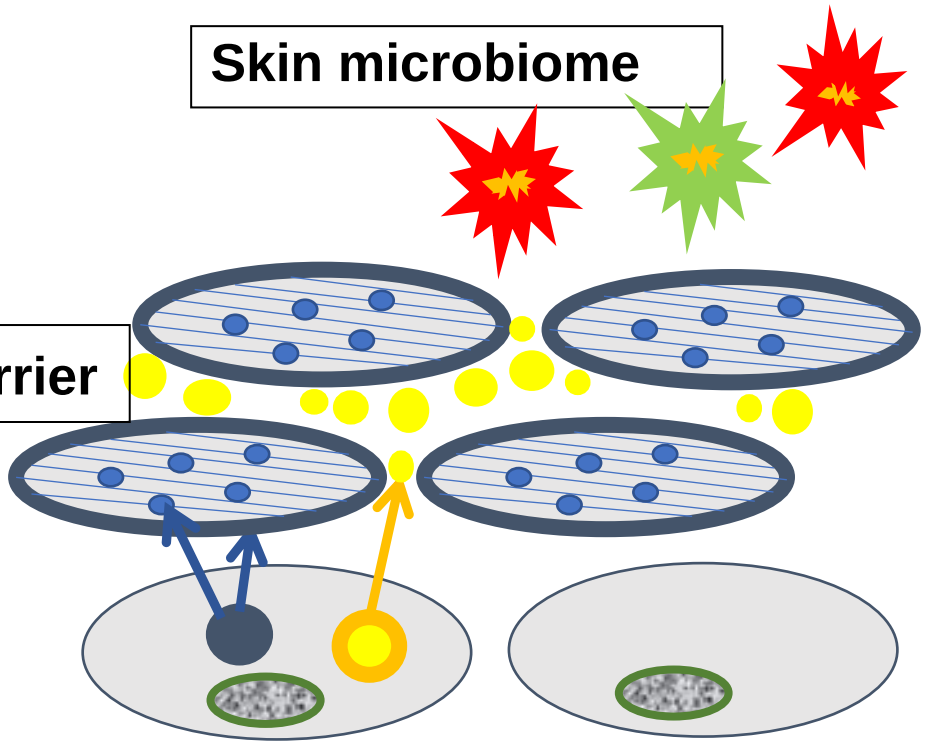
ETIOPATHOGENESIS



Epidermal barrier



Inflammatory cells and cytokines



keratohyaline granules - PROFILAGGRIN

Odland bodies – LIPIDS

cornified envelope - covalent PROTEIN bonds

natural moisturizing factor-NMF

keratin bundles

CLINICAL PICTURE

Chronicity
Pruritus
Xerosis

TRIGGERS

food allergens
weather
infection (extracutaneous)
stress
vaccination
insufficient skin care

Infant since 3m
30%

face, scalp
trunk
extensor limbs
~~diaper area~~

preschool and school child
10-20%

neck
antecubital and popliteal fossae
(flexural eczema)
wrists
dorsal hands

adolescent and adult 1-3%

face, neck
trunk
antecubital and popliteal fossae
wrists
dorsal hands

erythroderma,
white dermographism

Excoriated papules, lichenification

scales, painfull fissures

postinflammatory hypopigmentation

COMPLICATIONS

IMPETIGINIZATION

mainly S. aureus, S. pyogenes

Weeping, pustules and crusts

systemic ATB therapy sometimes necessary

COMPLICATIONS

ECZEMA HERPETICUM

often fever, malaise

systemic therapy ALWAYS!

