

# VIRAL INFECTION SKIN AND MUCOSA

An abstract graphic design featuring a dark blue background. A large, lighter blue curved shape, resembling a stylized 'C' or a wedge, is positioned in the lower right quadrant, pointing towards the center. The shape has a gradient, being darker at the edges and lighter in the middle.

# **VIRAL DISEASES**

- **HERPES ZOSTER**
- **HERPES SIMPLEX**
- **HERPANGINA**
- **MOLLUSCUM CONTAGIOSUM**
- **HAND, FOOT & MOUTH DISEASE**
- **WARTS**
- **EPIDERMODYSPLASIA VERRUCIFORMIS**
- **GIANOTTI-CROSTI SYNDROME**
- **ERYTHEMA INFECTIOSUM**

# HERPES ZOSTER

**HHV-3 /VZV Varicella Zoster Virus**

**PRIMARY INFECTION** – Varicella (chickenpox)



## HERPES ZOSTER

- more than 66% are >50 years of age  
5% of cases in children <15 years
- IS (leukemia, lymphoma, HIV+,  
transplant recipient)
- unilateral pain
- Vesicular or bullous eruption limited to  
dermatome(s) innervated by a  
corresponding sensory ganglion
- The major morbidity is postherpetic  
neuralgia

# HERPES ZOSTER – duration of symptoms

- Prodromal stage: neuritic pain or paresthesia precedes for 2-3 weeks (84% of cases)
- Acute vesiculation: 3-5 days
- Crust formation: days to 2-3 weeks
- Postherpetic neuralgia: months to years.
- Chronic pain or postherpetic neuralgia is that persisting after the lesions have healed or persisting 4 weeks after the onset of lesions, regardless of degree of healing.



# HERPES ZOSTER

- OPHTHALMICUS (7%) 20 – 70% complications
- DISSEMINATUS (GENERALISATUS)
  - > 20 vesicles outside primary lesion
  - cancer's revelator
- RECIDIVANS

# HERPES ZOSTER COMPLICATIONS

## SKIN

- acute – bacterial infection, ulcer
- chronic- scar, hyperpigmentation, hypopigmentation

## NERVOUS SYSTEM

- acute – meningitis, encephalitis, nerve paralysis
- chronic – neuralgia

## OCULAR

- acute – keratitis, retinitis, conjunctivitis
- chronic –chronic ulceration, ocular nerve atrophy, blindness

# HERPES ZOSTER

## SYSTEMIC TREATMENT

- any localisation in patients  $> 50$  yr
- herpes zoster of the head/neck in any age
- severe skin lesions on the trunk/limbs
- immunosuppression
- patients with severe atopic dermatitis or eczema

# HERPES ZOSTER

**ACYCLOVIR p.o. 800 mg 5 x /d 7 - 10 days**

**FAMCYCLOVIR p. o. 500 mg 3 x dz. 7 days**

**WALACYCLOVIR p.o. 1.0 g 3 x dz. 7 days**

**OR**

**ACYCLOVIR 5 - 10 mg/kg/d i.v. 7 days**

- ☐ ↓ pain
- ☐ ↓ skin lesions
- ☐ ↓ duration of illness
- ☐ prevention of postherpetic neuralgia

# POSTHERPETIC NEURALGIA

1. **NSAIDs**
2. **Opioids**
3. **Anticonvulsants**
  - ❖ CARBAMAZEPINE
  - ❖ GABAPENTIN
4. **Tricyclic antidepressants**
  - ❖ AMITRYPTYLINE
  - ❖ DESIPRAMINE























