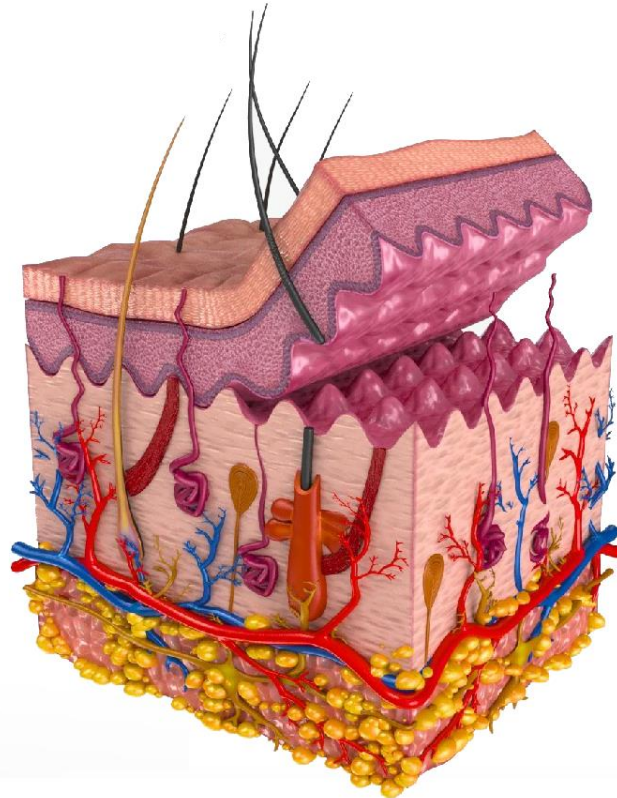


Pathology of the skin

MUDr. Jan Balko, Ph.D.

Department of Pathology and Molecular Medicine, 2nd Faculty of Medicine,
Charles University in Prague and Motol University Hospital



FN MOTOL



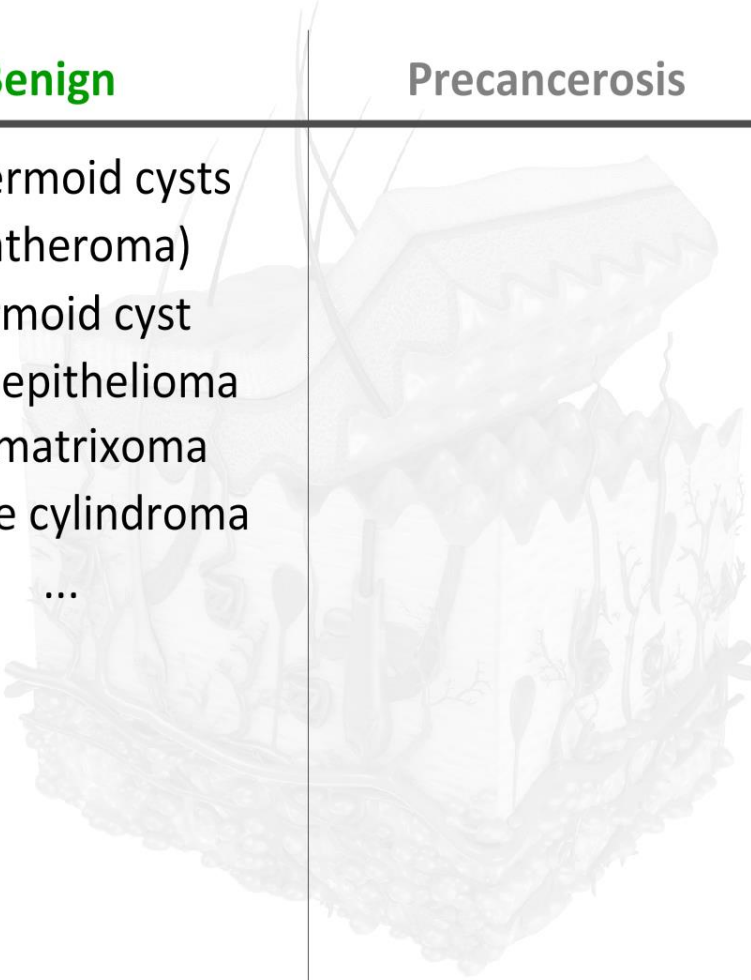
2. LF UK

Tumours of the skin

Tumours of the skin

	Benign	Precancerosis	Malignant
Epithelial	seborrheic verruca	solar keratosis Bowen's disease arsenic keratosis PUVA keratosis	SCC basalioma keratoacanthoma
Neuroendocrine			Merkel cell ca
Mesenchymal	lipoma hemangioma dermatofibroma fibroepithelial polyp		DFSP Kaposi's sarckoma angiosarcoma
Hematogenous			mycosis fungoides
Neuroectodermal	lentio simplex pigmented nevi neurofibroma schwannoma	melanoma in situ lentigo maligna	melanoma

Tumours of the skin adnexa

	Benign	Precancerosis	Malignant
Epithelial	<p>epidermoid cysts (+ atheroma) dermoid cyst trichoepithelioma pilomatrixoma eccrine cylindroma ...</p>		<p>adenoid cystic ca trichilemmal ca sebaceous ca pilomatrixal ca ...</p>

