Cutaneous Viral Infections

Definition

- Virus: A virus particle or '*virion*', is a length of nucleic acid (either RNA or DNA), within a protein shell, the capsid

DNA viruses

- Herpes simplex
- Varicella-zoster
- Human papilloma
- Poxvirus
- HHV 6,7 & 8
- Epstein Barr
- Parvovirus
- Hepatitis B

RNA viruses

- Retrovirus
- Togavirus
- Flavivirus
- Paramyxovirus
- Hepatitis A, C & E
- Picornavirus

Aetiopathogenesis

- Cell lysis (Herpes)
- Cell proliferation (Pox, HPV)
- Carcinogenesis (Cervical Ca [HPV], hepatoma [HCV, HBV])

- Exanthemata - Viraemia, type 3 hypersensitivity (Arthus) reaction, virus lodged in dermal capillaries & replicate
- Persistent infection - Periods of latency & reactivation (HSV→ recurrence attacks of HSV labialis or genital lesions; VZV→ herpes zoster)

Common Viral Infections of Skin

- Human Papilloma Virus: Genital & extra-genital warts
- Pox Virus: Molluscum contagiosum
- Varicella-zoster Virus: Varicella, Herpes zoster
- Herpes Simplex Virus 1 & 2: Herpes simplex
- Viral Exanthemata

Human Papilloma Virus

- DNA virus, about > 200 types described till date
- Carcinogenic – anogenital, cervix
- Incubation period: few weeks to about one year
- Transmission: direct or indirect contact (nail biters, shaving, occupational, swimming pool)
- Sexual transmission: genital / perianal wart
- Autoinoculation

Clinical Types

Extra-genital (non-genital)

- Verruca vulgaris (Common warts)
- Verruca plana (Plane warts)
- Filiform
- Digitate
- Palmoplantar
- Periungual

Genital

- Condyloma acuminata

Clinical features

Skin warts are benign tumours caused by infection of keratinocytes with HPV, visible as well-defined hyperkeratotic protrusions

Verruca vulgaris:

- Commonest type of warts
- Children and young adults affected
- Asymptomatic, hyperkeratotic papular lesions with warty excrescences
- Common Sites: Extremities, dorsae of hands & feet
- Koebner's phenomenon present

Clinical features

Verruca plana

- Juvenile/ flat warts
- Discrete flat skin colored or pigmented papules, coalesce
- Koebner's phenomenon +
- Sites: face, neck, extremities

Filiform

- Finger like projection

Digitate

- Multiple finger like projections with a common base
- Sites: head, face and neck

Clinical features

Palmoplantar

- Hyperkeratotic elevated or flat lesions, painful on lateral pressure
- Differential diagnosis: Corn, callosity

Periungual

- Commonly associated with palmoplantar warts
- Invasion of nail bed
- Recalcitrant to Rx

Genital Warts

Condyloma Acuminata

- Protuberant moist, cauliflower like growths
- Sites: frenulum, corona & glans in men & posterior fourchette in women
- Anogenital warts in children: sexual or non-sexual transmission; may be sign of sexual abuse

Bowenoid Papulosis

- Multiple, grouped, warty lesions on genitalia
- Premalignant

Complications

- Secondary infection
- Pregnancy related:

  Proliferative growth, obstruction of labour, laryngeal papillomas in infant / child
- Malignant change:

  Buschke-Lowenstein tumor (verrucous carcinoma)

  Cervical intraepithelial neoplasia (HPV 16, 18)

Investigations

- Clinical diagnosis
- Histology: Papillomatosis, acanthosis with inclusion bodies causing vacuolation in cells *(Koilocytes)*
- Immunohistochemistry: Type of HPV

Treatment

No treatment – spontaneous clearing may occur

- Topical Keratolytics - Salicylic acid lotion; wart paints (lactic acid / salicylic Acid)
- Chemical cautery: TCA, liquified phenol
- Podophyllin / podophyllotoxin resin – anogenital warts (CI – pregnancy)
- Cryotherapy (liquid N_2 / CO_2)
- Electrocautery / radiofrequency surgery
- Others: Imiquimod, 1% & 5% 5-FU creams, photodynamic therapy

Treatment

Immnomodulators

- Levamisole, cimetidine, zinc

Vaccines (immunotherapy)

- Mw vaccine, MMR vaccine, Trichophytin

Molluscum Contagiosum

- Pox Virus- Molluscum contagiosum virus
- MCV 1 & MCV 2
- Incubation period: 2 weeks to 6 months
- Transmission: contact, fomites, sexual
- Histology: Intracytoplasmic inclusion bodies (aka Henderson-Paterson bodies)

Clinical features

- Dome shaped, pearly white, discrete umbilicated papules
- Koebner's phenomenon present
- Sites: Face, neck, trunk, around genitalia (more in sexual transmission), eyelids
- Giant molluscum lesions / secondary infection

Molluscum Contagiosum in HIV

- Commonly on genitals, perianal region, eyelids
- Refractory mollsca on face; disseminated lesions may be present
- D/D: Cryptococcosis, histoplasmosis, penicillinosis

Treatment

- Expression / Curettage
- Chemical cautery, electrodessication, cryotherapy.
- Topical: Imiquimod, KOH, liquified phenol, cantharidine, cidofovir cream
- Systemic: Levamisole, cimetidine

Varicella-Zoster Virus

- Chicken pox (varicella) & shingles (herpes zoster)
- Transmission: Droplet infection - nasopharynx
- Varicella : Primary viraemia
- Zoster: Reactivation of residual latent virus in the dorsal nerve root ganglia