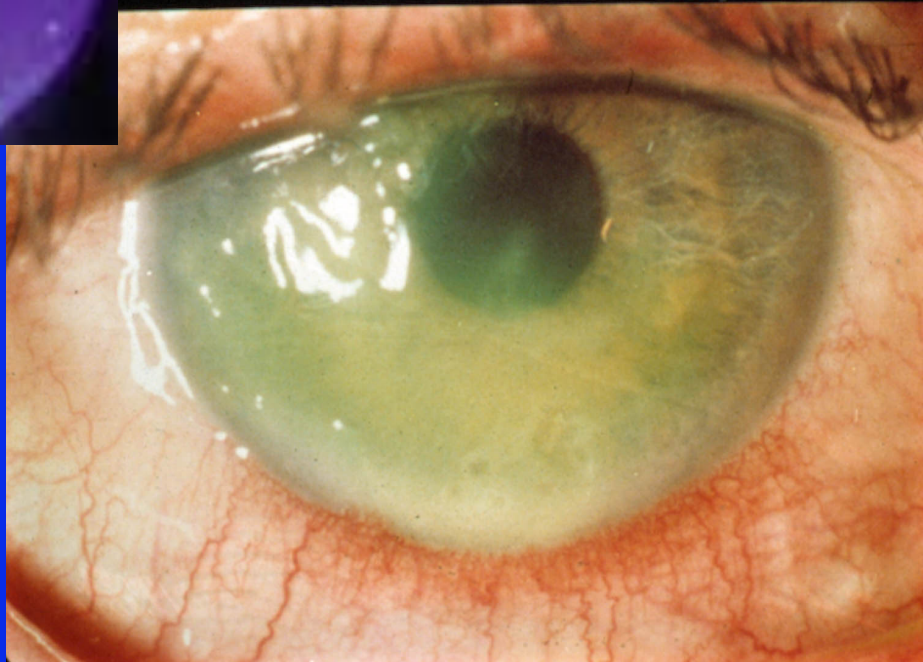
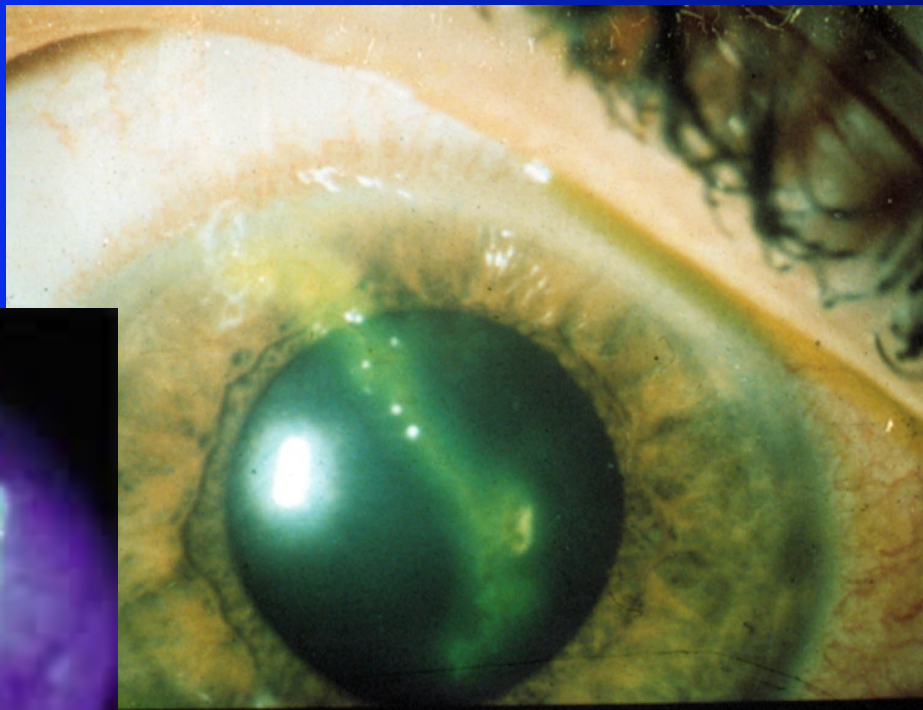
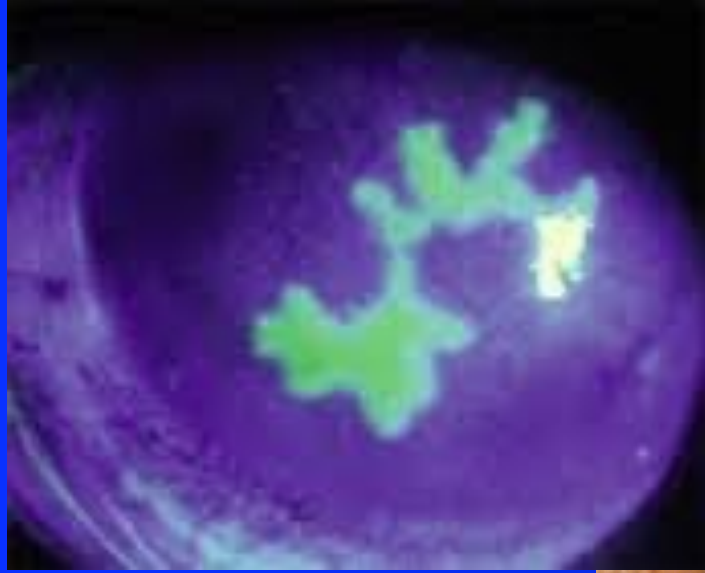