1) Epithelial tumours of the skin

1) seborrheic verruca*

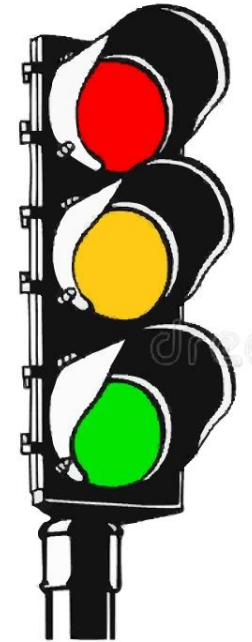
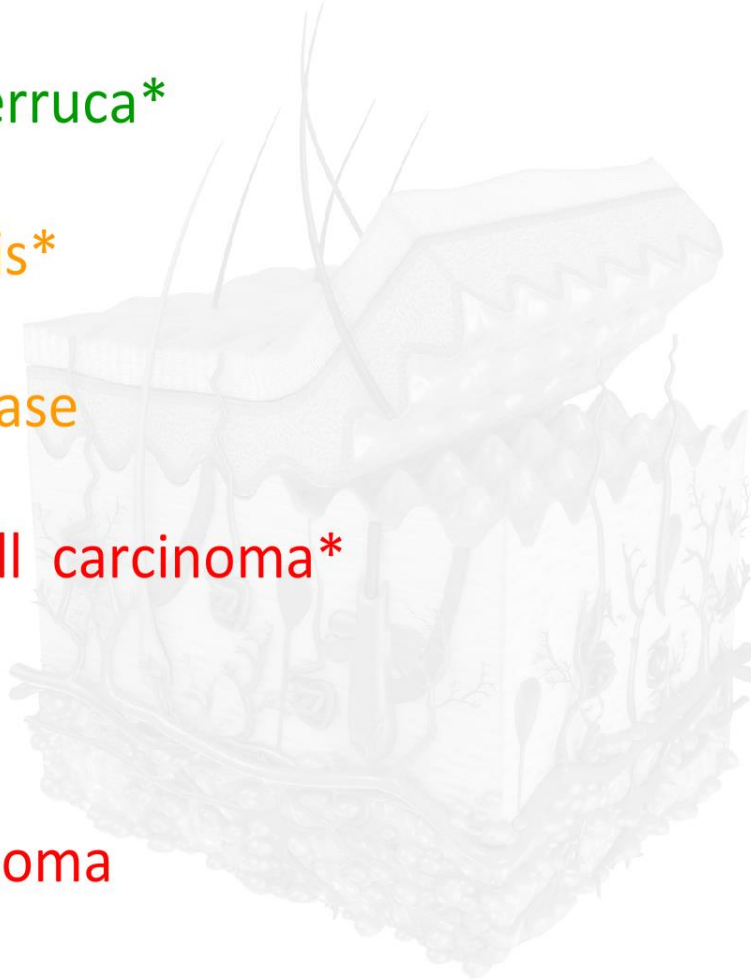
2) solar keratosis*

3) Bowen's disease

4) squamous cell carcinoma*

5) basalioma*

6) keratoacanthoma



* can lead to the morphology of "cutaneous horn" (cornu cutaneum)

Seborrheic verruca

Definition

- senile verruca, seborrheic keratosis

Cause (etiology)

- idiopathic

Development (pathogenesis)

- proliferation of basal layers of the epidermis
(defective maturation)



Seborrheic verruca

Morphology

- adults (middle aged and older)
 - NOT JUST seborrheic = **anywhere** but soles/palms (mainly face, trunk)
- **macroscopically** pigmented papules or warts
 - mimics basalioma / pigmented lesions
- **microscopically** acanthosis with hyper/parakeratosis and basal keratinocytes proliferation without stratum granulosum
 - **abrupt keratinisation** = formation of keratin pearls (cysts)

Clinical manifestation

- benign behavior (cosmetic issue)
 - Leser-Trélat's sign = paraneoplastic appearance of the warts (GIT ca...)

Solar keratosis

Definition

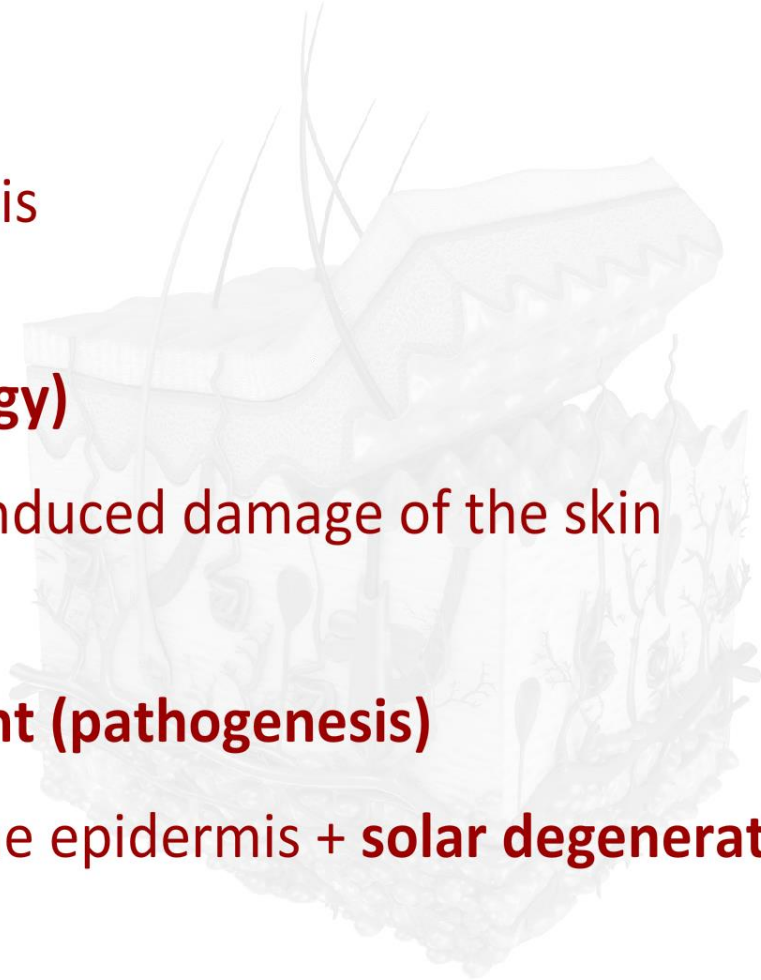
- actinic keratosis

Cause (etiology)

- UV radiation induced damage of the skin

Developement (pathogenesis)

- **dysplasia** of the epidermis + **solar degeneration** of dermis



Solar keratosis

Morphology

- adults (elderly)
 - **solar localization** = face, dorsal parts of the hands
- **macroscopically** red to brown macules with scales
- **microscopically** max. moderate dysplasia of epidermis + solar degeneration of the dermis
 - + often hyper/parakeratosis, atrophy of the epidermis

Clinical manifestation

- regression / stable / progression into SCC (cca 15%)