Varicella - Clinical features

- Incubation period: 2-3 weeks
- Prodromal symptoms – malaise, fever, sore throat, bodyache etc.
- Pleomorphic, centripetal distribution, dewdrops on rose petal appearance
- Vesicles, papulovesicles, crusting, haemorrhagic, umbilicated lesions
- Mucosal involvement +

Complications

- Secondary infection
- Encephalitis
- Pneumonitis
- Hepatitis
- Varicella in HIV- Progressive, haemorrhagic, complicated
- Chronic varicella- Hyperkeratotic lesions, acute retinal necrosis

Treatment

- Symptomatic

Rest, Antibiotics, NSAIDs, antihistamines

- Acyclovir

Dose: 800 mg 5 times / day

Indicated in adult varicella

Reduces severity, duration & infectivity in childhood chicken pox

- Prophylaxis

Vaccine, Immunoglobulin (VZIg; IVIg), Acyclovir (IV)

Herpes Zoster

Clinical Features

- Reactivation of latent virus in the dorsal root ganglion of sensory nerve
- Older age group , diabetics, HIV infection / AIDS
- Unilateral, dermatomal, grouped vesicles
- Cranial (V, VII commonly), spinal (thoracodorsal commonly)
- Pre-herpetic, herpetic and post-herpetic neuralgia

Herpes Zoster : Cranial nerve involvement

V Nerve

- Ophthalmic division: Herpes zoster ophthalmicus

  Hutchinsons sign (vesicles on nose tip)

  Ocular complications: uveitis, keratitis, conjunctivitis, scleritis, ocular palsy

- Maxillary division: uvula / tonsils

- Mandibular division : tongue / buccal mucosa

Herpes Zoster : Cranial nerve involvement

VII nerve

- Ramsay Hunt syndrome

- Earache, vesicles on pinna, facial palsy

- Hearing loss, vertigo & taste sensation impaired

Complications

- Secondary infection
- Post herpetic neuralgia
- Scarring
- Nerve Palsy
- Encephalitis: in disseminated zoster

Herpes Zoster in HIV

- Younger patient
- Severe pre-, herpetic and post-herpetic neuralgia
- Multi-dermatomal, cranial nerve involvement
- Haemorrhagic, disseminated
- Protracted course, verrucous lesions
- Acute retinal necrosis

Treatment

- Symptomatic
- Antivirals

Acyclovir 800mg x 5times/day

Famciclovir 250-500 mg TDS

Valaciclovir 1gm TDS

Duration: 1 week in immunocompetent

2 weeks or more in immunosuppressed

Treatment of post herpetic neuralgia

- Analgesics- NSAIDs- not much efficacy
- TCAs- Amitryptiline, Nortryptiline
- Sodium valproate
- Gabapentin
- Pregabalin
- Topical EMLA cream
- Topical capsaicin – causes irritation

Herpes Simplex Virus

- HSV 1: Facial (above waist)
- HSV 2: Genital (sexual)
- Incubation Period : 3-7 days
- Primary infection
- Persist in sensory ganglion - period of latency
- Reactivation

Clinical features

- Grouped vesicles on erythematous base followed by erosions and healing
- Primary attack: severe with lymphadenopathy and systemic complaints
- Recurrences: mild with shortened clinical course
- Predisposing factors: trauma, sunburn, stress, coitus, premenstrual, high grade fever, infections, surgery, dermabrasion

Herpes Simplex- Clinical Types

- Herpes simplex virus 1

  Herpes labialis, herpetic gingivostomatitis, keratoconjunctivitis

- Herpes simplex virus 2

  Herpes genitalis, herpes vulvovaginitis

- Complicated

  Eczema herpeticum (Kaposi's varicelliform eruption), Disseminated HSV

- Herpes simplex virus in HIV infection / AIDS

  Chronic, recurrent, ulcers with eschar formation; dissemination can occur

Differential diagnosis

- Aphthosis
- Erythema multiforme
- Behcet's syndrome
- Pyodermas
- Genital ulcer disease e.g., chancroid

Investigations

- Tzanck smear: Multinucleated giant cells
- Histopathology: Ballooning degeneration, intraepithelial blisters, inclusion bodies
- HSV antibody titre: IgG / IgM – not very reliable
- Culture
- Immunofluoroscence, PCR
- Electron microscopy

Treatment

- Symptomatic
- Topical - Acyclovir, penciclovir, cidofovir
- Systemic

Antiviral	Primary (10 days)	Recurrence (5 days)	Suppressive 6 months - 1yr or longer
Acyclovir	200 mg 5 times / day	400 mg TDS	400 mg BD
Valaciclovir	1 gm BD	500 mg BD	500 - 1000 mg BD
Famciclovir	250 mg TDS	125 mg BD	250 mg BD

Viral Exanthems

Macular

- Rubella
- EBV (infectious mononucleosis)
- Human herpesvirus 6 (roseola)
- Human herpesvirus 7

Maculopapular

- Togavirus
- Measles
- Human parvovirus B19 (erythema infectiosum)

Viral Exanthems

Maculopapular - vesicular

- Coxsackie A (5, 9, 10, 16)
- Echovirus (4, 9, 11)

Maculopapular - petechial

- Togavirus (Chikungunya)
- Bunyavirus haemorrhagic fever (lassa)

Urticarial

- Coxsackie A9
- Hepatitis B

Uncommon Viral Infections of the Skin

- Pox Viruses

  Cowpox, orf, milker's nodule

- Epstein Barr Virus (EBV)

  Infectious mononucleousis, oral hairy leukoplakia (OHL), Gianotti Crosti syndrome, lymphomas

- Viral (insect-borne & haemorrhagic) fevers

  (Toga, Flavi, Arena, Filo, Bunya)

  Chikungunya, dengue, Kyasanur forest disease (KFD), lassa fever

- Picorna Viruses

  Herpangina

  Hand, foot & mouth disease

Thank you