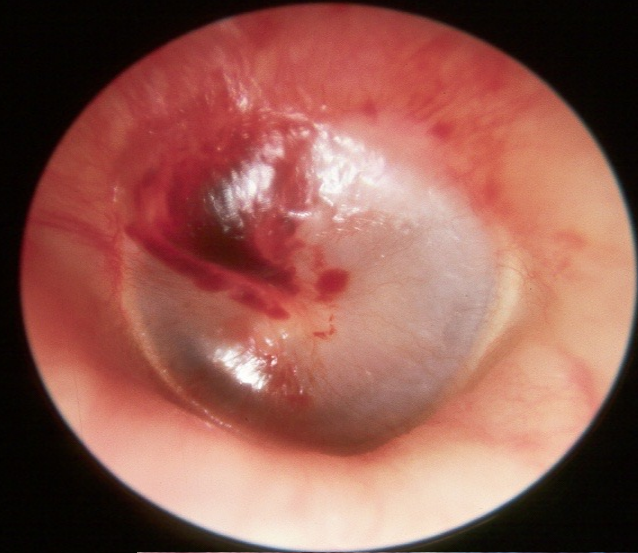
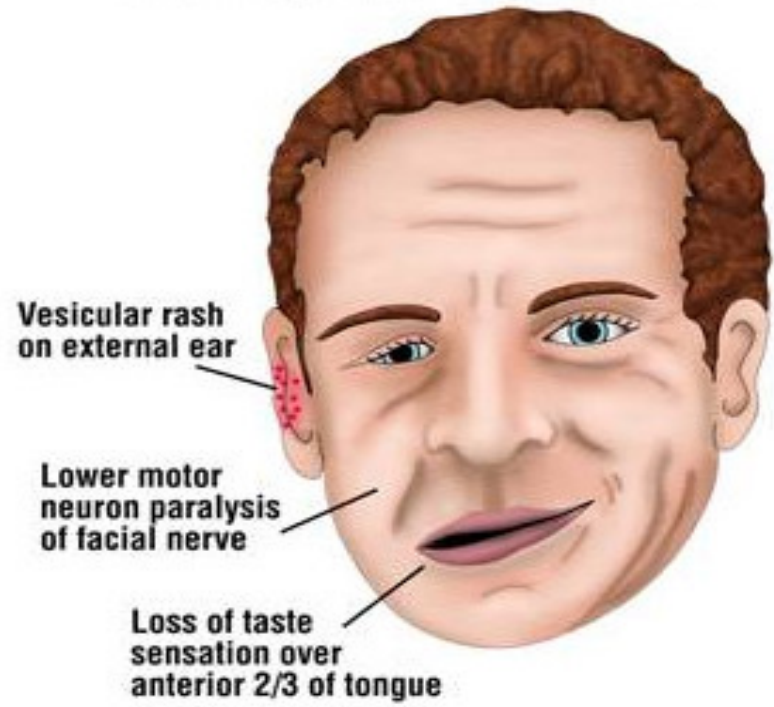