Bowen's disease

Definition

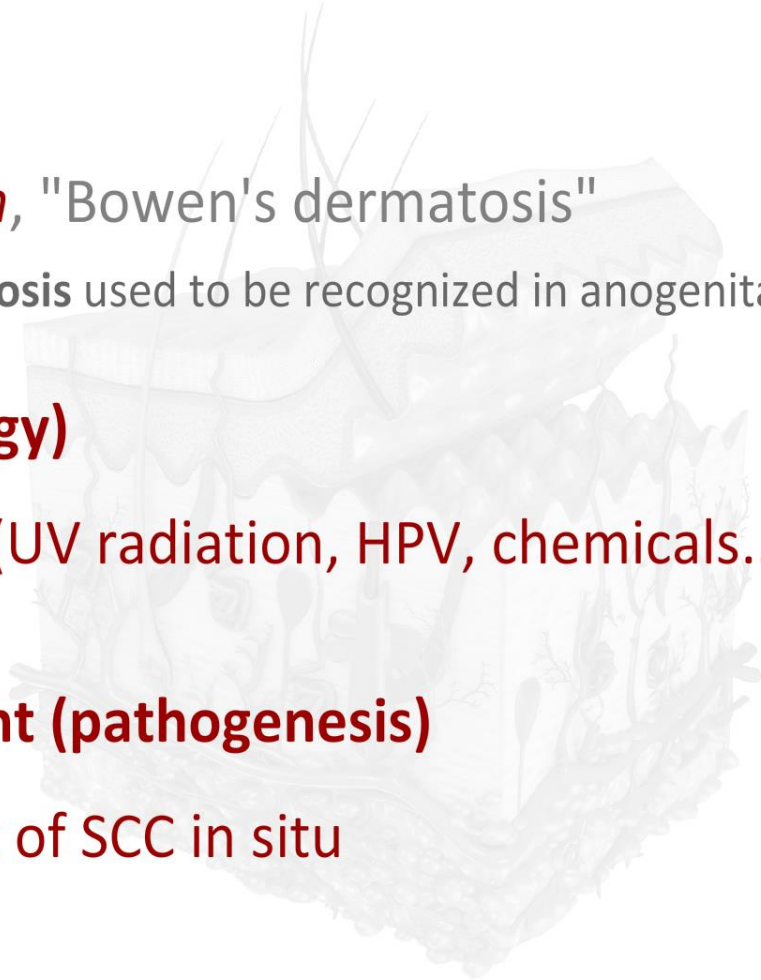
- *morbus Bowen*, "Bowen's dermatosis"
 - Bowenoid papulosis used to be recognized in anogenital area

Cause (etiology)

- multifactorial (UV radiation, HPV, chemicals...)

Development (pathogenesis)

- development of SCC in situ



Bowen's disease

Morphology

- adults (elderly)
 - usually neck, head and lower limbs
- **macroscopically** red to brown macules, can ooze
- **microscopically** severe dysplasia of epidermis (ca in situ)
 - **without** solar degeneration of elastic fibres of dermis or invasive growth (used to be called Bowenoid solar keratosis)

Clinical manifestation

- always progression into SCC

Squamous cell carcinoma

Definition

- spinocellular / squamous / epidermoid carcinoma, carcinoma spinocellulare, spinalioma

Cause (etiology)

- UV, chem. (tar, arsenic), irritation (inflammation), HPV
 - de novo / epithelial precancerosis of the skin

Developement (pathogenesis)

- skin form of SCC is more favorable compared to mucosal / visceral ones

Squamous cell carcinoma

Morphology

- adults (elderly)
 - **solar localization** = face, dorsal parts of the hands, ear lobes
- **macroscopically** thick tubercle or ulcer with scales
 - diffuse / exophytic / ulcerous form
- **microscopically** stratum spinosum delivered (see GP)
 - invasion, intercellular bridges, keratin pearls...

Clinical manifestation

- asymptomatic to local destruction + late metastases of LN
 - hematogenous rarely (lungs, liver, bones, CNS)

Basalioma

Definition

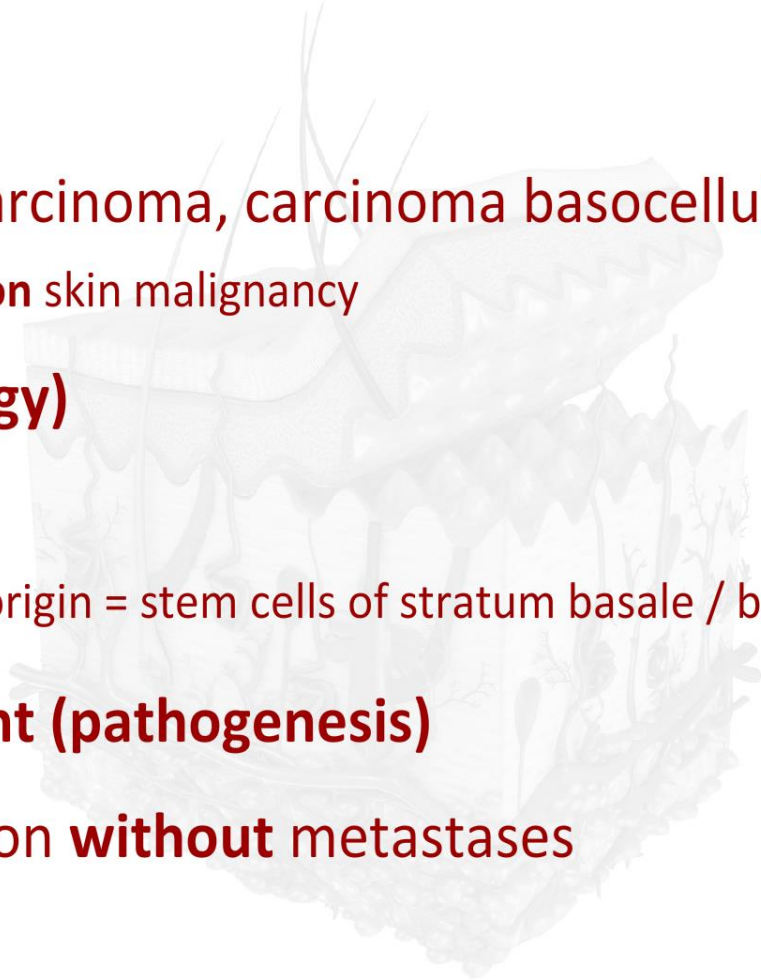
- basocellular carcinoma, carcinoma basocellulare
 - the **most common** skin malignancy

Cause (etiology)

- UV radiation
 - maybe **adnexal** origin = stem cells of stratum basale / bulbus folliculi

Developement (pathogenesis)

- local destruction **without** metastases



Basalioma

Morphology

- adults (elderly)
 - **solar localization** = face, dorsal parts of the hands
- **macroscopically** ulcer (ulcus rodens / terebrans)
- **microscopically** resembles stratum basale (see GP)
 - peripheral palisading...
 - many variants (superficial / nodular / pigmented / morfeiform...)