risk of keratoconjuctivitis, meningoencephalitis

COMPLICATIONS

MOLLUSCA CONTAGIOSA – POX VIRUS

often recurrent

local corticoids and topical immunomodulators contraindicated

THERAPY

Active, proactive

- **LOCAL**

corticosteroids (CS)
topical immunomodulators
antimicrobials and antiseptics
tar

- **PHYSICAL**

(balneo)phototherapy

- **SYSTEMIC**

antibiotics, antiviral drugs

severe cases

CS short course
cyclosporine, MTX,
biologic therapy

Maintenance and preventive

- **LOCAL**

emollients

avoiding infection

- **SYSTEMIC**

avoiding trigger factors

Emollients

prevent water loss

repair skin barrier

reduce pruritus

reduce need of antiinflammatory treatment

prevent flare ups of eczema

LOCAL TREATMENT OF ATOPIC DERMATITIS

WHY	WHAT	HOW
Barrier dysfunction Xerosis Pruritus	**emollients**	- **Also non-lesional skin** - continuously
Inflammation Pruritus	**corticoids** **topical immunomodulators** tar, zinc	- **Only lesional skin** – temporary – continuously – specific regimes
Microbiome	antiseptic antibiotic, antiviral drugs	**- Only lesional skin** - temporary

SEBORRHEIC DERMATITIS

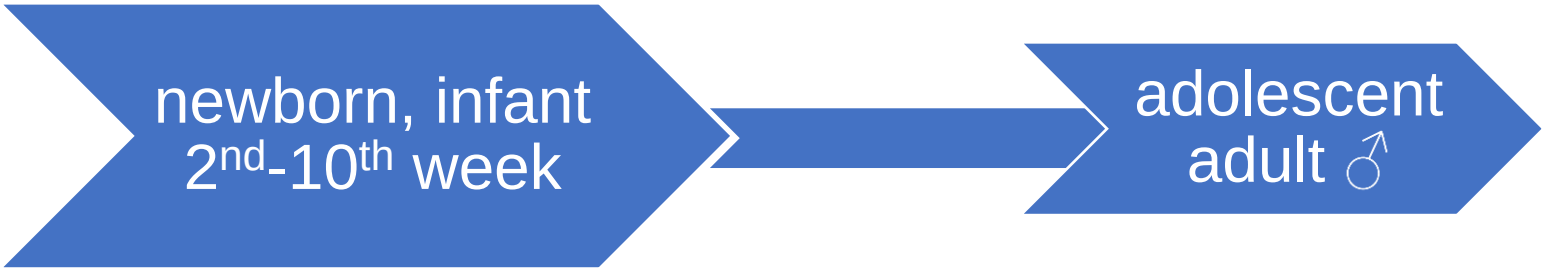
ETIOPATHOGENESIS

increased activity of sebaceous glands

pityrosporum ovale

dysregulation of non-specific immunity

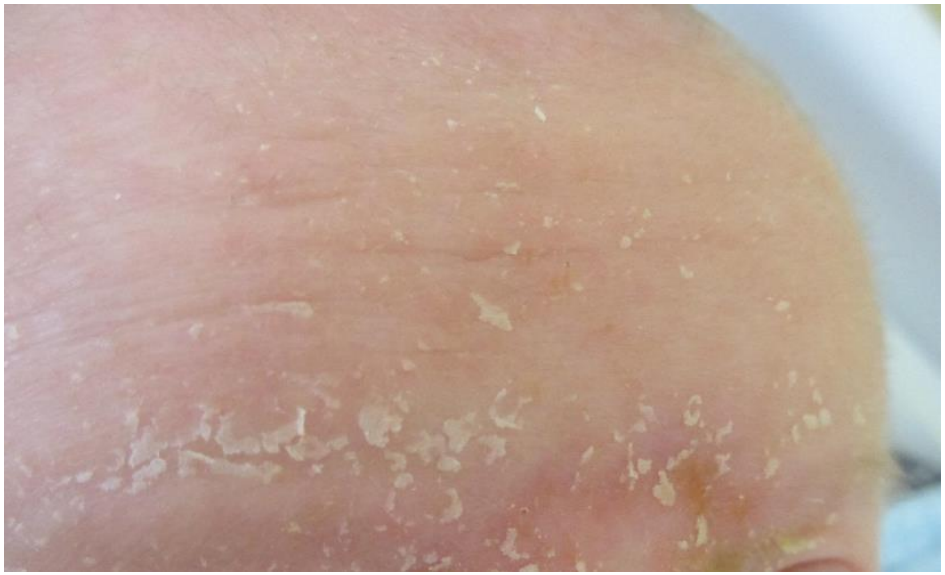
external and psychological factors, inheritance