# Ramsay-Hunt Syndrome



# HERPES SIMPLEX

## HSV-1 orofacial disease

- 75% - symptoms in upper parts of the body
- >90% - oral mucosa, face
- 30-60% children exposed to HSV <5 y.o.
- 20-40% of population → episode of herpes labialis

## HSV-2 perigenital infection

- acquisition correlates with sexual behavior
- > 14 y.o.



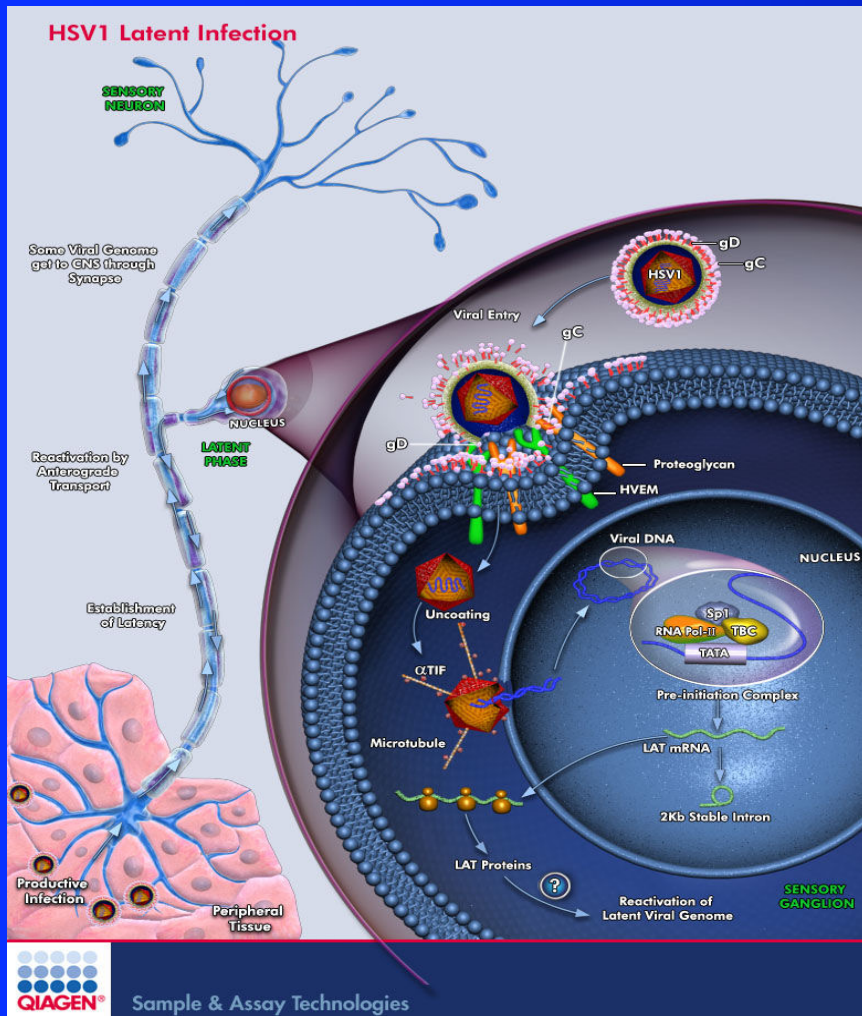
# HERPES SIMPLEX PRIMARY INFECTION

- direct contact with an adult who carries the virus
- **subclinical infection** (no symptoms) 80-90%
- incubation → 2 -10 days
- prodromal symptoms ( fever, headache, arthritis)
- 10 – 40% HHV-1
- 50 – 75% HHV-2
  - *gingivostomatitis herpetica*
  - *ulcerative pharyngitis*
  - *vulvovaginitis, balanopostitis*