Clinical manifestation

- asymptomatic to local destruction (even bones)
 - metastases extremely rare

Keratocanthoma

Definition

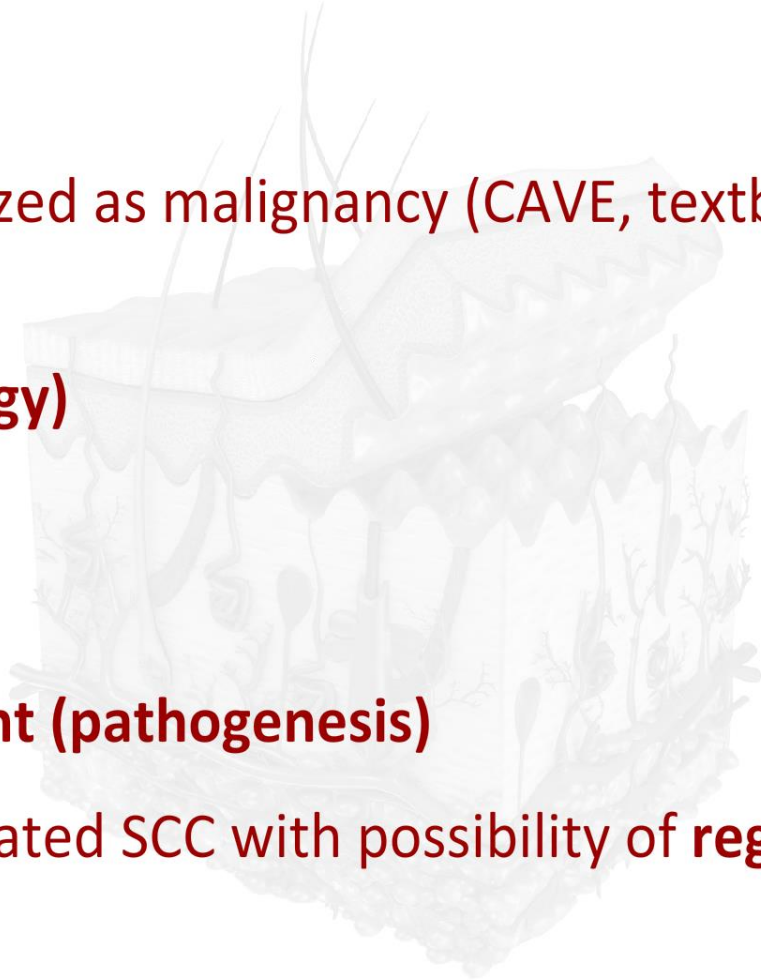
- **newly** recognized as malignancy (CAVE, textbook)

Cause (etiology)

- UV radiation

Development (pathogenesis)

- well-differentiated SCC with possibility of **regression**



Keratocanthoma

Morphology

- adults (elderly)
 - **solar localization** = face
- **macroscopically** ulcer / large tumour (several cm)
 - anamnesis of **rapid growth**
- **microscopically** image of crater-shaped SCC grade 1
 - under low magnification

Clinical manifestation

- asymptomatic and regression / behavior of SCC
 - regression after several months with scar formation

2) Neuroendocrine tumours of the skin

1) Merkel cell carcinoma



Merkel cell carcinoma

Definition

- rare highly aggressive tumour

Cause (etiology)

- integration of Merkel cell polyomavirus into DNA of Merkel c.
 - also a role of UV radiation and immunosuppression

Development (pathogenesis)

- malignant transformation of neuroendocrine cells

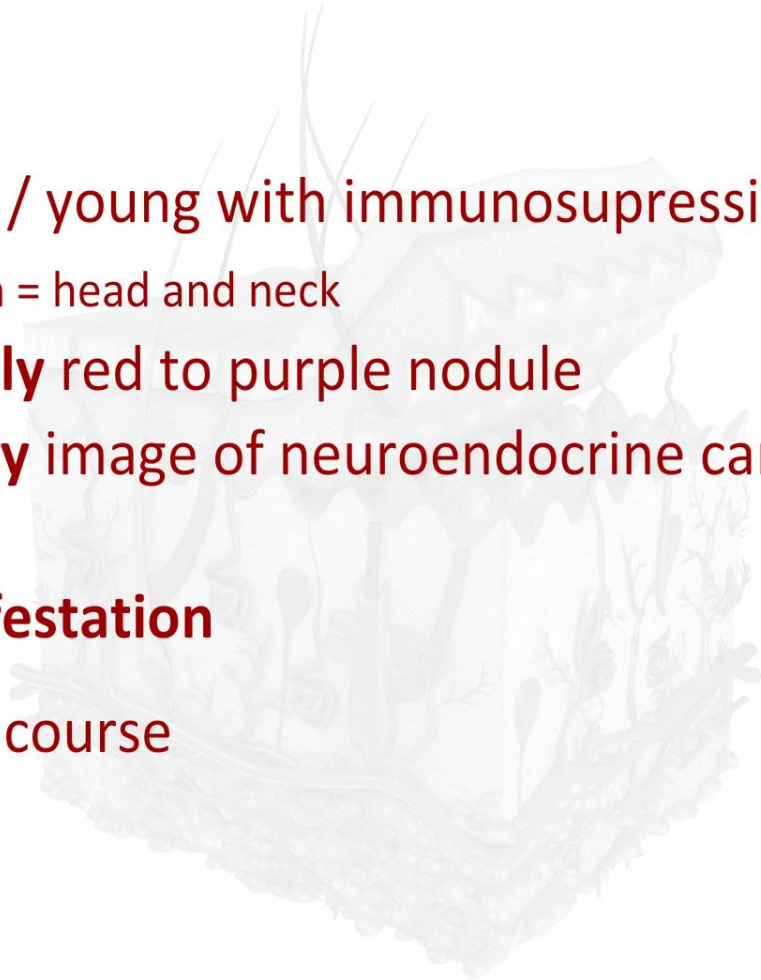
Merkel cell carcinoma

Morphology

- adults (elderly / young with immunosuppression)
 - **solar localization** = head and neck
- **macroscopically** red to purple nodule
- **microscopically** image of neuroendocrine carcinoma

