KM Surgical Ltd

DERMATOLOGY ASSOCIATES LTD

Dr Ken Macdonald

Dermatologist ,
Dermatologic Surgeon

DIAGNOSTIC PLANNER

Factors to consider when formulating a differential diagnosis

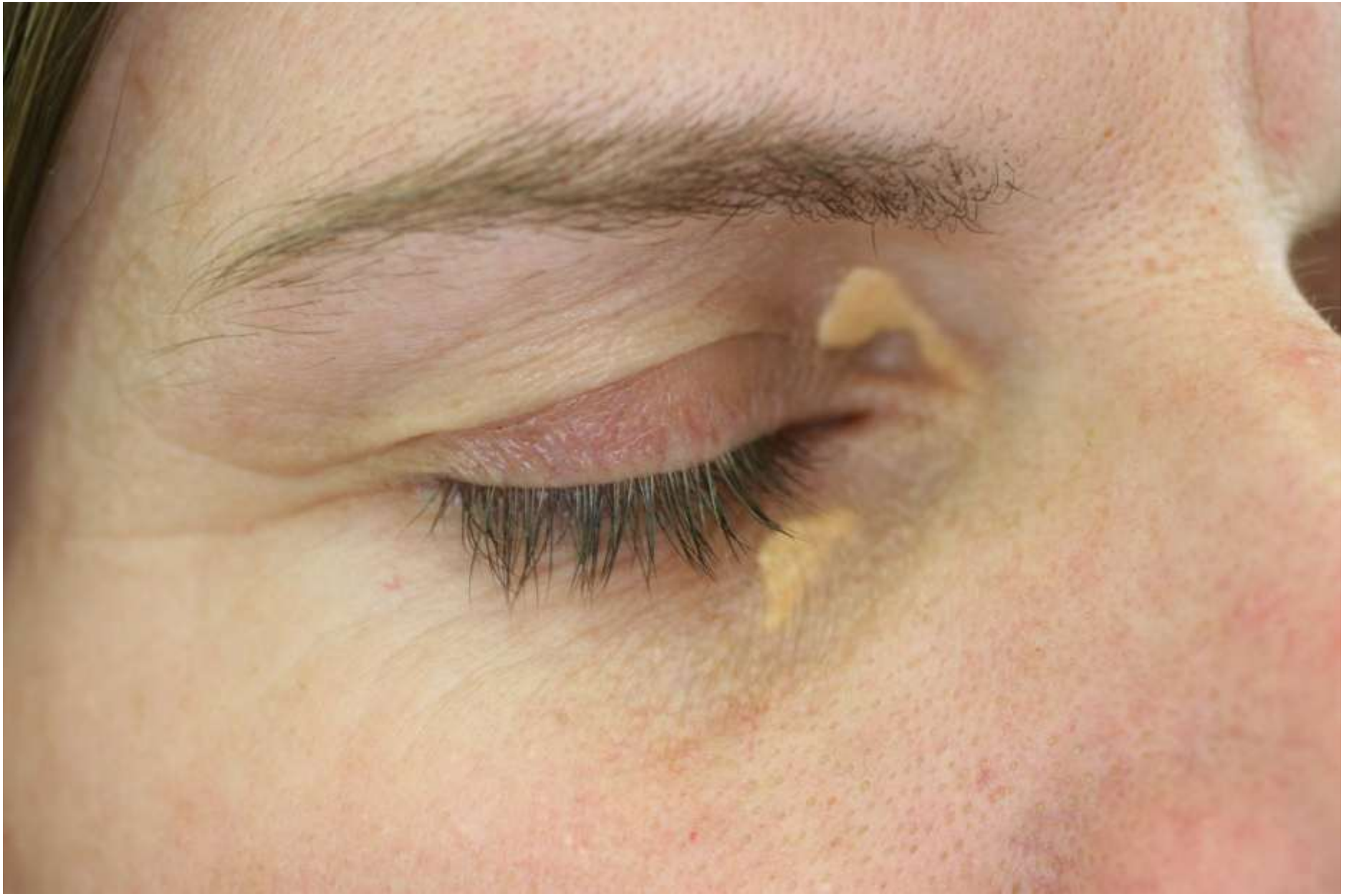
Symptoms (eg fever, pain, pruritis)
Duration and temporal pattern (acute, sub-acute, chronic, intermittent)
Primary lesions: macules, patches, papules, pustules, nodules, plaques, vesicles, bullae
Secondary morphology: scale, crust, erosions, ulcers, scars, purpura, pallor, cyanosis
Arrangement: annular, linear, solitary, generalised,
Anatomical location: palmar plantar, acral, truncal etc
Colour: black, blue, brown, red, flesh-coloured, cream, xanthotic
Laboratory findings
Histopatholigic findings

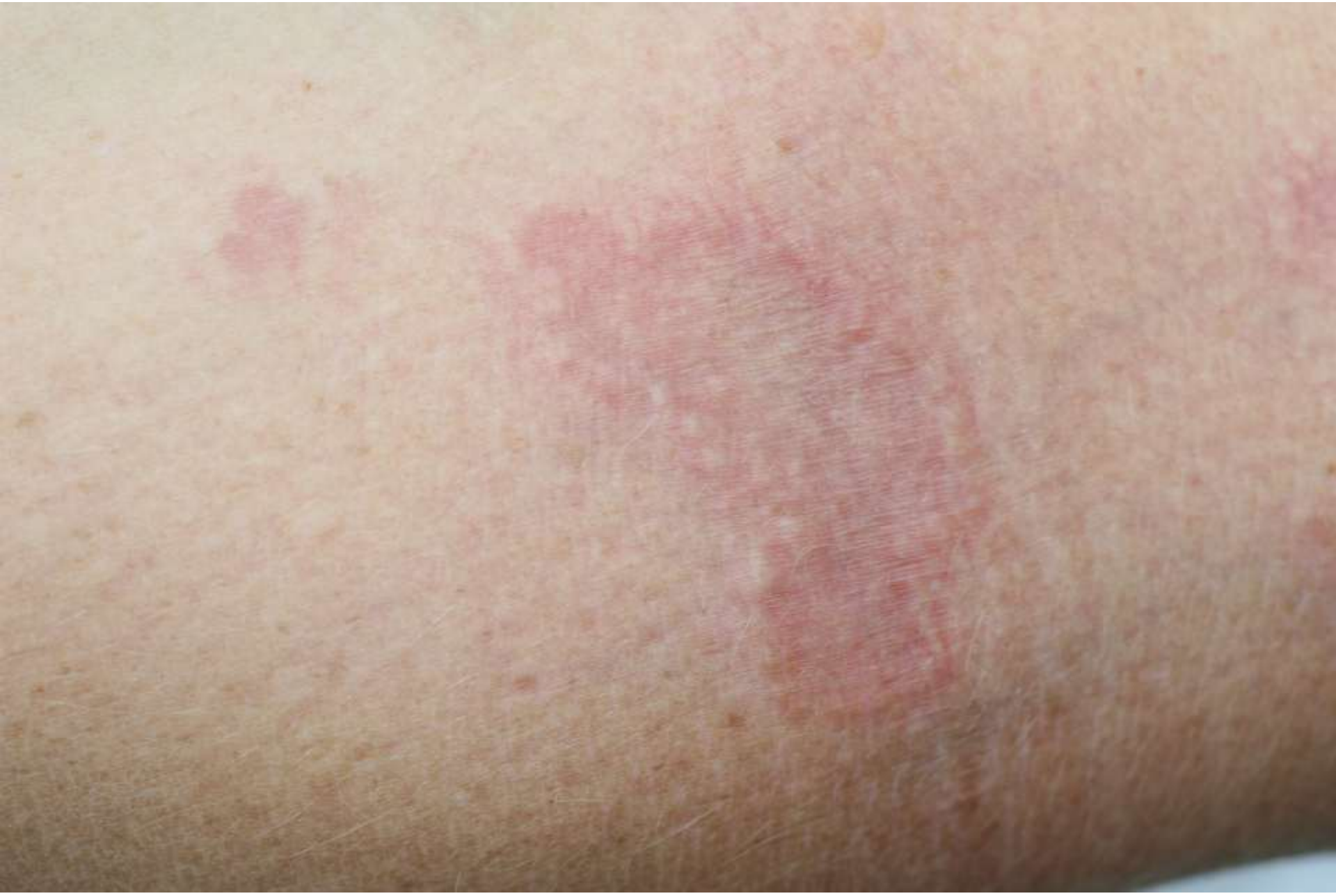
Is the skin condition/lesion

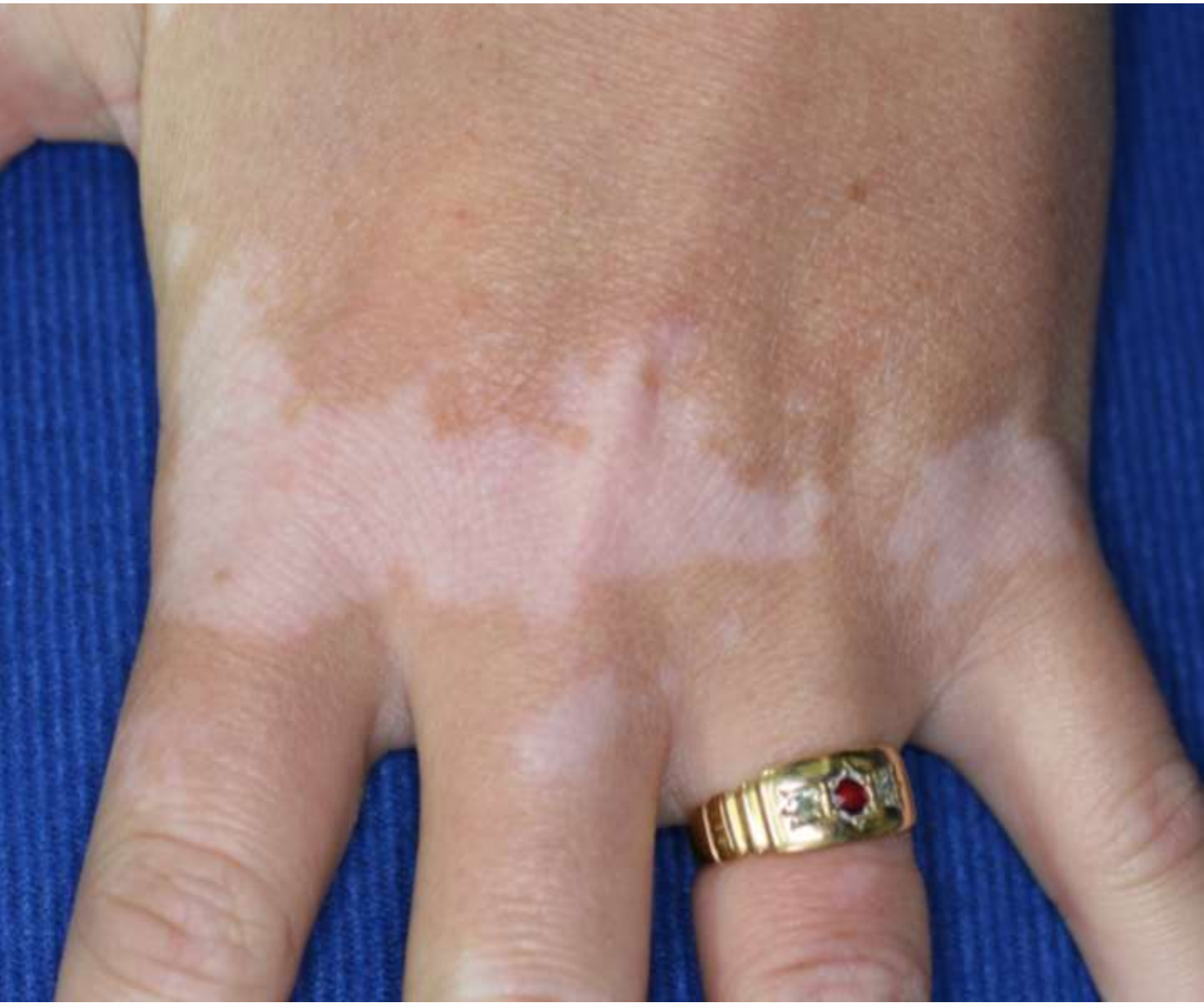
Epidermal, dermal, subcutaneous or mixed level?
Inflammatory (infectious/non infectious) or papulo-squamous?
Neoplastic (benign or malignant)?
Solitary or multiple lesions/characteristic distribution?