!!! Infant – viremia, meningitis, encephalitis

# HERPES SIMPLEX

## - reinfection

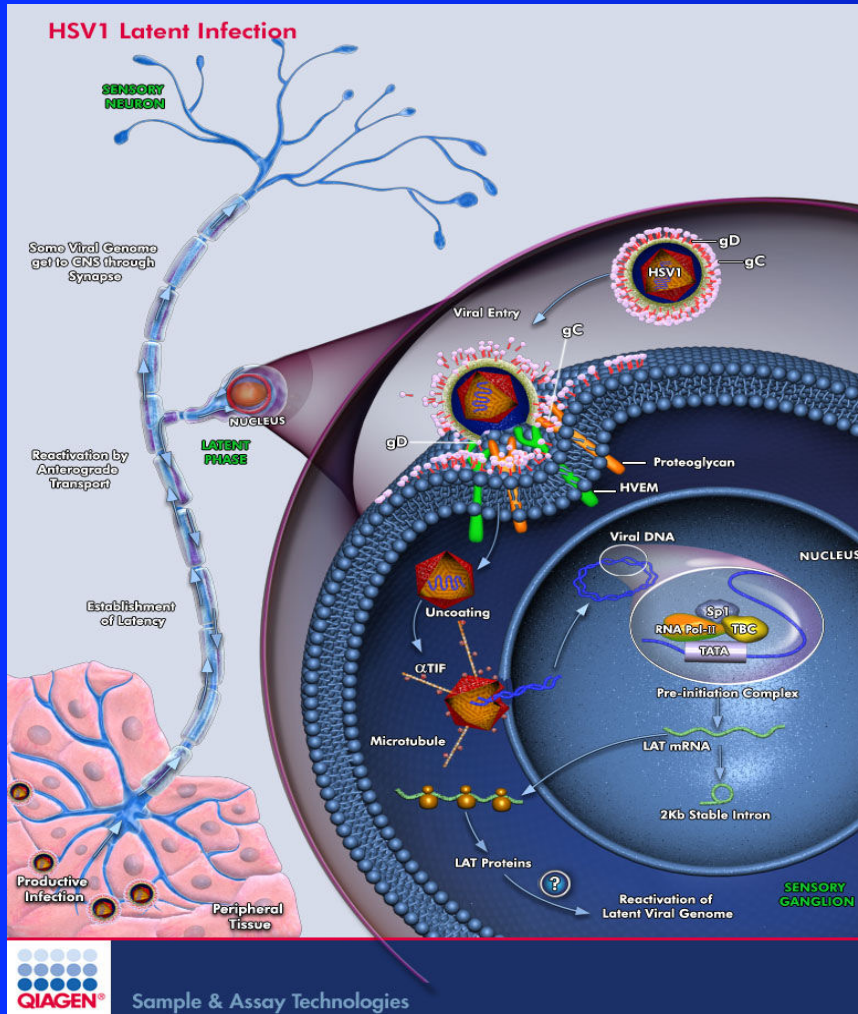


- HSV-1 reactivates from trigeminal ganglia
- HSV-2 reactivates from sacral ganglia
- Frequency of recurrences
  - 20-40% HSV-1
  - 50% HSV-2

# HERPES SIMPLEX

Reactivation is induced by:

- UVR
- local trauma
- hyperthermia
- hypothermia
- fever
- menstruation
- stress
- immunosuppression



# HERPES SIMPLEX

## *Clinical manifestation*

- ❖ HERPES LABIALIS
- ❖ HERPES PROGENITALIS
- ❖ HERPETIC WHITLOW (HSV-1, HSV-2)
  - autoinoculation (herpes genitalis, mucosae oris)
  - heteroinoculation (medical stuff !)
- ❖ ECZEMA HERPETICUM  
(ERUPTIO VARICELLIFORMIS KAPOSI)
  - atopic dermatitis, Darier disease