newborn, infant 2nd-10th week	adolescent adult ♂
scalp – craddle cap forehead, eyebrows	scalp eyebrows, nasolabial folds retroauricular, external meatus
intertriginous, including diaper area	intertriginous presternal
last up to 1 year	chronic recurrent

CLINICAL PICTURE

yellowish usually greasy scales (rarely dry)
orange-red plaques



DIFERENTIAL DIAGNOSIS

Atopic dermatitis
Diaper dermatitis
Psoriasis
Intertrigo
Histiocytosis from LC – the same distribution pattern!

THERAPY - local

antifungals
mild keratolytics – urea 2-5%, (salicylic acid contraindicated in infants)
zinc pyrithion
corticosteroids and topical immunomodulators
...

INTERTRIGO

ETIOPATHOGENESIS
dampness, warmth, friction

CLINICAL PICTURE
sharply demarcated,
moist red areas
in folds

SUPERINFERINFECTION COMMON
Candida
S. aureus

DIAPER DERMATITIS

> 50% toddlers, 9-12thm

ETIOPATHOGENESIS
friction, alkaline pH,
urine and faeces, bacteria,
enzymes, cosmetics

CLINICAL PICTURE – W shape
favours convex surfaces, ~~**spares folds**~~
erythema, desquamation

COMPLICATIONS
CANDIDOSIS
papulopustules, desquamation
peripheral whitish scale

DIFERENTIAL DIAGNOSIS

Seborrhoeic dermatitis
Psoriasis
Contact dermatitis
Acrodermatitis enteropathica – Zn deficiency
LC Histiocytosis

THERAPY

avoidance of causative factors: **keep clean, dry, airy**
wash with pure water
soothing Zn paste, emollients

IMPETIGO

SUPERFICIAL BACTERIAL INFECTION

- **STREPTOCOCCUS PYOGENES**

(source – skin lesions)

- **STAPHYLOCOCCUS AUREUS – bullou impetigo**

(source – airways – 30% 3-6 y. o. children - carriers)

- **COMBINED** – BOTH PATHOGENS

THERAPY

ATB mostly local (fusidic acid), antiseptic compresses

systemic : extensive skin lesions, lymphadenopathy, fever

COMPLICATIONS - rare: arthritis, pneumonia, sepsis

CLINICAL PICTURE

Face
Limbs
Diaper areas

Papules, pustules
Bullae
Erosions
Honey coloured crusts

CHILDHOOD EXANTHEMS

CONSIDER

SKIN: character and distribution of rash

OTHER SYMPTOMS:

fever
enanthema
conjuctivitis
lymphadenopathy, hepatosplenomegaly
muskuloskeletal/
gastrointestinal symptoms

Incubation period
Typical age / season
Epidemiological situation

CHILDHOOD EXANTHEMS

careful **HISTORY** and **CLINICAL EXAMINATION**

because of
ATYPICAL/NONSPECIFIC MANIFESTATION

COMPLICATIONS
CNS, pneumonia, myokarditis
Fetal damage

DIFFERENTIAL DIAGNOSIS
Drug exanthems
Kawasaki disease
Bacterial infection
.....