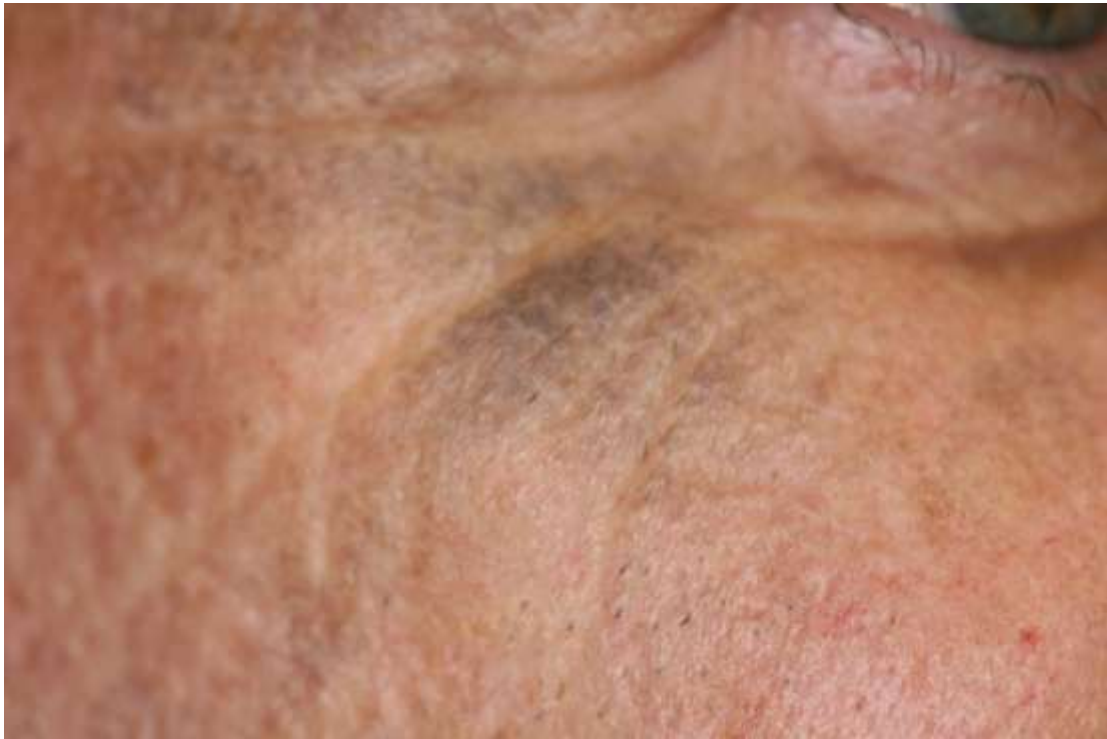
Is there

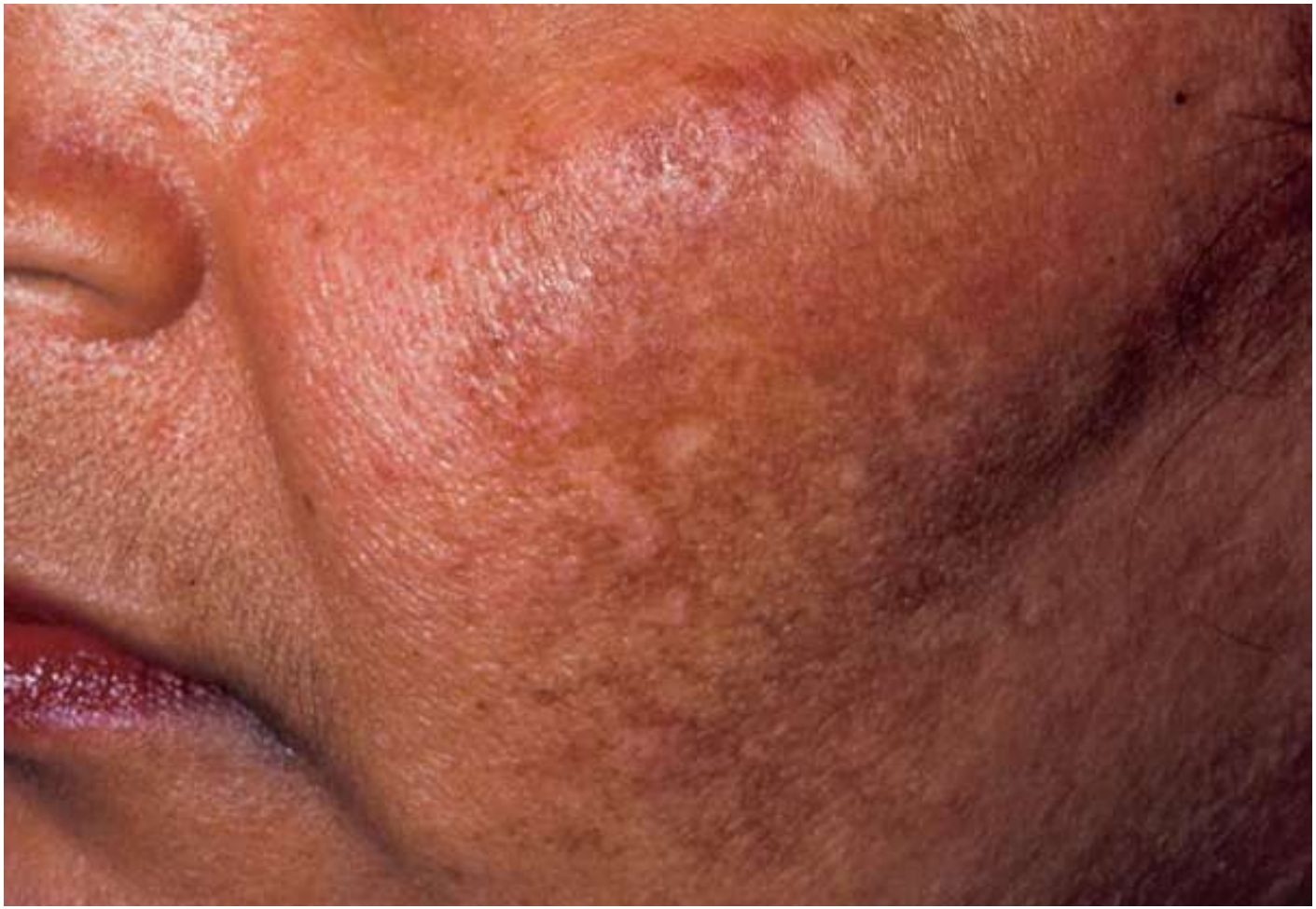
Any past personal, family or contact history?
Any relevant medication/drug/occupational history?
Any injury/self harm?