ERYTHEMA MULTIFORME (EM)

# TOPICAL TREATMENT

- ❑ 5% acyclovir cream (Zovirax, Virolex)
- ❑ 3% acyclovir ung. (Cusiviral, Virolex, Zovirax)
- ❑ 1% penciclovir cream (Denavir, Vectavir]
- ❑ 3% denotivir (Vratizolin cream)
- ❑ 1% tromantadyna (Virus-Merz gel)
- ❑ sunscreen (herpes ind. UVR)

# SYSTEMIC TREATMENT

- ♦ ACYCLOVIR
- ♦ WALACYCLOVIR
- ♦ FAMCYCLOVIR













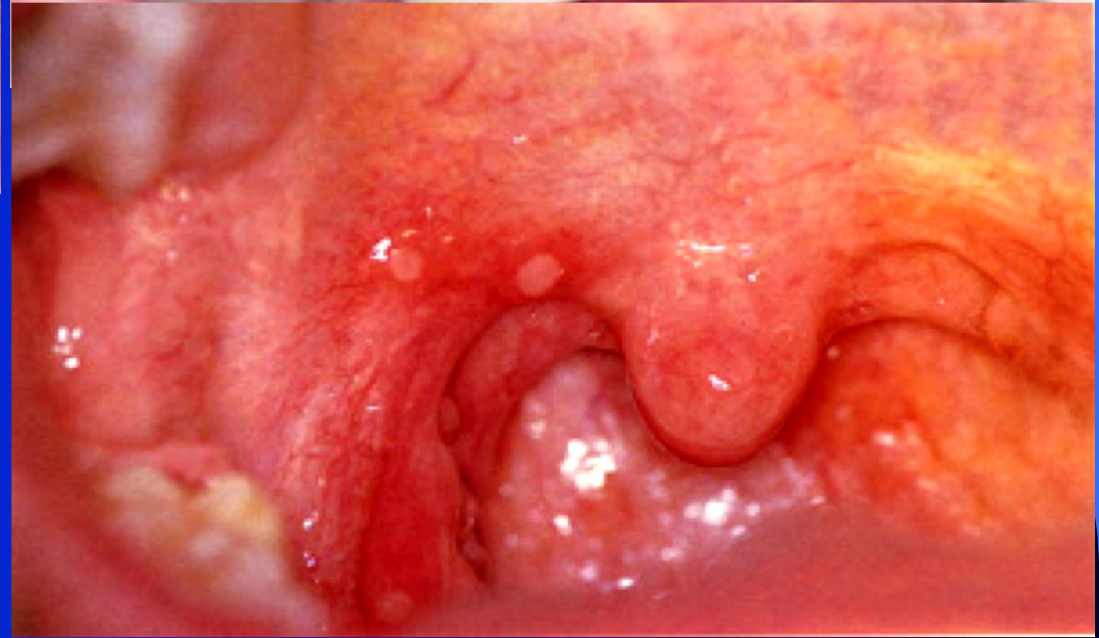
# ULCERATIVE PHARYNGITIS



# HERPANGINA (Coxsackie A, B; enteroviruses)

- Mainly children < 5 y.o.
- Lasts 4 - 6 days
- Self-limited
- Systemic symptoms
  - Sudden onset of fever
  - Sore throat
  - Malaise
  - Headache

# HERPANGINA (Coxsackie A, B; enteroviruses)



# HERPANGINA





# MOLLUSCUM CONTAGIOSUM

## WATER WART

- MOLLUSCIPOXVIRUS MCV I, MCV II
- Young children 10%,
- Sexually transmitted in adults
- children→ direct skin or mucous membrane contact
- individuals with atopic diseases, individuals with ↓ CMI
- Small pink, pearly or flesh-colored papules Ø 1 mm - 1 cm, >3cm „gigant molluscum”, dome-shaped, opalescent. central umbilication;
- sometimes in clusters or in a linear array