CLASSIC EXANTHEMS	ETIOLOGY
1. MEASLES, RUBEOLA	Paramyxovirus
2. SCARLET FEVER	β hemolytic streptococcus
3. GERMAN MEASLES, RUBELLA	Togavirus
4. fourth disease	-
5. FIFTH DISEASE, ERYTHEMA INFECTIOSUM	Parvovirus B19
6. SIXTH DISEASE, EXANTHEMA SUBITUM, ROSEOLA INFANTUM	HSV 6,7

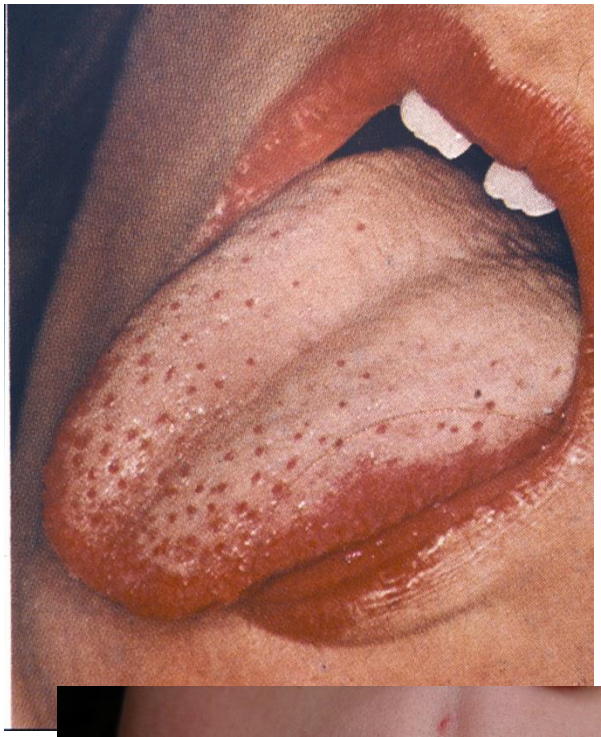
preschool and school age,
exanthema subitum < 3 years

Disease	**SCARLET FEVER**	**GERMAN MEASLES**	**MEASLES**
Vaccination	no	yes	yes
Incub. period	2-5d	2-3w	1-2w
Fever	yes	mild	yes
Typical signs	flushed face/perioral palor **– Filatov´s sign** pharyngitis, tonsilitis	often mild or asymptomatic course	**3C**: cough, coryza, conjuctivitis -
Lymphadeno pathy	neck	**occipital, retroauricullar, neck**	not typical
Enanthema	**strawberry tongue**	erythematous small spots on the soft palate **Forscheimer spots**	**Koplik spots:** gray white papules on **buccal mucosa**
Exanthema	4-5d:1mm red papules, **sand paper,** prominent in **folds (**neck**,** inguinal, elbow, popliteal, armpits**),** **inner thighs** **peeling** finger tips, toes	3d: pink red maculopapular 1-3mm, **non- confluent** appears and fades in cephalocaudal direction	7d: red purple >3mm, maculopapular, **confluent** darkens to copper colour, fades in cephalocaudal direction
Other		arthralgia, myalgia	
Complications	pneumonia, pericarditis, meningitis, glomerulonephritis	encefalitis, arthritis, **embryopathy** (heart, cataract, deafness)	pneumonia, otitis, encephalitis, SSPE † in developing countries

MEASLES

Bulovka FH

SCARLER FEVER



GERMAN MEASLES

infection before 16w

embryopathy! –induced abortion recommeded

ERYTHEMA INFECTIOSUM

Parvovirus B19

ERYTHEMA INFECTIOSUM

Vaccination	no
Incub period	4d-2w
Fever	**low grade,** mild prodromes
Enanthem	not typical
Exanthem	1w after fever– erythema - **slapped cheeks** +4d lacy **reticulate erythema** limbs (trunk) 1-3w
Other symptoms	arthralgia, arthritis, more adult women
Complications	**embryopathy:** RBC – anemia, hydrops <6% risk of † up to 20th gestational w