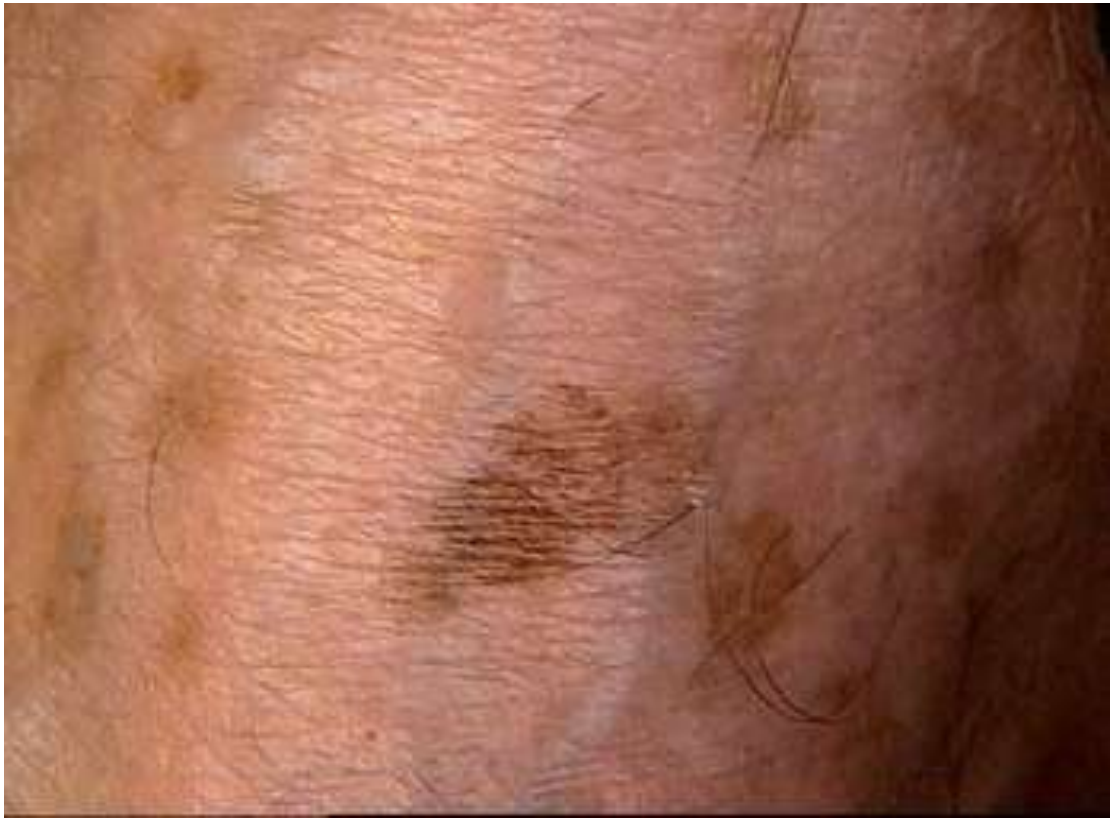


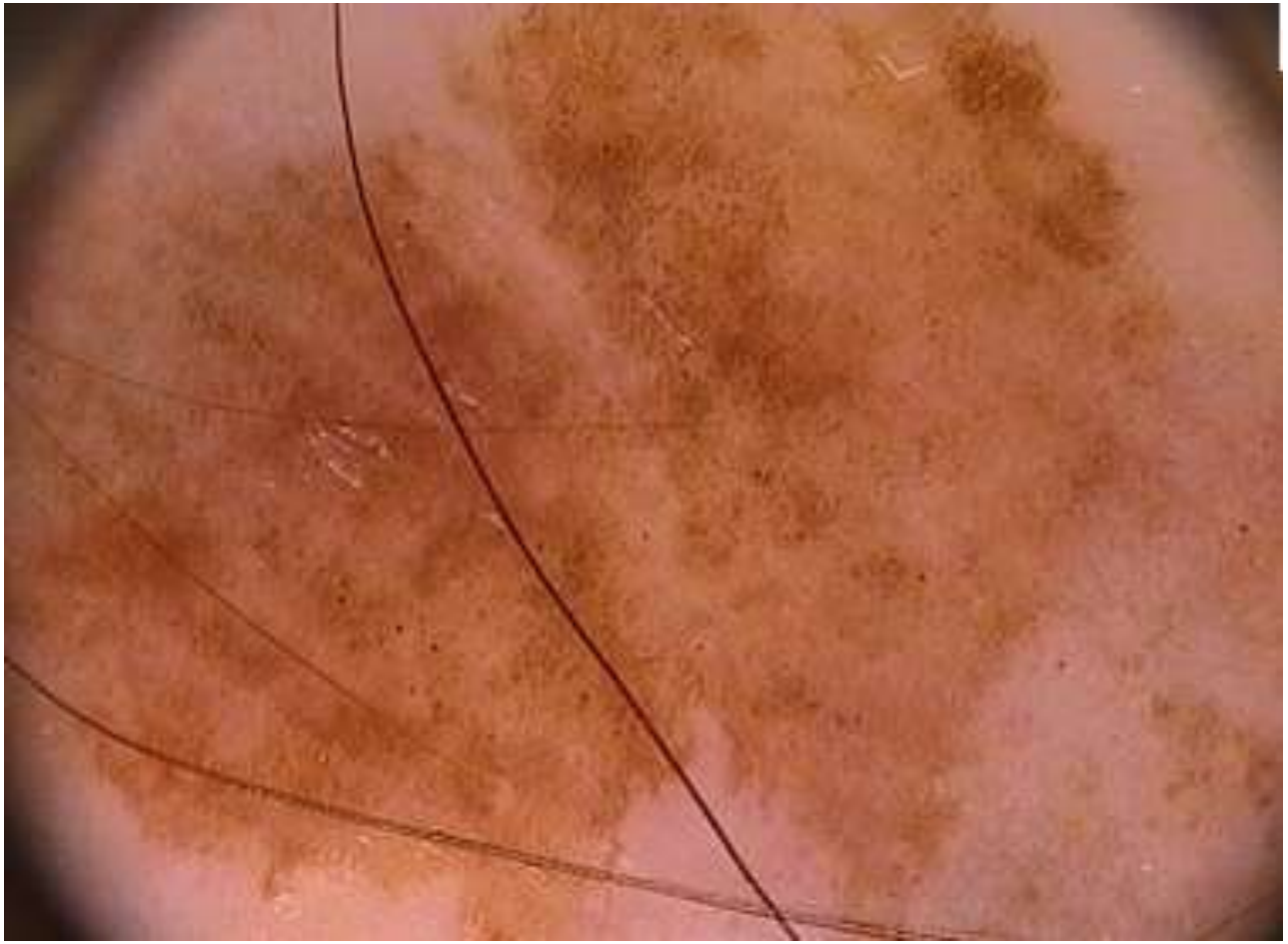


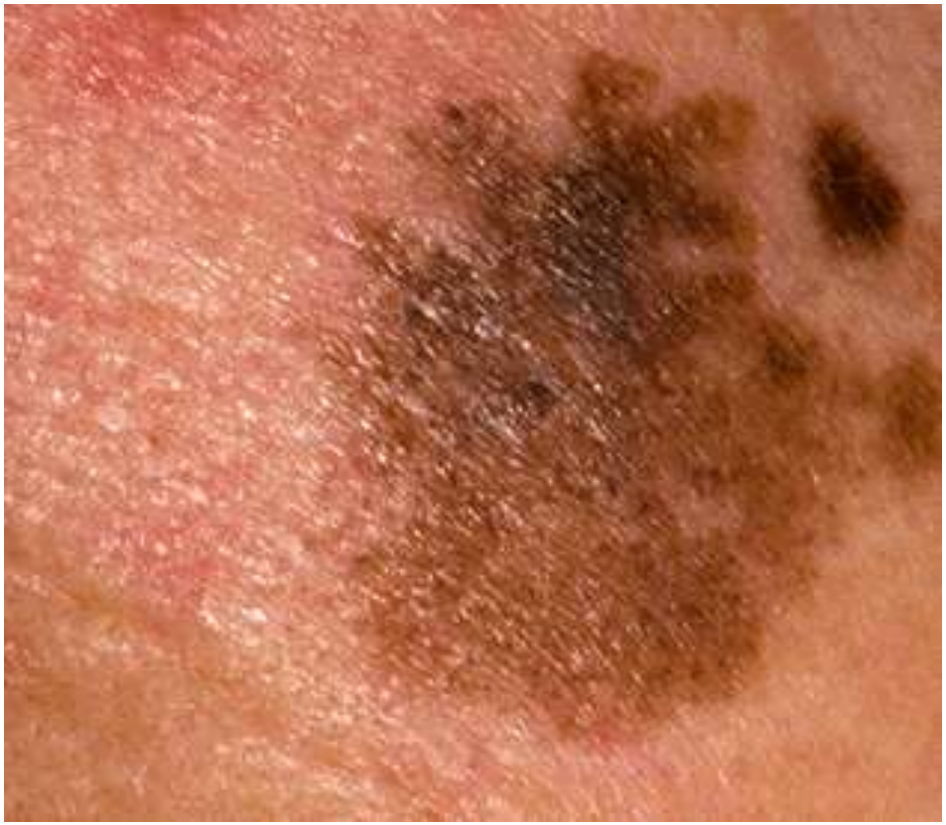


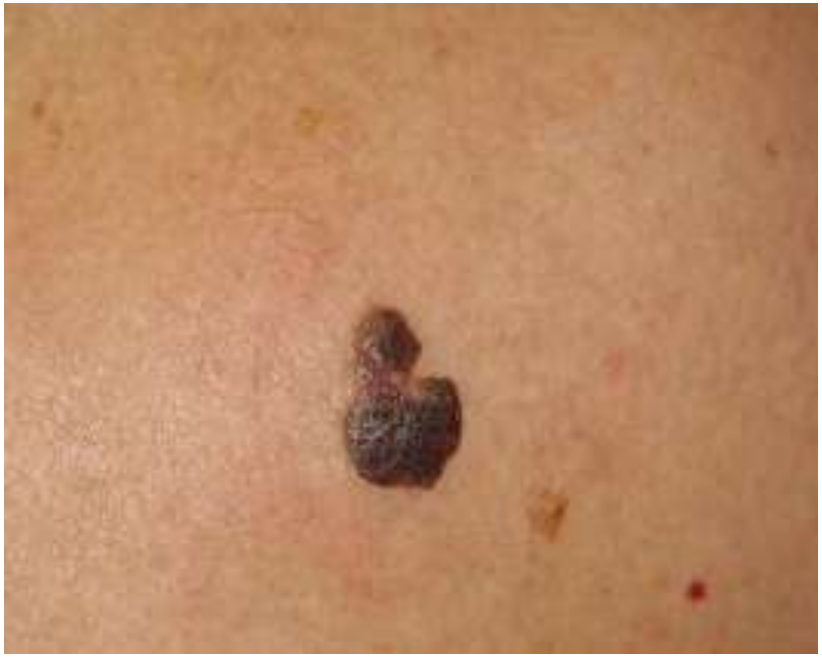


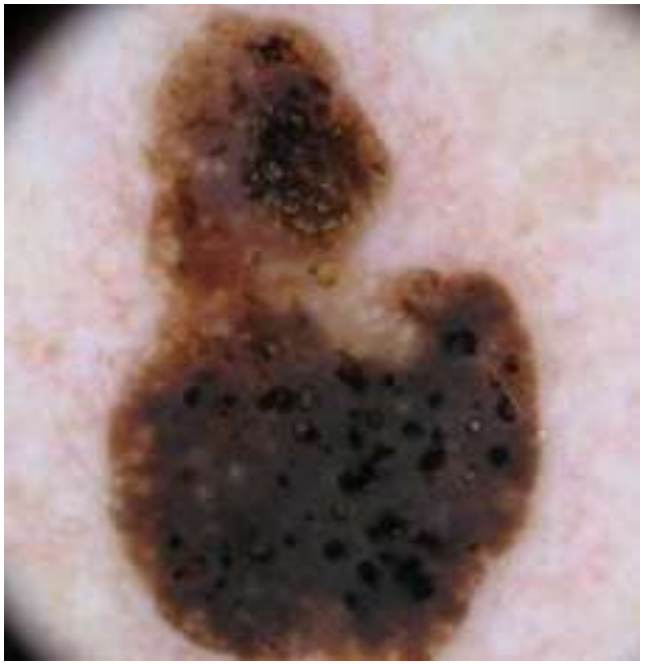


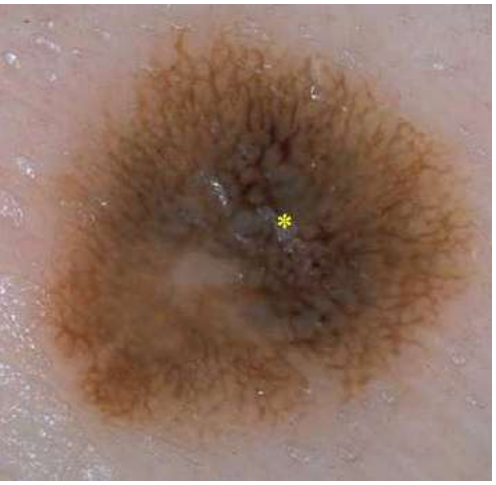




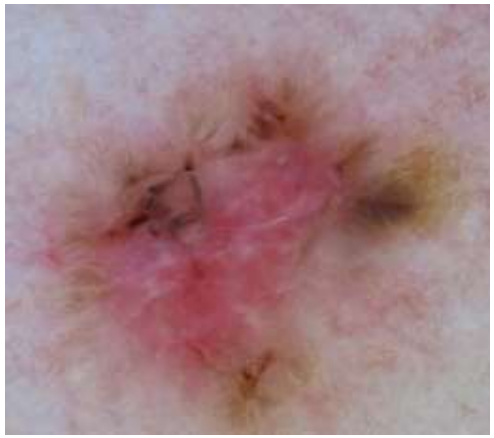






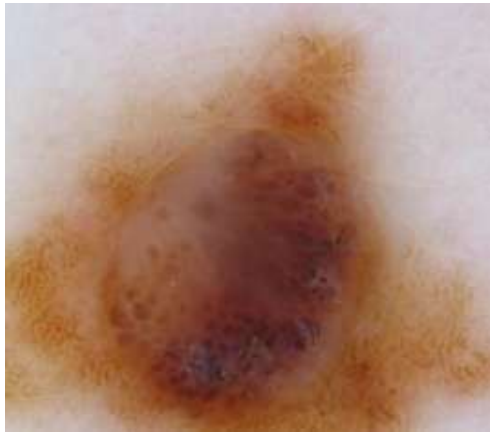


Dysplastic nevus



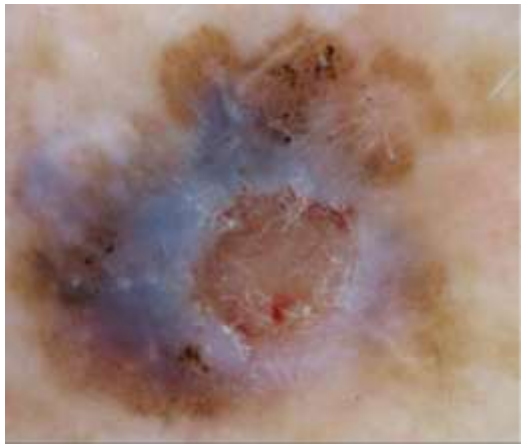
BCC

Compound nevus



Melanoma
in situ

Blue nevus



MM

Dermoscopy

3 point check list

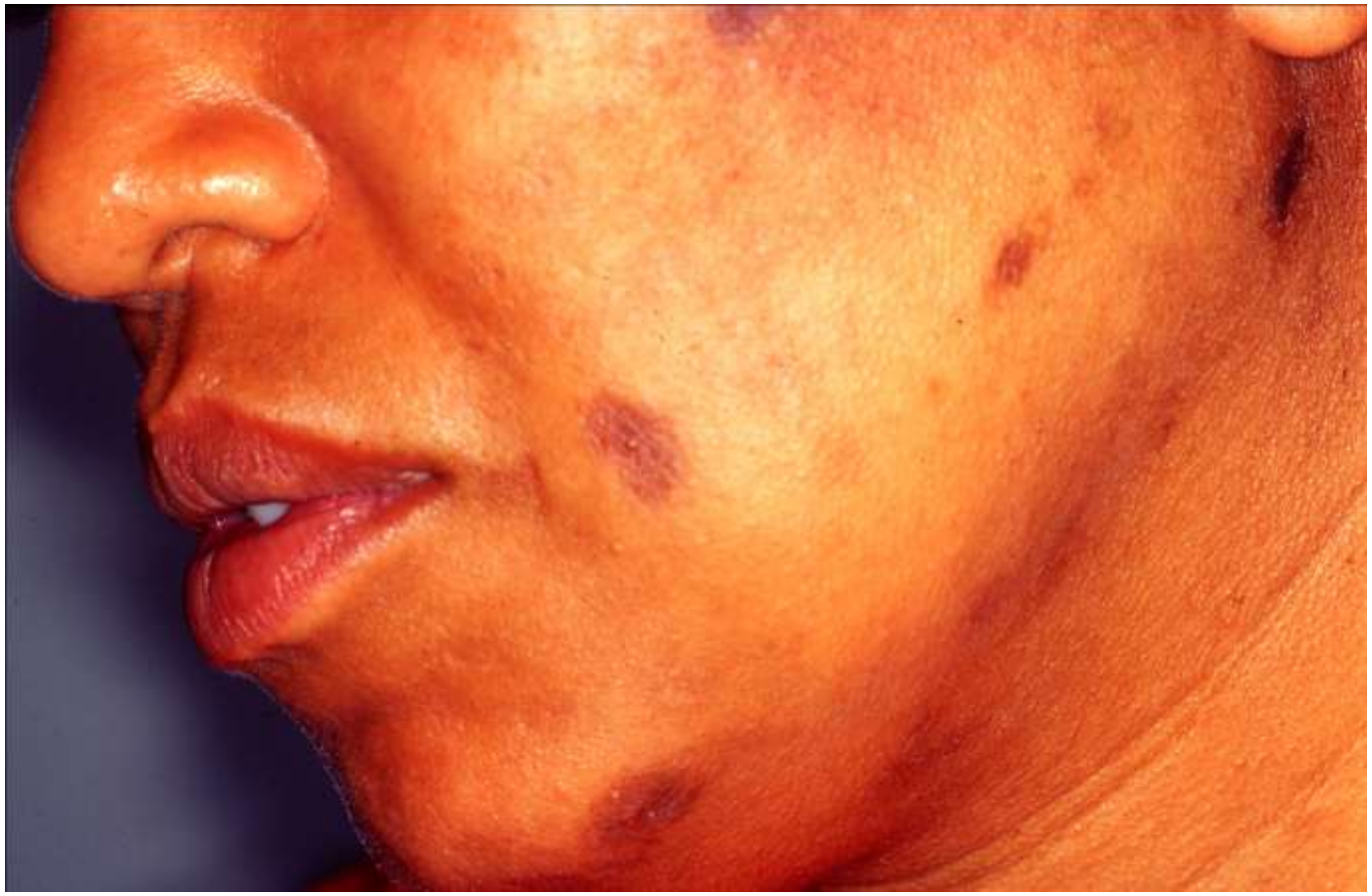
- -asymmetry
- -atypical network
- -blue white structures