# MOLLUSCUM CONTAGIOSUM

- spontaneous clearance over period of months to years
- resolve with no complications
- Topical – 5% potassium hydroxide 2x/day









# HAND – FOOT - MOUTH DISEASE

- Coxsackievirus A16, enterovirus 71
- Other: coxsackie viruses A5, A7, A9, A10, A16, B1, B2, B3, B5; echoviruses, enteroviruses;
- Self-limited infection
- Children <10 yr
- Most commonly seen in summer or fall



# HPV

- HPV 1,2,3,4,7,10,41 common warts
- HPV 6,11 – low-grade intraepithelial neoplasias (condyloma accuminatum, laryngeal papillomas)
- HPV 13,32 –focal epithelial hyperplasia of Heck
- HPV 16,18,31,33,45,51,56 – high-grade intraepithelial neoplasias
- Epidermodysplasia verruciformis HPV 2,3,10,12,15,19, 21-25 and HPV 5,8 –high malignant potential in EV

# HPV - warts

- TRANSMISSION
  - skin-to-skin contact
  - minor trauma with breaks in stratum corneum
  - occurs in groups (home, school)
  - immunocompromise (HIV/AIDS; iatrogenic immunosuppression)
  - occupational risk associated with meat handling



# HPV INFECTION

- Verruca vulgaris (common wart)
- Verruca plantaris (plantar wart)
- Verruca plana
- Mosaic wart
- Butcher's wart
- Epidermodysplasia verruciformis
- Anogenital wart (condylomata accuminata)



# VERRUCA VULGARIS

## HPV 2 (4, 7)

- Δ 70% children
- Δ 97% warts resolved within 4 yrs
- Δ asymptomatic carrier state













# VERRUCA PLANTARIS

- Early small, shiny, sharply margined papule
- Plaque with rough hyperkeratotic surface, sometimes with black dots (trombosed capillaries)
- MOSAIC WARTS – confluence of many small warts
- KISSING WARTS – lesions may occur on opposite surface of two toes
- Tenderness may be marked – in lessions over sites of pressure



# HPV TREATMENT

- The choice of treatment depends on:
  - the localisation
  - size
  - number of lesions
  - type of wart
  - patient's age
  - patient's cooperation



# HPV TREATMENT

- salicylic acid – solutions (10-15% Brodacid, Duofilm; + 0,5% flu Verrumal)
- imiquimod - 3x/week for 6-10 hours, max. 16 weeks (anogenital wart)
- adhesiotherapy – adhesive strips for 5-6 days,  $\geq$  6 weeks
- cryosurgery (liquid nitrogen) – ring wart phenomenon
- *curettage*
- *CO2 laser surgery*
- *surgery – not recommended - scarring!!!*
- *photodynamic therapy*

# VERRUCA PLANA

## HPV 3 (10,28)

- 3,5% children
- sharply defined, flat papules (1-5mm)
- skin-colored or light brown
- round, oval, polygonal, linear lesions
- mainly face, hands, shins

# VERRUCA PLANA

## HPV 3 (10,28)

### □ TREATMENT

- SPONTANEOUS REGRESSION
- *TRETINOIN, ISOTRETINOIN*
- *BENZOYL PEROXIDE* 5%, 10%
- *IMQUIMOD*





# Erythema Infectiosum

- Etiologic agent: human parvovirus 19
- Childhood exanthem associated with primary human parvovirus B19 infection
- Edematous erythematous plaques on the cheeks („slapped cheeks”)
- Erythematous lacy eruption on the trunk and extremities
- Synonym: Fifth disease

# Erythema Infectiosum

- All ages, but more common in young
- Up to 60% of adolescents and adults are seropositive for anti-parvovirus B19 IgG
- Symptomatic rheumatic involvement is more common in adults
- Incubation: 4-14 days
- Prodrome of fever, malaise, headache, coryza 2 days before rash
- Headache, sore throat, fever, myalgias, nausea, diarrhea, conjunctivitis, cough may coincide with rash
- Pruritus is variably present