EXANTHEMA SUBITUM

HSV 6,7

Vaccination	no
Incubation period	1-2w
Fever	**high,** 3-5 d without other symptoms, sometimes periorbital edema
Enanthem	sometimes red papules soft palate, uvula **Nagayama spots**
Exanthem	**after cessation of fever**– trunk, limbs 1-3d
Other symptoms	diarrhea, lymphadenopathy
Complications	**febrile seizures**, encephalitis, encephalopathy

OTHER EXANTHEMAS	**ETIOLOGY**
• CHICKEN-POX/VARICELLA	varicella zoster virus
• HAND-FOOT AND MOUTH DISEASE	coxsackie virus (A16)

DIAGNOSIS CLINICAL AND SEROLOGICAL

THERAPY MOSTLY SYMPTOMATIC
in complicated varicella ACYCLOVIR

CHICKEN POX – VARICELLA

Vaccination	yes
Incubation period	2-3t
Contagiosity	-1-2d to skin lesion crusting
Fever	yes, chills, myalgia, arthralgia
Enanthema	painfull erosions mouth, conjunctiva
Exanthema	SCALP, FACE, WHOLE BODY– except palm, soles papule – vesicle – pustule- crust- scar
Complications	bacterial superinfection including pneumonia CNS, PNS Athritis Hepatitis
Recurrence	Herpes zoster

HAND FOOT AND MOUTH DISEASE

Coxsackie virus (A16)

Vaccination	no
Incubation period	2-3t
Contagiosity	-1-2d to skin lesion crusting
Fever	yes, chills, myalgia, arthralgia
Enanthema	painfull erosions MOUTH, conjunctiva
Exanthema	PALMS and SOLES papulo-vesicle whitish with red border
Complications	dehydration meningitis encephalitis

SELECTED NEONATAL INFECTIONS

HERPES SIMPLEX

- in mother primo-infection 50% risk for fetus

MOTHER INFECTION MIGHT BE ASYMPTOMATIC!!!
no symptoms but virus present in body secretions

NEONATAL HERPES SIMPLEX

1. Localized: Skin Eyes Mouth – **SEM**
2. CNS with/without SEM
3. Disseminated systemic with/without SEM

7^{th} do 28^{th} day after delivery

40% begins on skin

ALWAYS RULE OUT 2 and 3!!!

DIAGNOSIS

PCR, viral culture
serology: IgM non specific

suspicious CNS damage : EEG – earlier than MRI (3rdd)

THERAPY
ALWAYS SYSTEMIC i.v. acyclovir

LOCAL THERAPY
Skin – Zn, antiseptic, antibiotic – gel, paste
Eyes - antivirotic

DIFERENCIAL DG

- Bacterial sepsis
- Enteroviral infection (vesicles)
- Varicella – sepsis, diseminated

- Noninfectious vesicular skin diseases (incontinentia pigmenti, epidermolysis bullosa...)

CONGENITAL HERPES SIMPLEX

Child is not in sepsis

- ASCENDENT via genital tract

- HEMATOGENOUS viremia in mother primoinfection

Different outcomes:

Death in utero

Skin – **vesicles, scars**

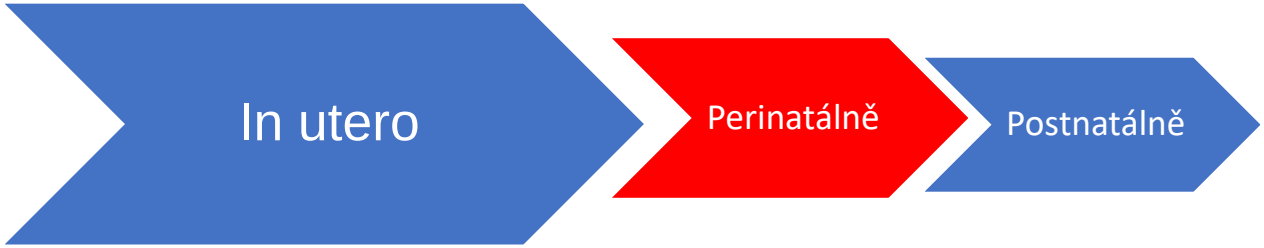
- in site of infection

- visible within 12h

CNS - microcephaly, chorioretinitis, cramps

Limbs – atrophy

VARICELLA-HERPES ZOSTER



PERINATAL INFECTION – the most serious

Mother **symptoms-5/+2d** around delivery

Child symptoms **5-10th d** after delivery

VARICELLA-HERPES ZOSTER
IN UTERO

max. risk up to 20thw of pregnancy

fetal damage up to **1%** - induced abortion not indicated

- CONGENITAL VARICELLA SYNDROM
  not in mother herpes zoster
- SHINGLES IN CHILDHOOD

CONGENITAL VARICELLA SYNDROM

Skin – erosions/scars 70%

Muskuloskeletal - hypoplasia

Eyes - chorioretinitis, microphtalmia, caratact

Neurologic - paresis, microcephaly, epilepsy,
ment. retardation

DIAGNOSIS

Amniocentesis, chorionic villus biopsy - PCR

Sonography 20-22nd w

Serology not reliable

NEONATAL CHICKEN POX

IN UTERO **manifests up to 12d after delivery**

PERINATAL **later manifestation**

SKIN 1-2w after mother symptoms

various extent : solitary/disseminated – papules, vesicles, (hemorrhagic/necrotic)

PNEUMONITIS

HEPATITIS

ENCEPHALITIS

Premature baby –

more serious course

VARICELLA-HERPES ZOSTER
POSTNATAL

- From mother
- From other contacts

Mostly respiratory spread
Lower viral load - lower mortality compared to in utero tranfer

DIAGNOSIS

Fluid from vesicles, liquor, biopsy

- PCR
- viral cultivation

THERAPY ALWAYS SYSTEMIC

i.v. aciclovir

- not treated: mortality 10-30%

Prophylaxis: VZ immunoglobulin i. m. - 72h

- newborn : if mother symptoms -5/+2d
- premature in contact with varicella
- mature in contact with varicella if mother seronegative

Isolatíon

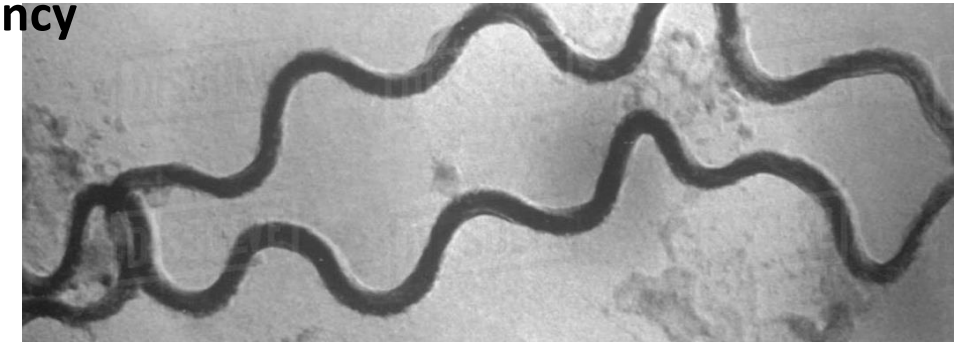
- child 7d after contact
- child with mother symptomatic 3w before delivery
- no contact with mother skin lesions

PREVENTION

- Serology screening and fertile women vaccination
- non-vaccinated exposed pregnant women – serology negative - prophylaxis VZ immunoglobuline 48(96h) after contact
- **Symptomatic pregnant women (3rd trimestr) – systemic treatment**
- Symptoms around delivery– postpone delivery 5-7d (transfer of Ig)
- Varicella in pregnancy - neurologic and eye examination in a child

CONGENITAL SYPHILIS

60 pregnat women a year during COMPULSORY screening v 3rd and 7thm of pregnancy



Infection of fetus

- Any stage of pregnancy
- Any stage of mother infection
- The longer time after mother infection, the lower risk of transmission to fetus - 30-100%

- **13 cases of syphilis congenita in Czech Republic 1994-2004, 1-5 cases a year**

Infection during delivery?