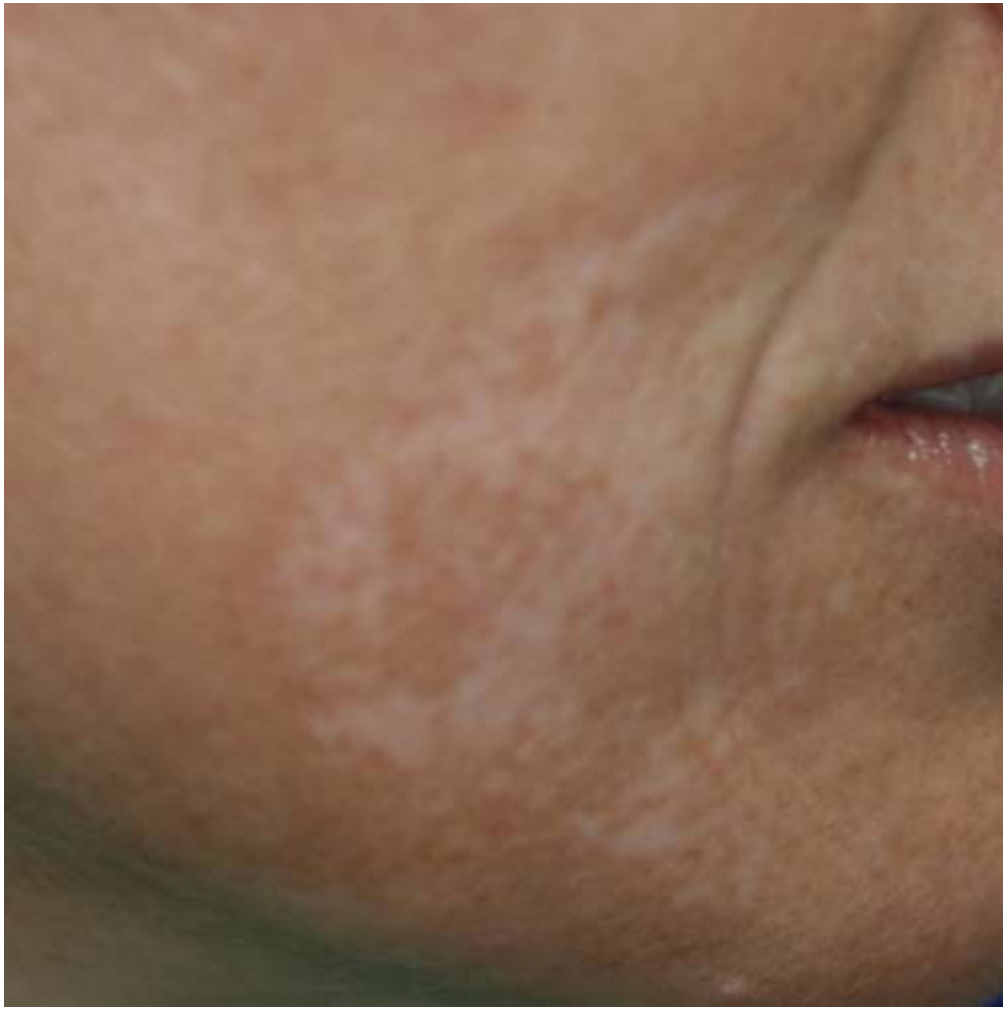
5 melanoma specific local criteria

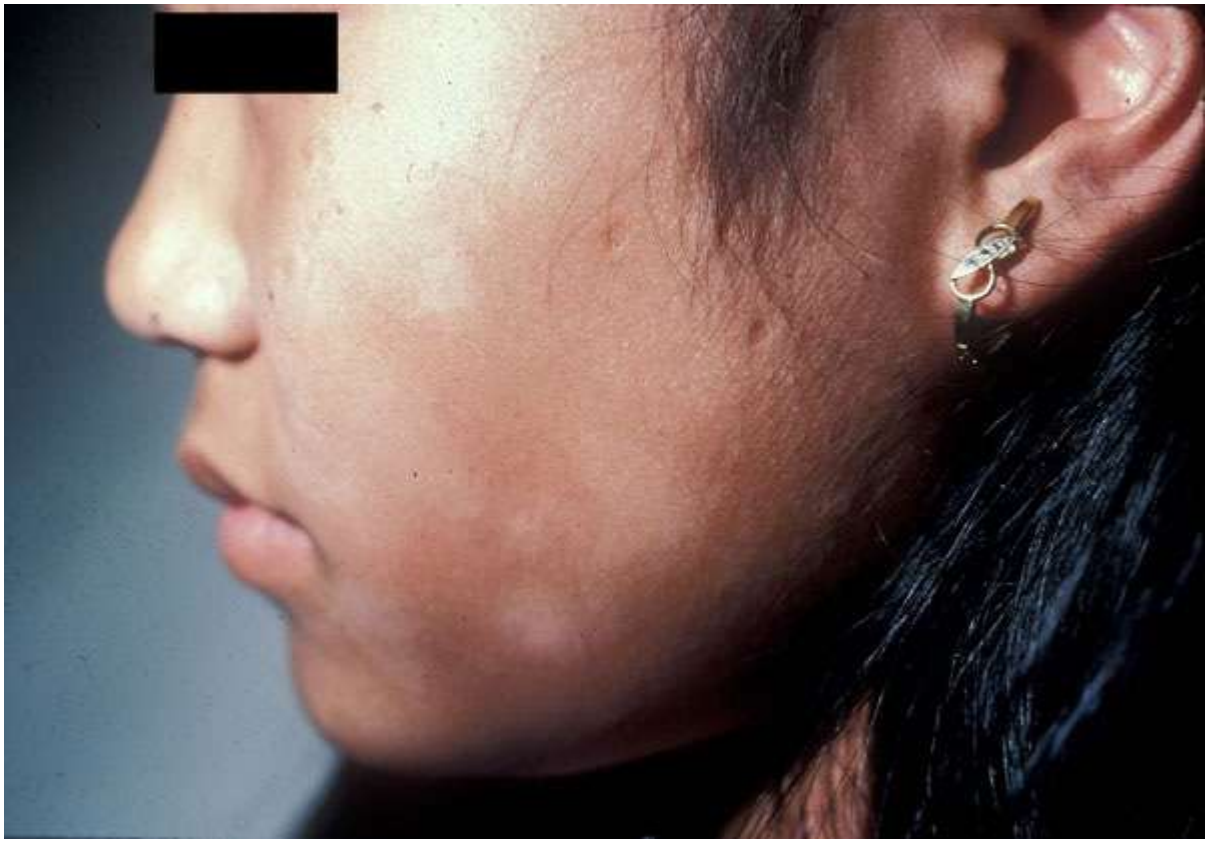
- -atypical network
- -irregular streaks
- -irregular dots/globules
- -irregular blotches
- -blue white structures

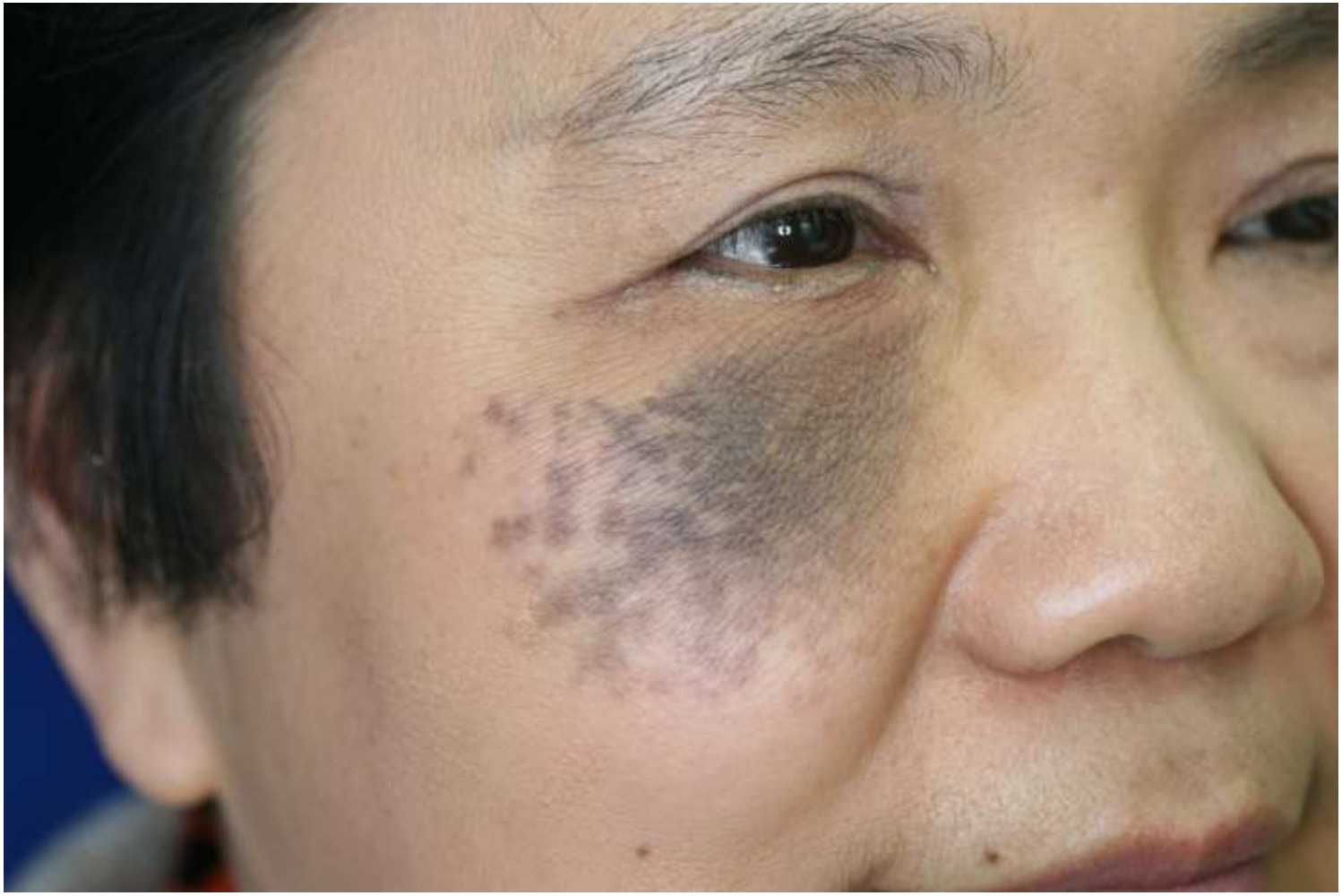
6 criteria for non melanocytic lesions

- -blue gray blotches
- -arborizing vessels
- -milia like cysts
- -comedo like openings
- -red blue lacunae
- -central white patch









FACIAL PIGMENTATION

- Depth (epidermal or dermal)
- Type (melanocytic or not)
- Skin type
- Ethnic background

Drugs:

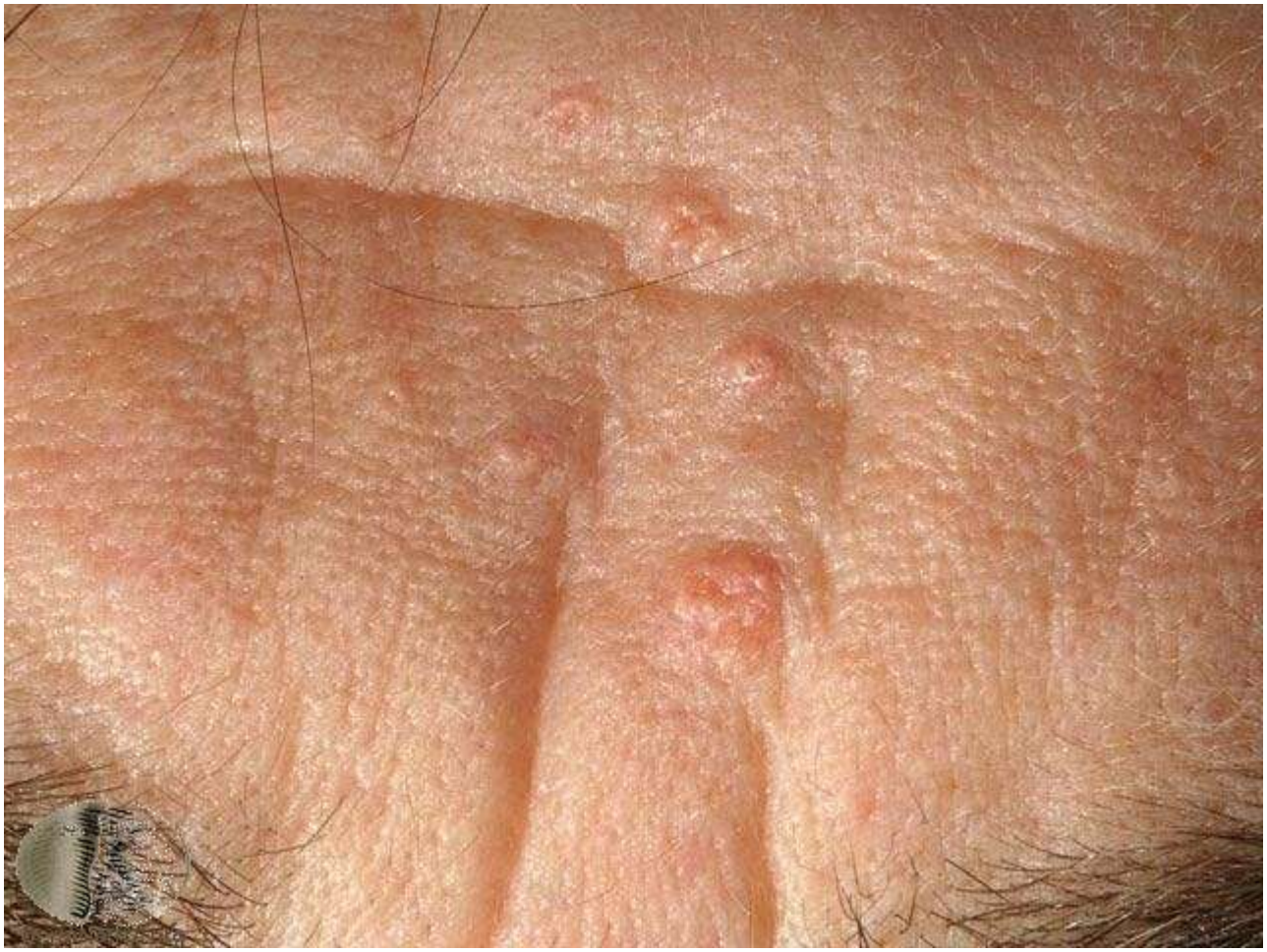
Minocycline
Clofazimine
Amioderone
Zidovudine (AZT) – blue lunulae
Diltiazem (Skin types IV or V)
Dioxins
Hydroquinone (ochronosis)
Psychotropic drugs
Psoralens
Hormones
Chemotherapeutic agents – B, C, D, F, H, MTX
Antimalarials
Heavy metals – arsenic, gold, iron, silver, lead, mercury

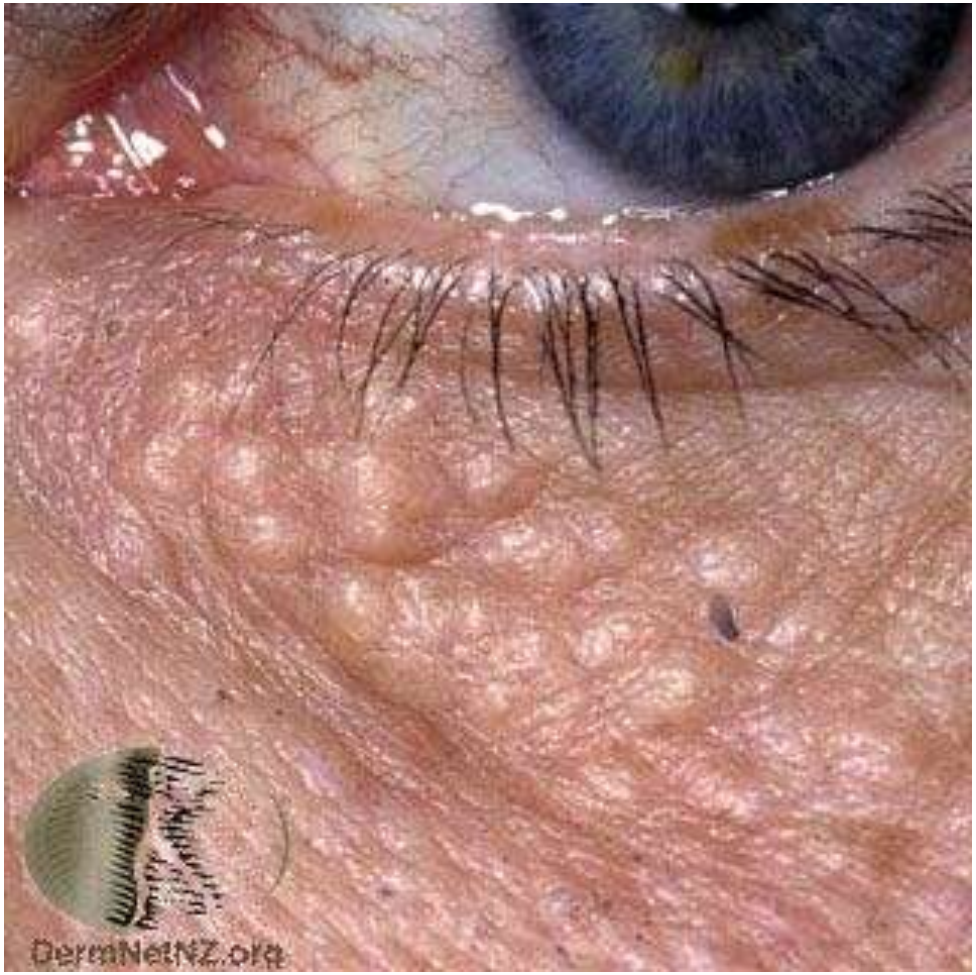
MELASMA/CHLOASMA – HYPERPIGMENTATION

- Erythema dyschromicum perstans (Ashy dermatitis)
- Lichen planus pigmentosum (actinic)
- Primary cutaneous amyloidosis
- Cafe au lait pigmentation
- Haemosiderin
- Nevus of Ota
- Pot traumatic
- Post inflammatory (numerous causes)
- Poikiloderma of Civatte
- Phytotoxic and phytophotoxicity

Skin Cancer – Pigmented Lesions Differential Diagnosis

-Tattoos – Foreign bodies – calciphylaxis
-Argyria – minocycline dyspigmentation (other drugs)
-Angiokeratoma – angiosoroma – venous lake
-Open comedone – cyst – blue naevus – hidrocystoma
-Post inflammatory – pigmented purpuric dermatoses (haemosiderin)
-Lichen planus – naevs of Ota – ochronosis
-Talon noir – Terra fima dermatosis – dermatosis papulosa nigra
-Lentigo simplex – stellate lentigo – solar lentigo– chloasma
-Warfarin necrosis – purpura – gangrene – sub ungual haemorrhage
-Seborrhoeic lentigo – pigmented actinic keratosis – Bowen's disease
-Many other dermatoses esp. Pigmented skin types
-Deep dermal blue/black discolouration from any particulate matter.