Clinical manifestation

- very aggressive course
 - often fatal



3) Mesenchymal tumours of the skin

1) lipomas*

2) hemangiomas* (+ pyogenic granuloma)

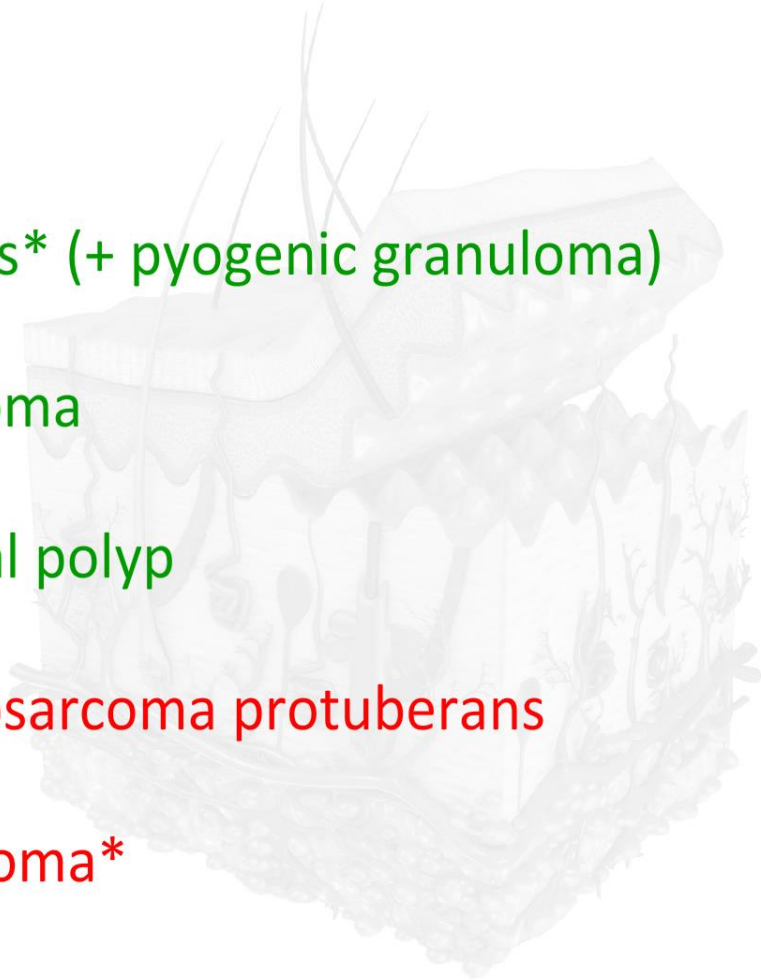
3) dermatofibroma

4) fibroepithelial polyp

5) dermatofibrosarcoma protuberans

6) Kaposi's sarcoma*

7) angiosarcoma*



* see GP

Dermatofibroma

Definition

- fibrous histiocytoma, hard "fibroma" (fibroma durum)

Cause (etiology)

- trauma of the skin
 - small extent (mosquito bite...)

Development (pathogenesis)

- "fibrohistiocytic tumour" consisting of heterogenous cells
 - sometimes suspected to represent reactive process ("pseudotumour")

Dermatofibroma

Morphology

- adults and children
 - mainly lower limbs (crura) and trunk
- **macroscopically** round brown to pink thick nodule / plaque
- **microscopically** fibroblasts + macrophages + vessels + lymphocytes
 - typical **storiform** arrangement + reactive hyperplasia of the epidermis above

Clinical manifestation

- benign (cosmetic problem)

Fibroepithelial polyp

Definition

- soft "fibroma" (*fibroma molle*), akrochordon

Cause (etiology)

- influence of DM, gravidity and obesity
 - often arises in the area of rubbing (ruff, necklet...)

Development (pathogenesis)

- polypoid to pendulating proliferation (*fibroma pendulans*)
 - sometimes suspected to represent reactive process ("pseudotumour")