Up to 3m **chancre**, not congenital syphilis

CONGENITAL SYPHILIS

Mother infection in 1st trimester

- treated up to 4thm - placental changes from 3rd m –healthy child
- not treated – abortion/late term stillbirth in 2nd trimester/

Secondary syphilis in mother– syphilis congenita recens

Syphilis tarda in mother – healthy child or syphilis congenita tarda

Not diagnosed/not treated/maltreated infection- syphilis congenita tarda

CONGENITAL SYPHILIS
EARLY (RECENS)

Manifestation up to 2 years after delivery!

early: more serious infection, worse prognosis

- fully asymptomatic at birth
- premature delivery, low birth weight
- nonspecific sepsis
- hepatomegaly – jaundice, lymphadenopathy
- cytopenia
-skin lesions 30-70%
- osteochondritis – long bones – Parrot pseudoparalysis
  X- ray90% x clinical15%, periostitis – frontal bones
- meningitis – worse prognosis

SKIN LESIONS IN S.C. RECENS

Rhinitis –coryza syphilitica: first week: mucous to bloody septum perforation

Exanthema: papulosquamous, vesicles predilection PALMS, SOLES- spontaneous resolution up to 3m

PALMS, SOLES: erythema, infiltration, shiny – fissures

Periorificial: nose, mouth, anus:

flat papules and infitrates –

condylomata lata – fissures and scars

Mouth mucosa: erytematous plaques

Angoori GR, Ind J Ped Dermatol. 2015

Congenital syphilis in 2 children in a Bolivian prison, 2013

Revista Española de Sanidad Penitenciaria
versión n-line ISSN 2013-6463*versión impresa* ISSN 1575-0620

Zdroj CDC

SYPHILIS CONGENITA
LATE (TARDA)

Manifestation after 2nd year of life

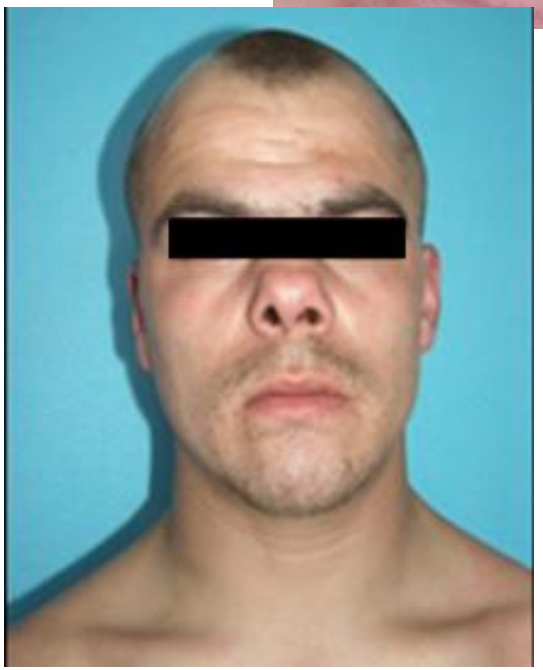
SKIN: rhagades – Parrot scars periorificial, gumma

BONES: caput quadratum, saddle nose, sabre shin

1. TEETH: notched upper incisors….
2. EYES: **keratitis**, optic atrophy
3. EAR: **deafness**

Hutchinson trias – rarely complete

CNS: neurosyphilis



CONGENITAL SYPHILIS
DIAGNOSIS

Serology: cord blood, serum newborn

- non-specific tests: TITRES
- specific tests: IgM positivity

IgG are from mother

Dark field or direct immunofluorescence:

cord blood, skin and mucosal secretions

PCR: from lesions/secretions

CONGENITAL SYPHILIS
THERAPY

Systemic : PNC

10d – 3w according to manifestation

FOLLOW UP:

LIFE LONG

child with congenital syphilis

2 YEARS

child from mother with congenital syphilis

SKIN SIGNS OF FOOD ALLERGY

ALLERGEN INTAKE

- ORAL
- SKIN
- AIR
- Cross-reactivity (pollen + food, skin + food)

MECHANISM	DIAGNOSIS
	HISTORY !!!
IgE	serology IgE, prick-tests
non-IgE	epicutaneous patch tests
	GOLD STANDARD: **exposition/elimination test**

CLINICAL PICTURE

Timing – according to MECHANISM
(IgE: min-hours, non-IgE: days to weeks)

- Worsening of atopic dermatitis– h/d
- Urticaria – min-h
- Toxoallergic exanthema – often maculopapular– d/w
- Oral allergic syndrome - min-h

Serious: ANAPHYLAXIS
GIT, RESPIRATORY, CARDIOVASCULAR

acute urticaria
(infection? drugs?-combination?) – short course

toddler with serious atopic dermatitis
dg. multiple food allergy
on diet: significant reduction of skin rash

solitary wheels dissapear up to 24 h

- if longer than 3m – chronic urticaria
- If more symptoms: fever, arthritis – different diagnosis!!!

THERAPY: ELIMINATION OF TRIGGERS

! NOT ALWAYS EASILY IDENTIFIED!

Antihistamines

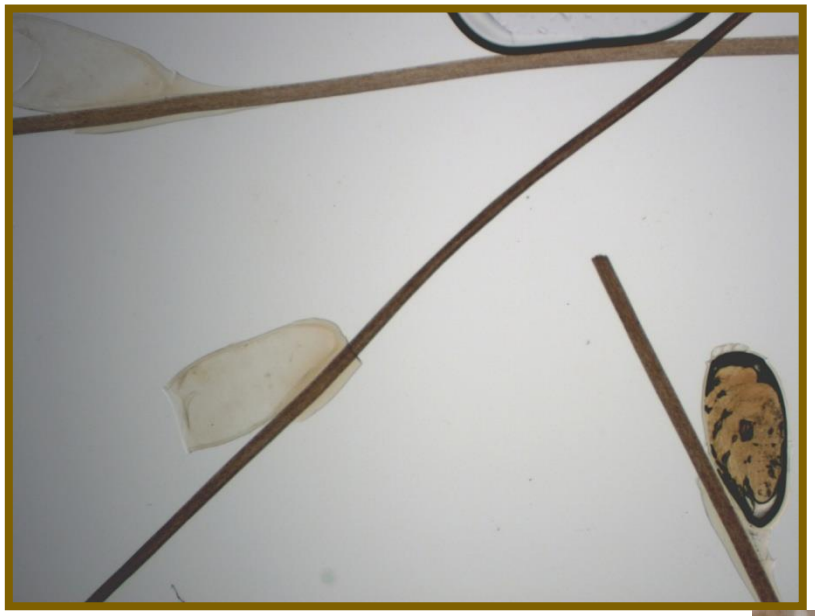
Corticoids local and systemic

Anti IgE

Infant most common food allergy **COW´S MILK**
(serious dermatitis, itching, diarrhea, bloody stool)
- often dissapears after 1st year

¼ IgE test positive
¾ non IgE (serum IgE negative)

Treatment
ELIMINATION DIET – effect after 3-4 weeks



PEDICULOSIS CAPITIS

fresh nits close to head
hatch in 8-12 d
dead nits fixed to hair, move as hair groves

itchy papules, hemorrhages

Complication:
bacterial infection

SCABIES

Incubation period - 6w!
In children – head !

Burrows – patognomonic sign

SCABIES

Symptoms:
itch, scratching
irritability
poor feeding

Signs:
papules, vesicles
nodules
excoriation
eczema:erythema+scales

bacterial superinfection