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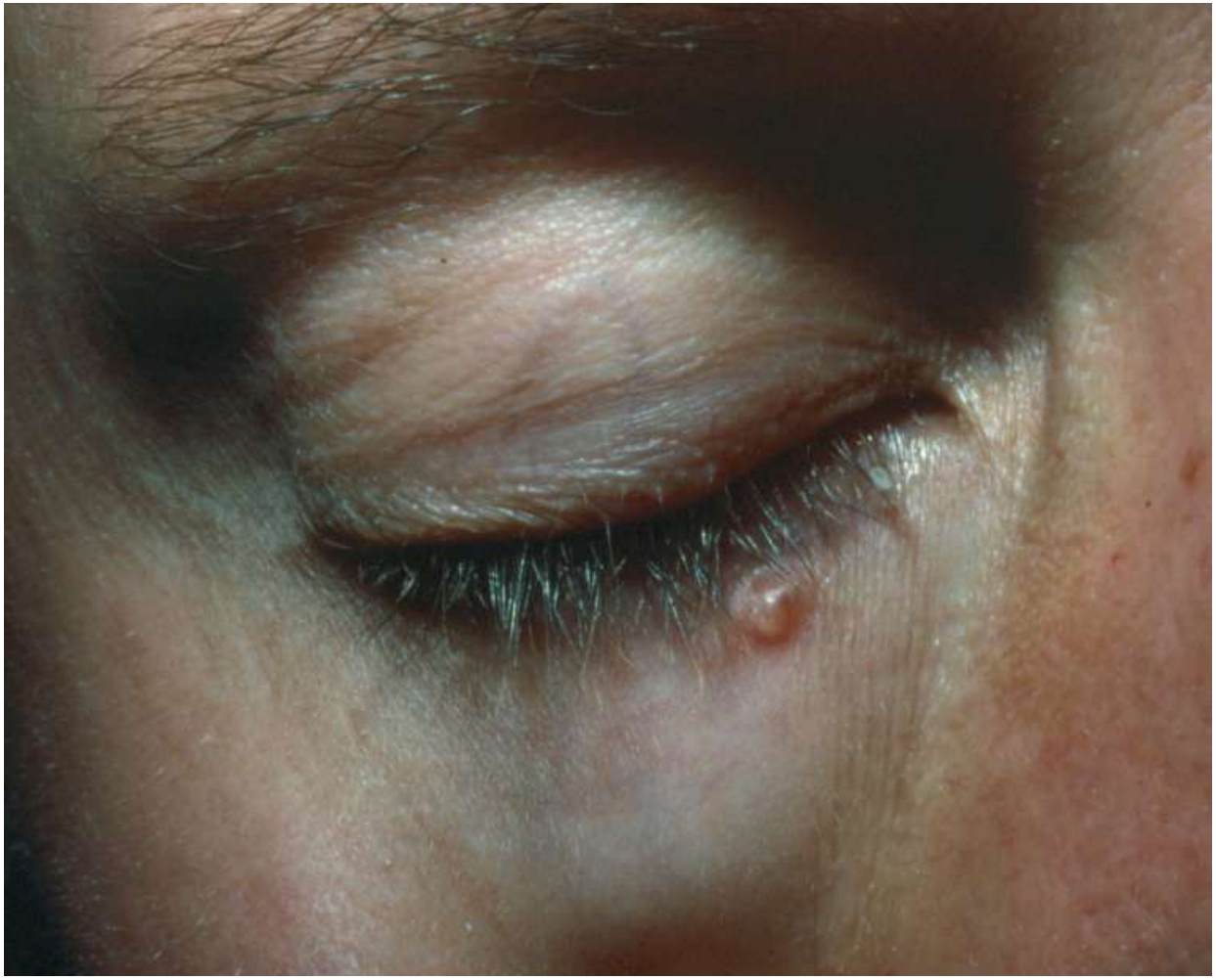
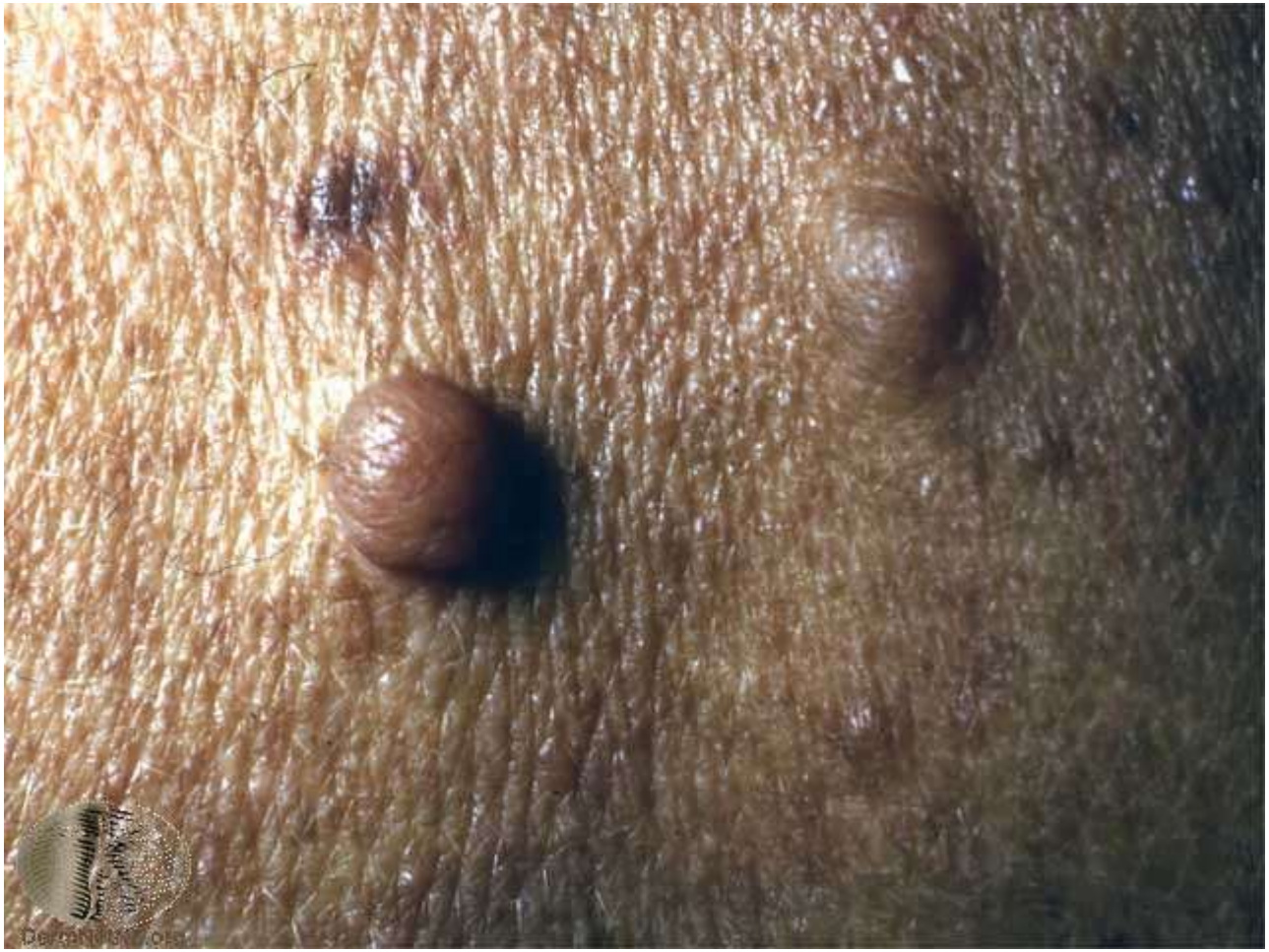
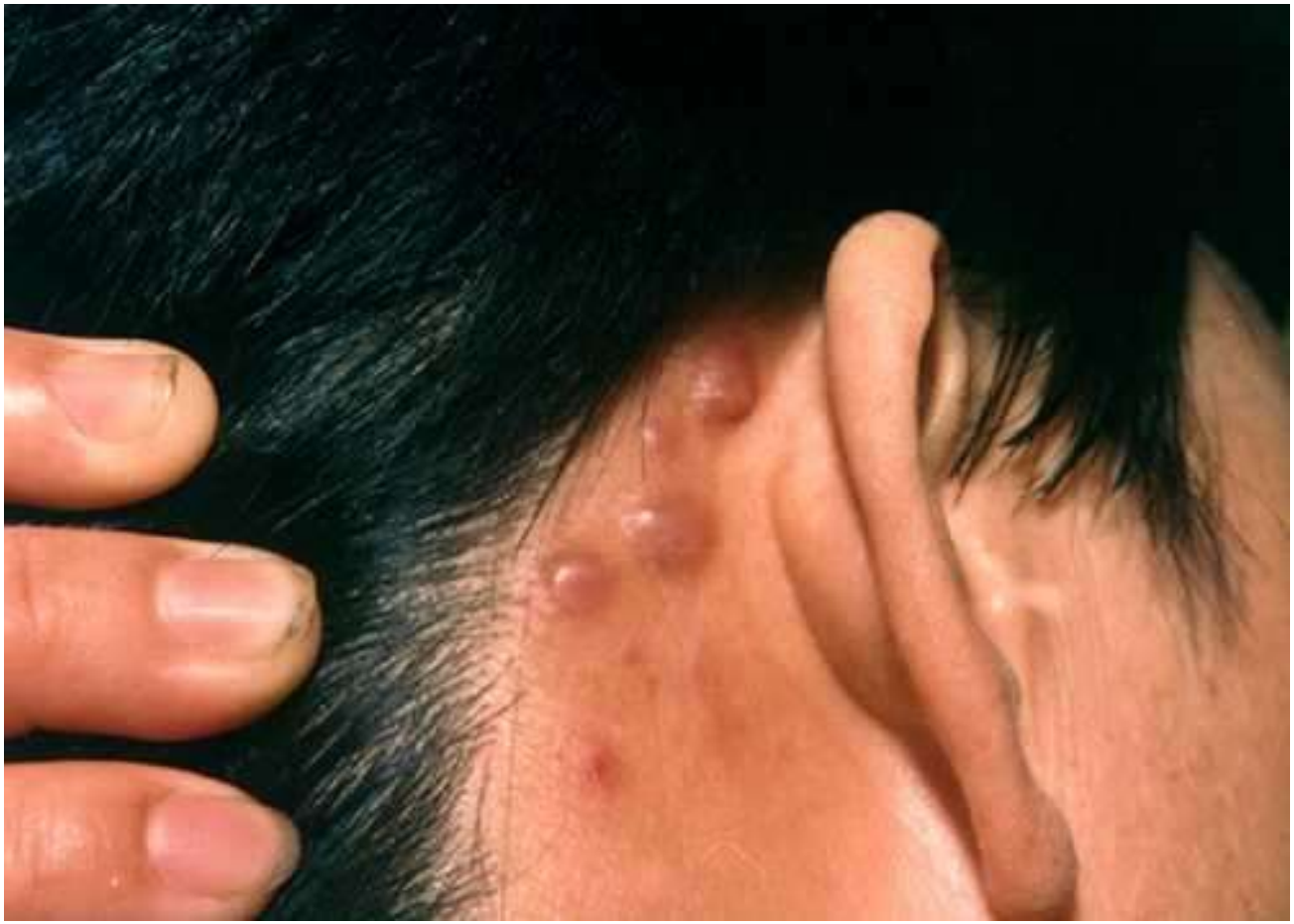
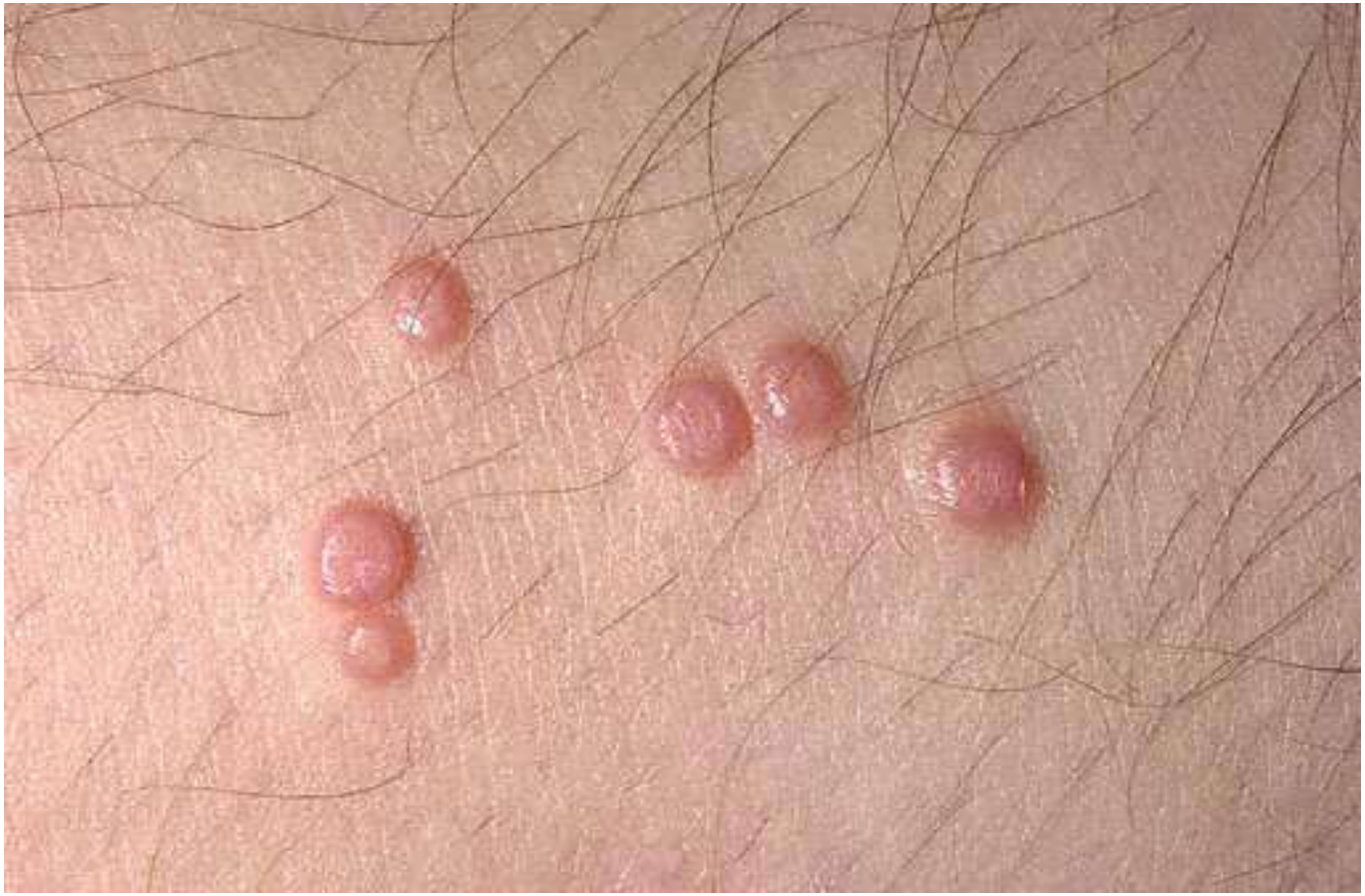
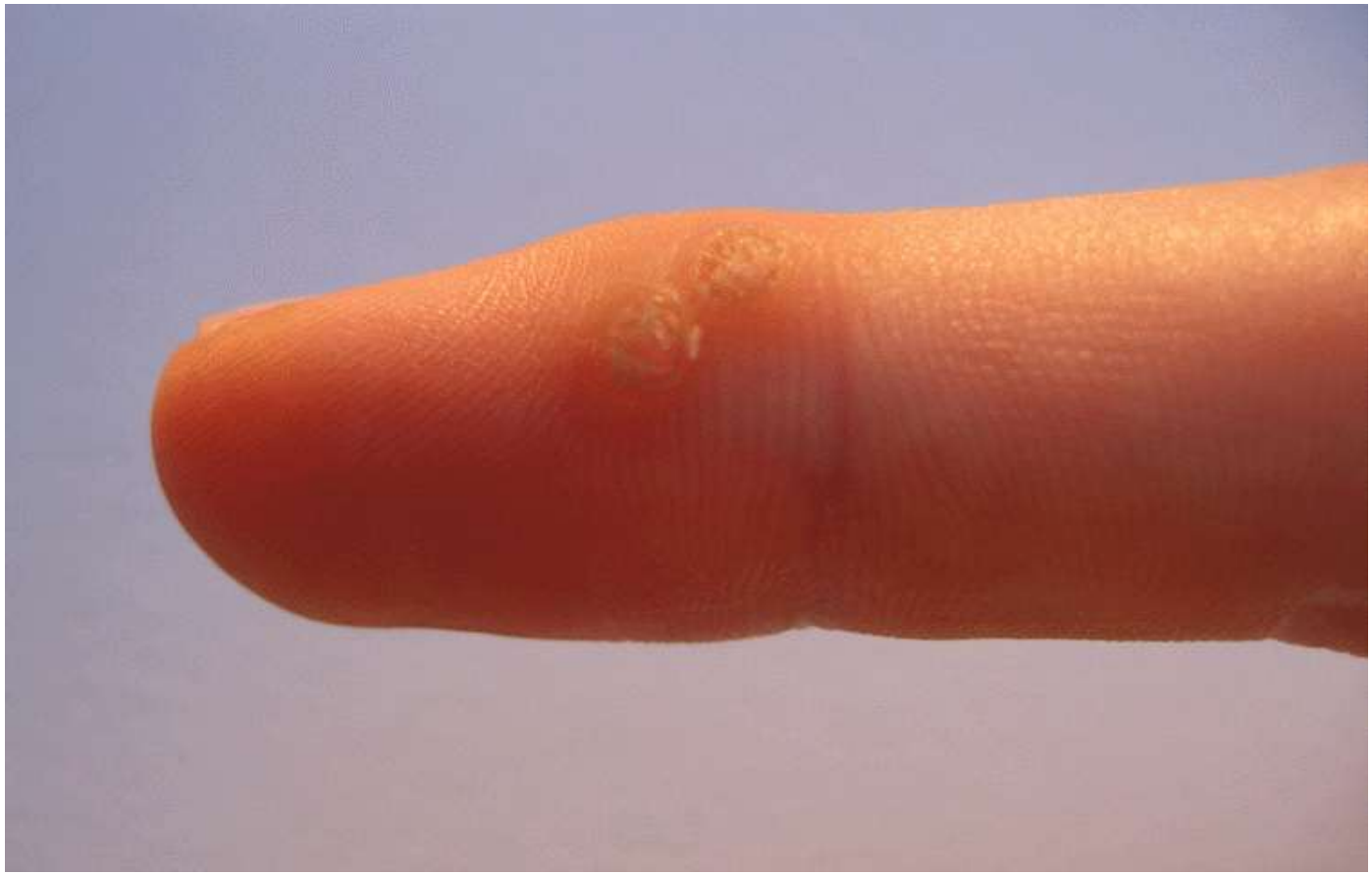