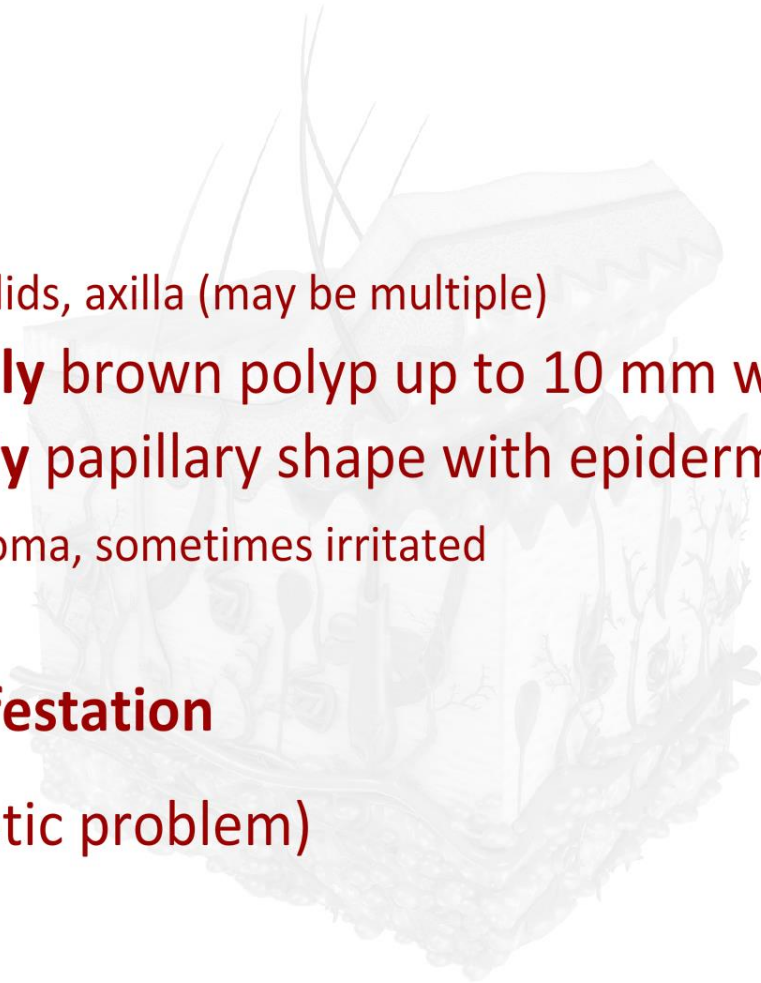
Fibroepithelial polyp

Morphology

- adults
 - mainly neck, eyelids, axilla (may be multiple)
- **macroscopically** brown polyp up to 10 mm with stalk
- **microscopically** papillary shape with epidermal hyperplasia
 - fibrovascular stroma, sometimes irritated

Clinical manifestation

- benign (cosmetic problem)



Dermatofibrosarcoma protuberans

Definition

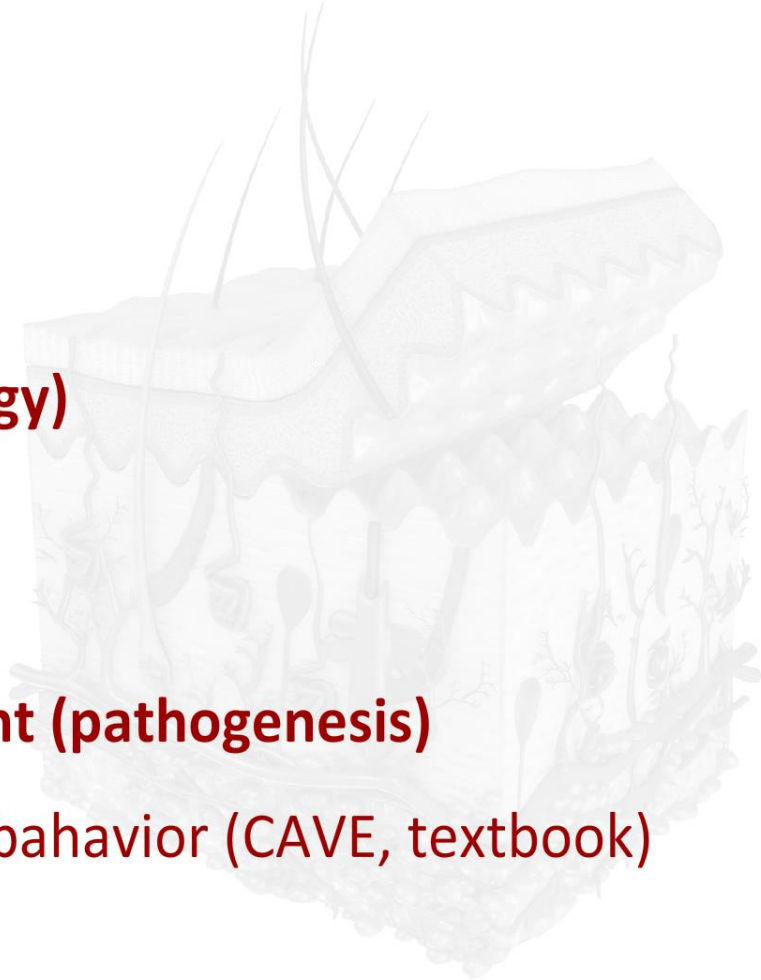
- DFSP

Cause (etiology)

- idiopathic

Developement (pathogenesis)

- LG malignant bahavior (CAVE, textbook)



Dermatofibrosarcoma protuberans

Morphology

- adults (middle age)
 - anywhere except soles / palms mainly trunk and lower limbs
- **macroscopically** slowly growing nodule or plaque
- **microscopically** storiform, uniform spindle cells
 - "honeycomb infiltration of subcutaneous fat"

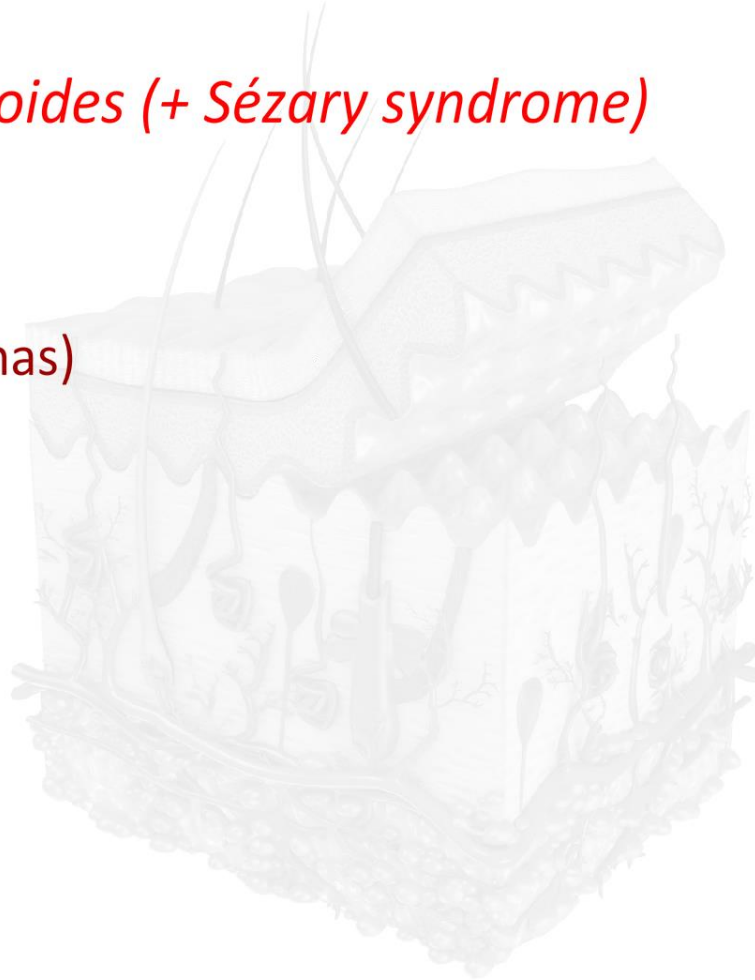
Clinical manifestation

- local destruction and relapses, late metastases (lungs)