- GIANOTTI-CROSTI SYNDROME
- Viruses: EBV, CMV, hepatitis B virus, coxsackievirus, parainfluenza virus, respiratory syncytial virus, rotavirus, adenovirus, echovirus, pox virus, poliovirus, parvovirus, HIV, Hepatitis A virus, hepatitis C virus
- Bacteria: Mycoplasma pneumoniae, Borrelia burgdorferi, Bartonella henselae, group A streptococcus.
- Vaccines: influenza, diphtheria, tetanus, pertusis, BCG, H.influenzae type b, oral polio.

- GIANOTTI-CROSTI SYNDROME
- Age: children 6 months to 12 years old.
- Prodrome: mild, nonspecific upper respiratory infection
- Clinical manifestation: exanthem
- Discrete, nonpruritis, erythematous, monomorphic papules
- Lesions become coalescent
- Face, buttocks,, and extensor surfaces of extremities, symmetric.
- Duration is 2-8 weeks.







# HUMAN PAPILLOMA VIRUS – mucosal infections

- Mucosal HPV infections are the most common STIs seen by the dermatologist
- Only 1-2% of HPV - infected individuals have any visibly detectable clinical lesion
- HPV present in the birth canal can be transmitted to a newborn during vaginal delivery and can cause: external genital warts, respiratory papillomatosis



# HPV

## DNA papovavirus <sup>1</sup>



- >100 types of HPV
- ~30–40 anogenital <sup>2,3</sup>
  - ~15–20 oncogenic <sup>2,3</sup>
    - **HPV 16 and 18** are strongly associated with anogenital dysplasia and carcinoma <sup>4</sup>
  - non-oncogenic types:
    - **HPV 6 and 11** most commonly can infect the genital tract <sup>3</sup>

1. Howley PM, Lowy DR. In: Knipe DM, Howley PM, eds. Philadelphia, Pa: Lippincott-Raven; 2001:2197–2229.

2. Schiffman M, Castle PE. *Arch Pathol Lab Med.* 2003;127:930–934. 3. Wiley DJ, Douglas J, Beutner K, et al. *Clin Infect Dis.* 2002;35(suppl 2):S210–S224. 4. Muñoz N, Bosch FX, Castellsagué X, et al. *Int J Cancer.* 2004;111:278–285.

# Human papillomavirus: mucosal infections

„Low – risk” HPV types  
(HPV 6, 11, 42, 43, 44 and others)

- Anogenital warts
- Oral mucosa
- Buschke-Loewenstein

# Human papillomavirus: sites of predilection - female

- labia (65%)
- vagina (25%)
- perineum (25%)
- perianal (15%)
- cervix (10%)
- periurethral area (2%)

# Human papillomavirus: sites of predilection – male

- shaft (70%)
- prepuce (65%)
- glans penis (25%)
- scrotum (15%)
- perianal (5%)
- periurethral area (3%)







# Herpes simplex virus: genital infections

- HSV-2 > HSV-1
- genital herpes is a chronic sexually transmitted viral infection, characterized by symptomatic and asymptomatic viral shedding
- in most cases, both primary infection and recurrences are asymptomatic

# Herpes simplex virus: genital infections

- incubation period: 2- to 20-day (average 6)  
incubation period
- primary genital infection:
- most individuals are asymptomatic
- fever, headache, malaise, myalgia, peaking within the first 3-4 days after onset of lesions, resolving during the subsequent 3-4 days
- pain, itching, dysuria, lumbar radiculitis, vaginal or urethral discharge



# Herpes simplex virus: genital infections

- tender inguinal lymphadenopathy occurs during second and third weeks
- deep pelvic pain associated with pelvic lymphadenopathy
- some cases of first clinical episode of genital herpes are manifested by extensive disease that requires hospitalization