Tender/Painful Nodules

Not inflamed

E	Eccrine spiradenoma/erythematous nodosum
N	Neurilemmoma
G	Glomus tumour
L	Leiomyoma
A	Angiolipoma/arthropod sting
N	Neuroma/neurofibroma
D	Dercum's/dermatofibroma

Inflamed

Keratoacanthoma

Acne nodules/hydradenitis

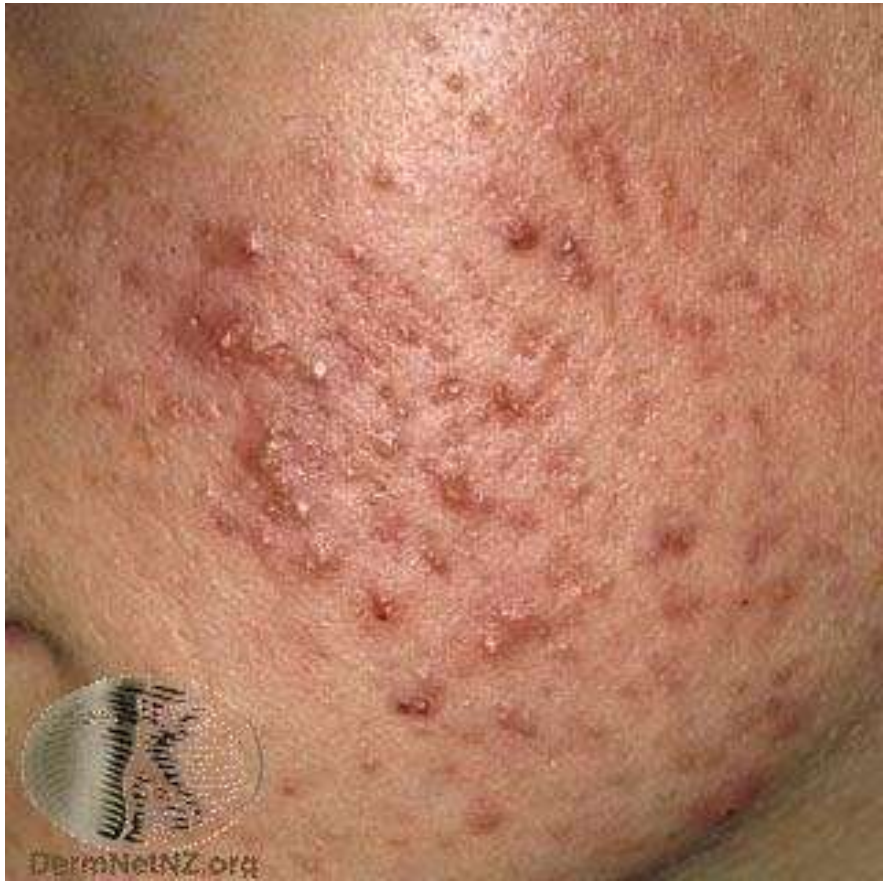
Epidermal cyst (inflamed)

Staph lesions (boils, furuncles)

Vasculitis/paniculitis

Sweets neutrophilic dermatosis

Chondrodermatitis helicis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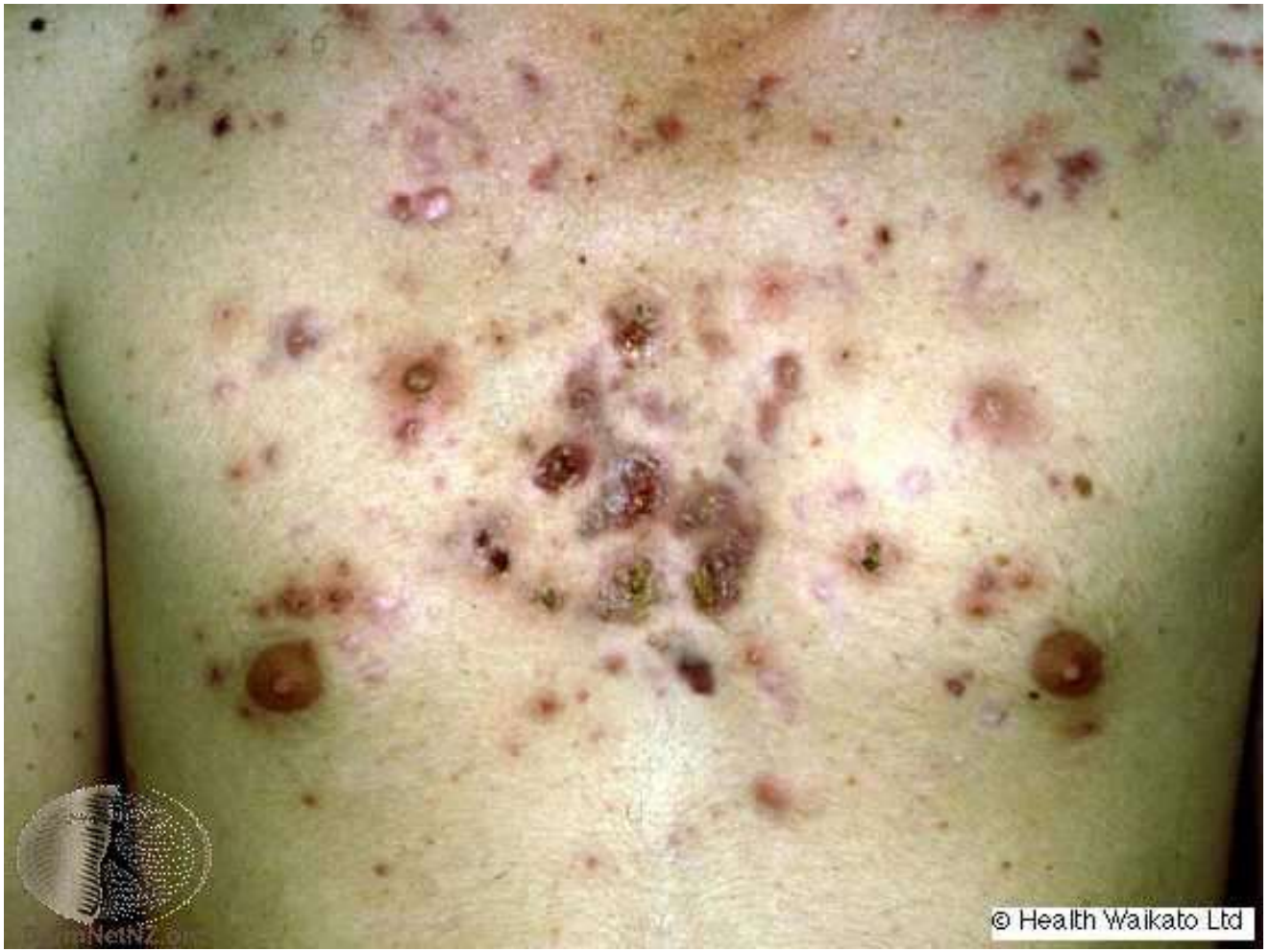
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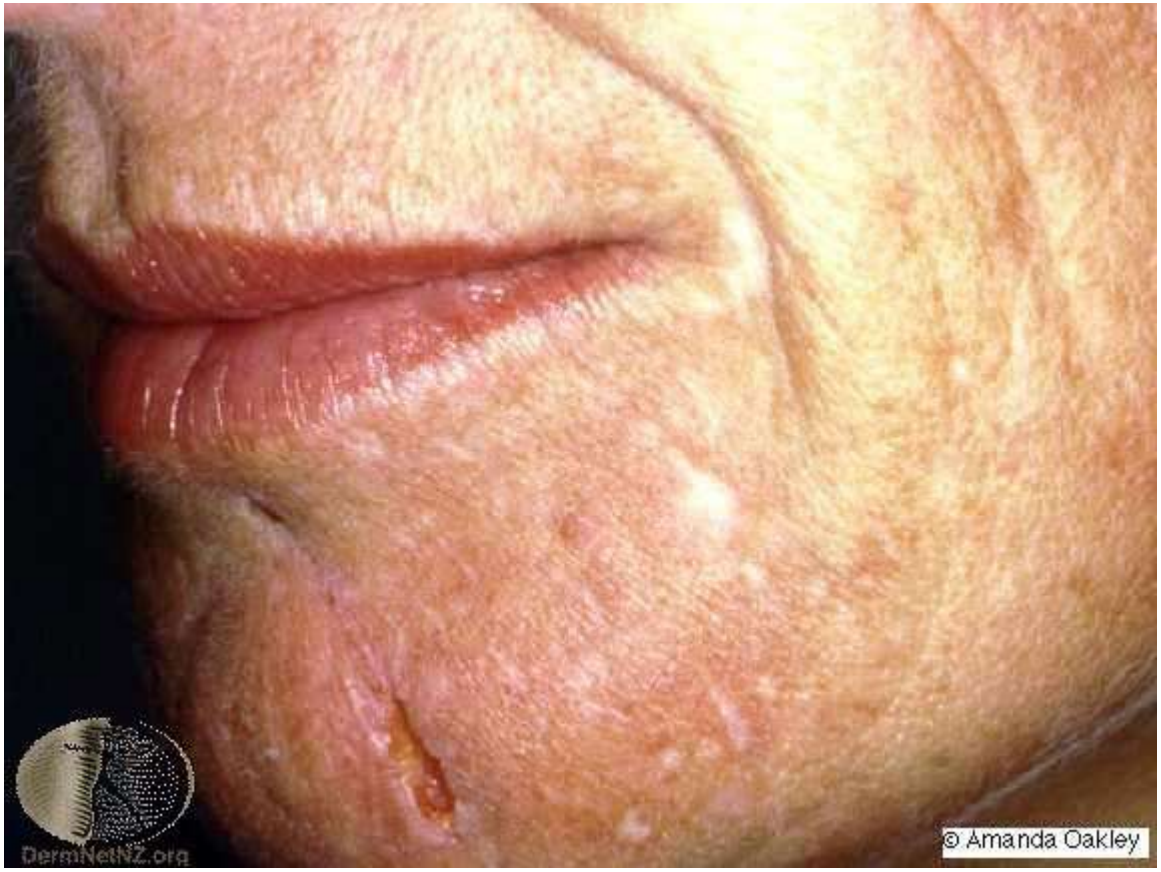
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ACNE

•Multifactorial disorder of pilosebaceous units
•Significant psychologic and economic impacts
•Comedones, papules, pustules, cysts, scarring

Increased risk -
-xyy genotype
-PCOD
-hypercortisolism
-precocious puberty

Pathogenesis
-genetic predisposition (sebaceous glands)
-hormonal responsiveness – sebum excretion
-increased cellular cohesion and proliferation
-comedone formation and rupture
-propionibacterium acnes (coproporphyrin III)
-immune response
-DHEA → testosterone → DHT

Clinical
-non-inflammatory (comedones, open and closed, micro and macro) scars; ice pick erythematous papules; sterile pustules indurated nodules and cysts scars, hypertrophic, atrophic depressed, aggregated pitted, bridged, tethered

Acne Variants
-acne fulminans (haemorrhagic plaques, fever, osteolytic lesions)
-acne conglobata (eruptive nodulo-cystic acne)
-solid facial oedema
-acne mechanica
-acne excoriée des jeunnes filles
-drug induced acne (steroids, azathioprine, PUVA etc)
-occupational acne (follicular occlusion tetrad)
-choracne (halogenated hydrocarbons)
-EGFR inhibitors
-neonatal and infantile
-radiation
-endocrine
-tropical

Isotretinoin (13-cis-retinoic acid) since 1971

•Severe inflammatory nodulo-cystic acne
•Persistent inflammatory acne with scarring potential
•Other inflammatory acne resulting in significant emotional stress (dysmorphophobia)

Isotretinoin induced (1) sebaceous gland atrophy by prohibiting maturation of basal cells (2) normalisation of follicular keratinisation (3) reduction of p. acnes.