4) Hematogenous tumours of the skin

1) *mycosis fungoides* (+ Sézary syndrome)

* see GP (lymphomas)



5) Neuroectodermal tumours of the skin

1) lentigo simplex

2) pigmented nevi

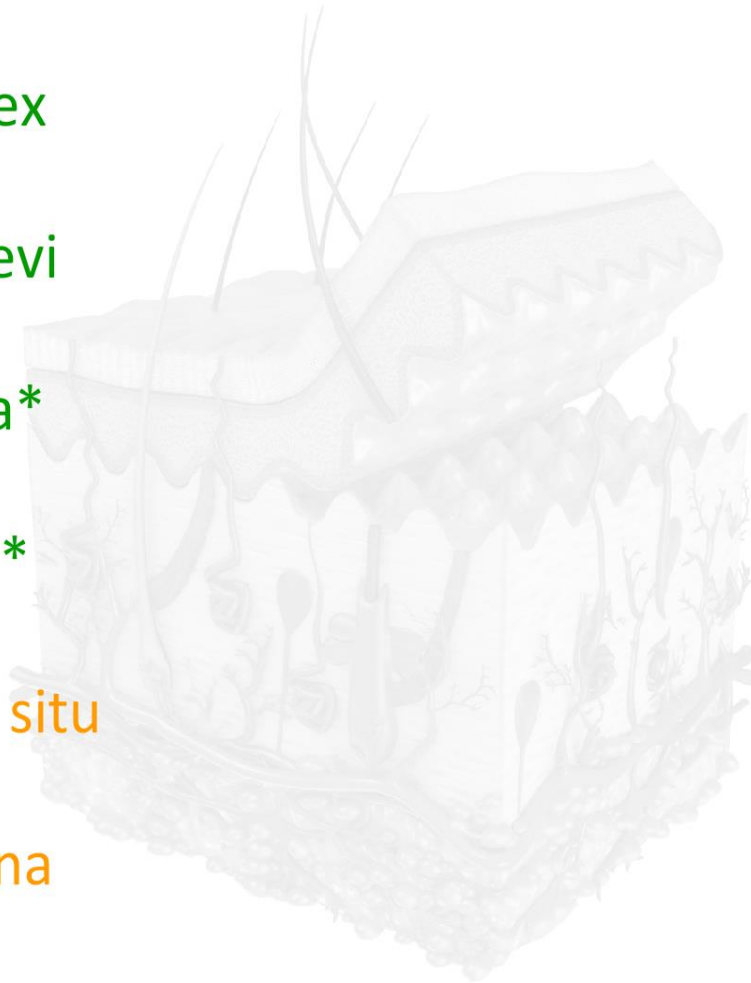
3) neurofibroma*

4) schwannoma*

5) melanoma in situ

6) lentigo maligna

7) melanoma



* see GP

Lentigo simplex

Definition

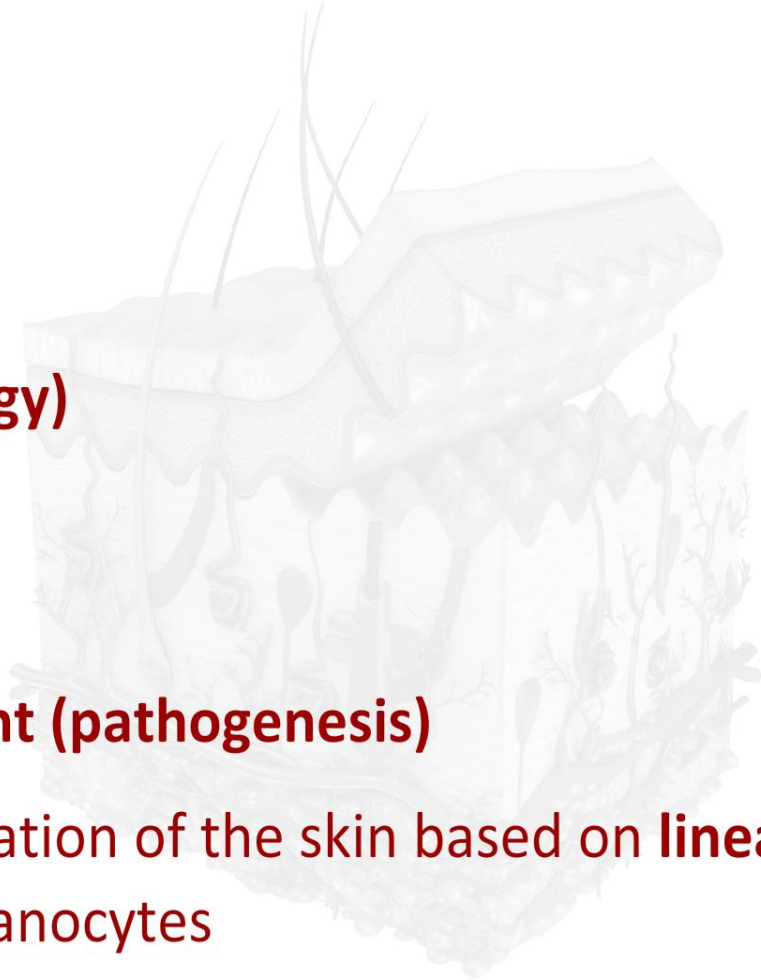
- simple lentigo

Cause (etiology)

- idiopathic

Development (pathogenesis)

- hyperpigmentation of the skin based on **linear** increase of density of melanocytes
 - **without** nest formation (compared to nevi)



Lentigo simplex

Morphology

- adults and children
- **macroscopically** hyperpigmented macule
 - different from a freckle (ephelis), which darkens only after UV exposure
- **microscopically** lentiginization of melanocytes + pigmentation
 - different from a freckle (ephelis), which contains normal number of the cells

Clinical manifestation

- benign (cosmetic problem)

Pigmented nevi

Definition

- melanocytic nevi, "birthmarks", moles
 - naevus pigmentosus / naevocellularis / melanocytaris

Cause (etiology)

- used to be considered hamartomas, but **benign tumours**
 - naevus (nest) = historic name of congenital skin lesion

Development (pathogenesis)

- formation of **clusters of melanocytes**
 - **nevocyte** = melanocyte of the pigmented nevi

Pigmented nevi

Morphology

- adults and children
 - **acquisite / congenital** (can be large = "swimsuit shaped"; into adnexa)
- **macroscopically** pigmented macule / papule / verruca
- **microscopically** variable nests of nevocytes + pigmentation
 - **symetric + maturation** (epitheloid → lymphocytoid → neuroid)
 - **basic types** = junctional / compound / intradermal
 - **rare types** = dysplastic / Spitz / blue

Clinical manifestation

- benign (cosmetic problem) + risk of progression into **MM**
 - possible regression by lymphocytes ("halo naevus")

Precancerosis of melanoma

Definition

- **preinvasive** forms of melanoma

Cause (etiology)

- excessive exposure to **UV radiation**
 - risks = sunburns in childhood, phototype I-II, dysplastic / large congenital nevi, older than 50 years, solarium users, immunosuppression, FA of MM

Development (pathogenesis)

- after development of invasive growth, **MM** occurs

Precancerosis of melanoma

Morphology

- children and adults (mainly older ones)
- **macroscopically** atypical hyperpigmented macule / papule
- **microscopically** image of melanoma in situ
 - intraepidermally based without invasion through BM
 - **lentigo maligna** = melanoma in situ within terrain fo solar degeneration of d.

Clinical manifesation

- risk of **malignancy** developement

Melanoma

Definition

- malignant melanoma (MM), melanoma malignum

Cause (etiology)

- from **melanocytes** (neuroectoderm), UV radiation delivered
 - **skin** (♂ trunk, ♀ lower limbs), **mucosa** (OC, anorectum), **retinal** and **meningeal**
 - genomic instability (e. g. *BRAF* mutation = target therapy, *RAS*, *NF1*)
- *de novo* (majority) / prekancerosis / dysplastic nevi delivered

Melanoma



Development (pathogenesis)

- undergo **horizontal** (early) to **vertical** (late) growth

horizontal growth phase

vertical growth phase

Melanoma

Morphology

- children and adults
 - increasing incidence (3x) and detected in younger age groups
- **macroscopically** pigmented spot overlapping **ABCDE** criteria
 - **A** = Asymmetry (not uniform shape)
 - **B** = Border (not well-defined border)
 - **C** = Colour (more than one colour)
 - **D** = Diameter (over 6 mm)
 - **E** = Evolving / Elevation *vývoj* = growth, bleeding, ulceration, pain, itch)

Melanoma



Morphology

- **microscopically** "chameleon" from atypical melanocytes
 - variable **morphology** + loss of melanin (**amelanotic** = IHC) + more **types**:
 - **lentigo maligna melanom** (Hutchinson's melanotic mole) = head and neck of elderly in chr. UV exposure (invasive lentigo maligna)
 - **superficial spreading melanoma (SSM)** = intraepidermal (pagetoid)
 - **nodular melanoma** = primary / secondary nodule in dermis (agressive)
 - **acral lentiginose melanoma** = nails, soles / palms (agressive)
 - **desmoplastic melanoma** = desmoplasia resembling scar (elderly)
 - **mucosal melanoma** = mucosal sites

Melanoma

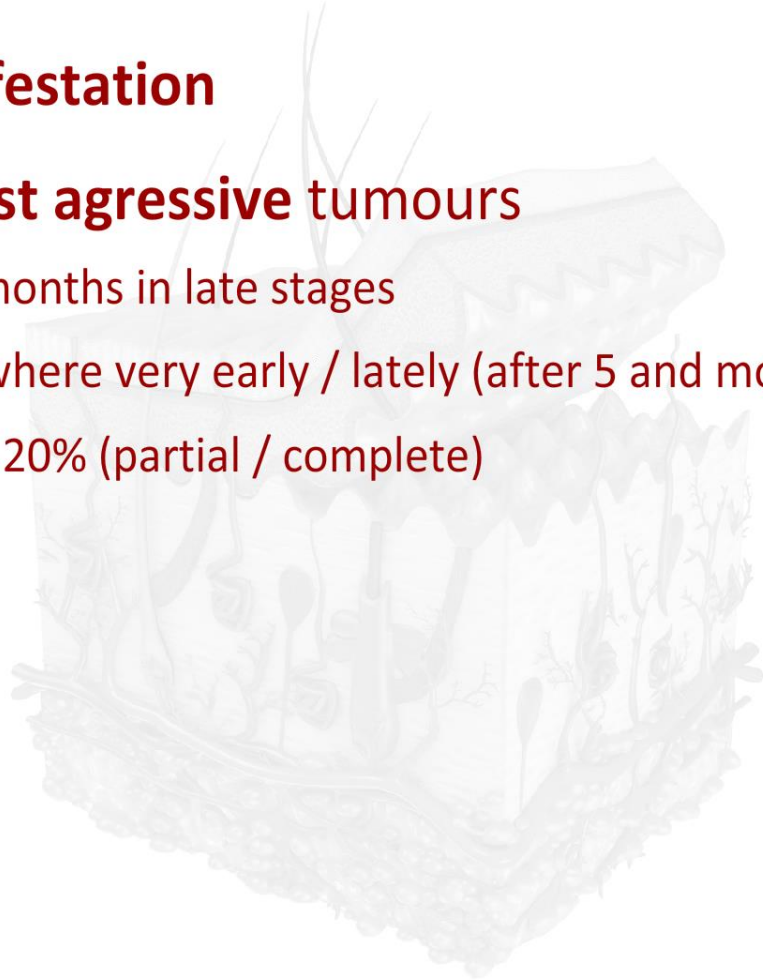
Morphology

- Breslow **staging** (invasion in mm from st. granulosum) + Clark
 - Breslow under 1 mm = 95-100% survival of 5 years / over 4 mm 50%
 - + role of mitotic count/mm², angioinvasion, perineural spread and ulceration

Melanoma

Clinical manifestation

- one of the **most aggressive** tumours
 - **prognosis** 8-10 months in late stages
 - **metastases** anywhere very early / lately (after 5 and more years)
 - **regression** up to 20% (partial / complete)



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