Dosing varies (0.5 – 1.0mg/kg/day for 16-20 weeks). Lower dose regimens may be equally effective. Repeat treatments in 40% of patients. Intermittent and long term treatments experimental.

Lab studies on all patients:	complete blood count
	Liver function
	Creatinine
	Fasting lipids
	HCG
	Repeat lab studies
Poor responders	macrocomedones
	dry skin types
	persistent inflammation females
	scarred nodules and sinus tracts
	endocrine disorders
Combined treatment	prednisone
	erythromycin (tetracyclines contraindicated)

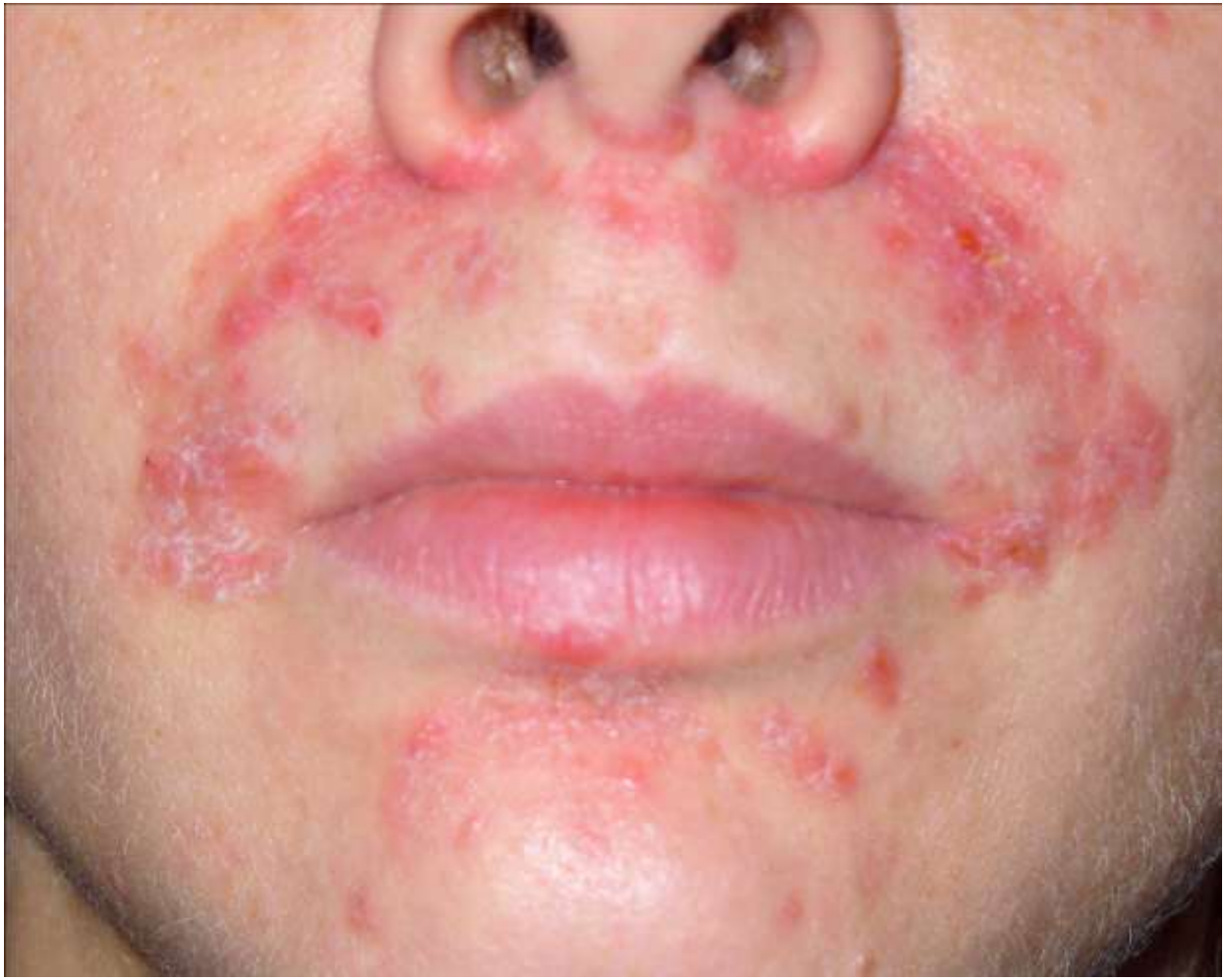
Side effects

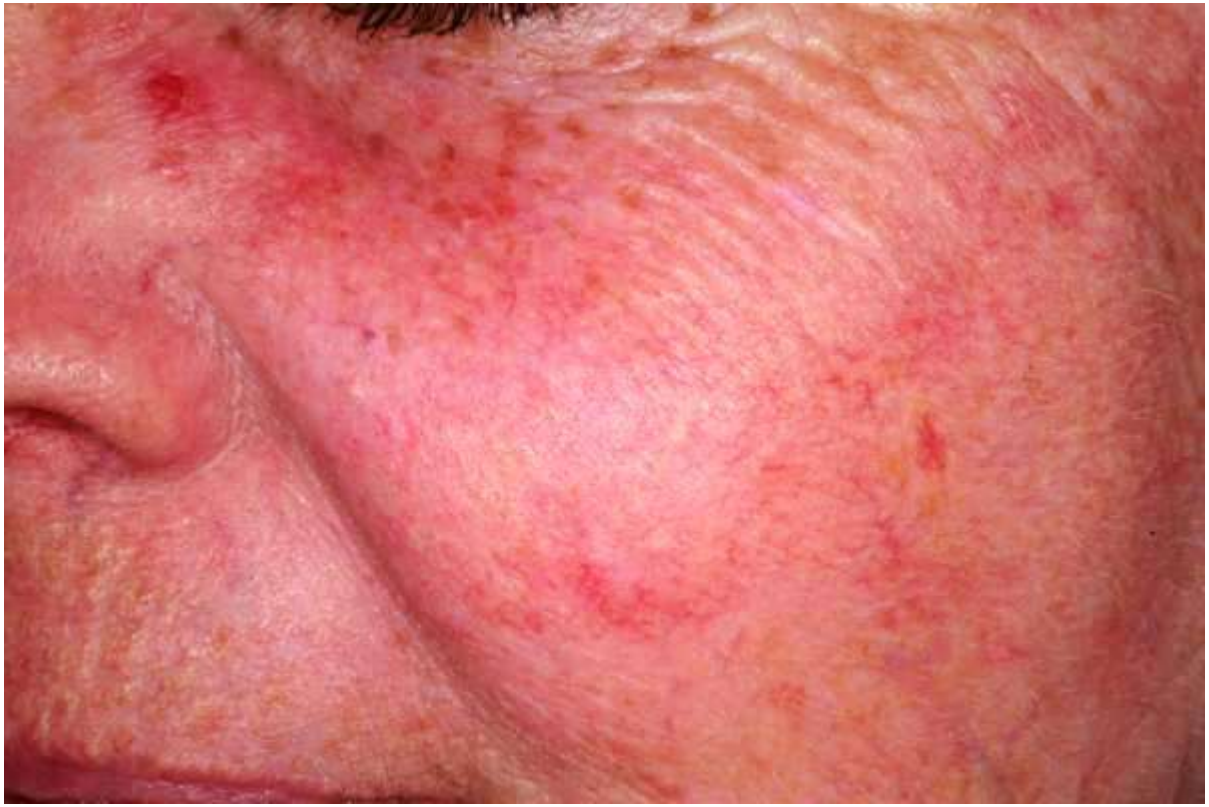
•numerous (retinoic acid receptors ubiquitous)
•skin and mucous membranes (dose related) dryness, cheilitis
•alopecia, facial hair, dermatitis may occur
•xerophthalmia, conjunctivitis
•photophobia, night vision impairment, keratitis
•neuromuscular – myalgia, headache, fatigue, blurred vision
•superinfection (impetigo)
•GI irritation, nausea, vomiting, anorexia
•hepatitis rare and reversible
•benign intracranial hypertension (tetracyclines)
•psychiatric effects – suicide, suicidal ideation, depression ?a 'real' phenomenon but NB careful monitoring and support systems in place probable idiosyncratic and unrelated to previous or family history
•central effects – tiredness, lethargy, anxiety
•skeletal effects

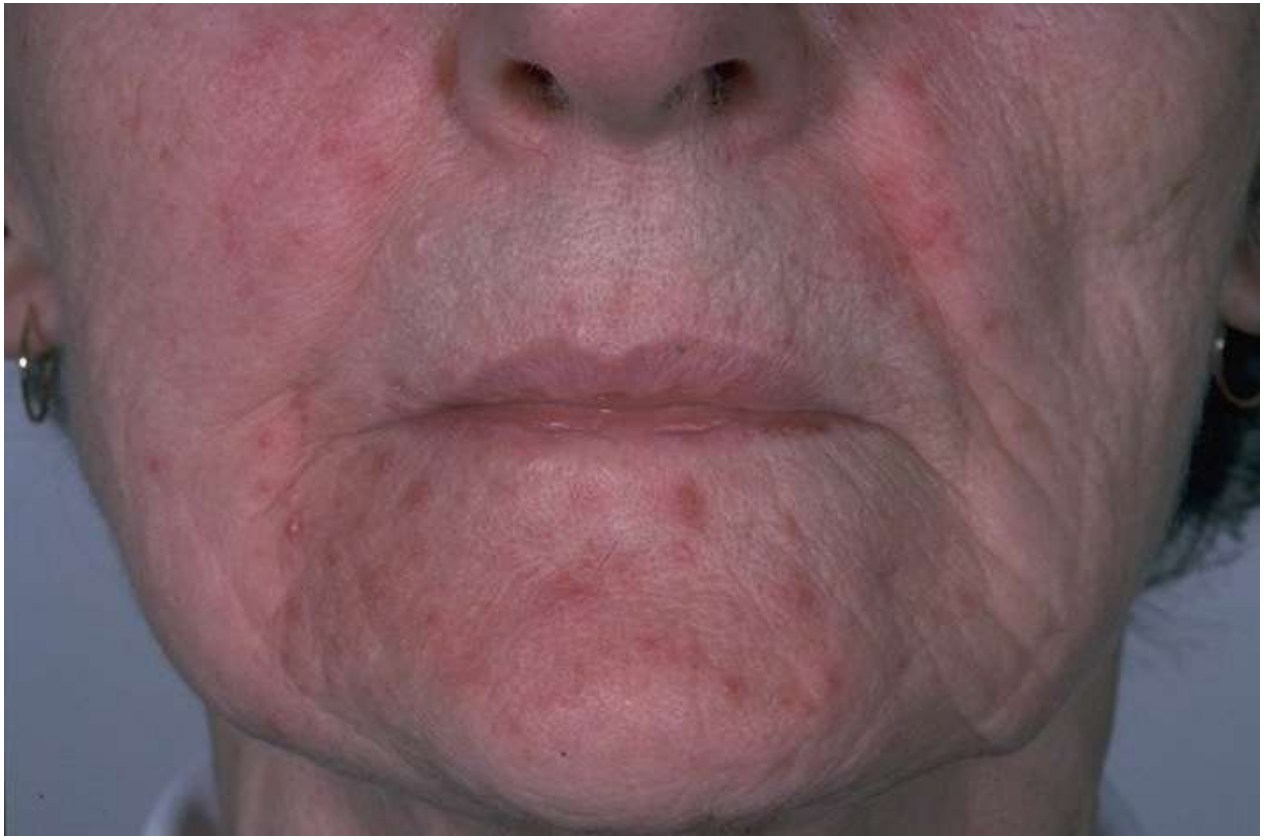
Issue of teratogenicity	-individualise each situation -menstrual cycle may be disrupted
Issue of consenting	-written consent -initial against each point -sign and witness
Other medication	-OCP, antidepressants, antibiotics

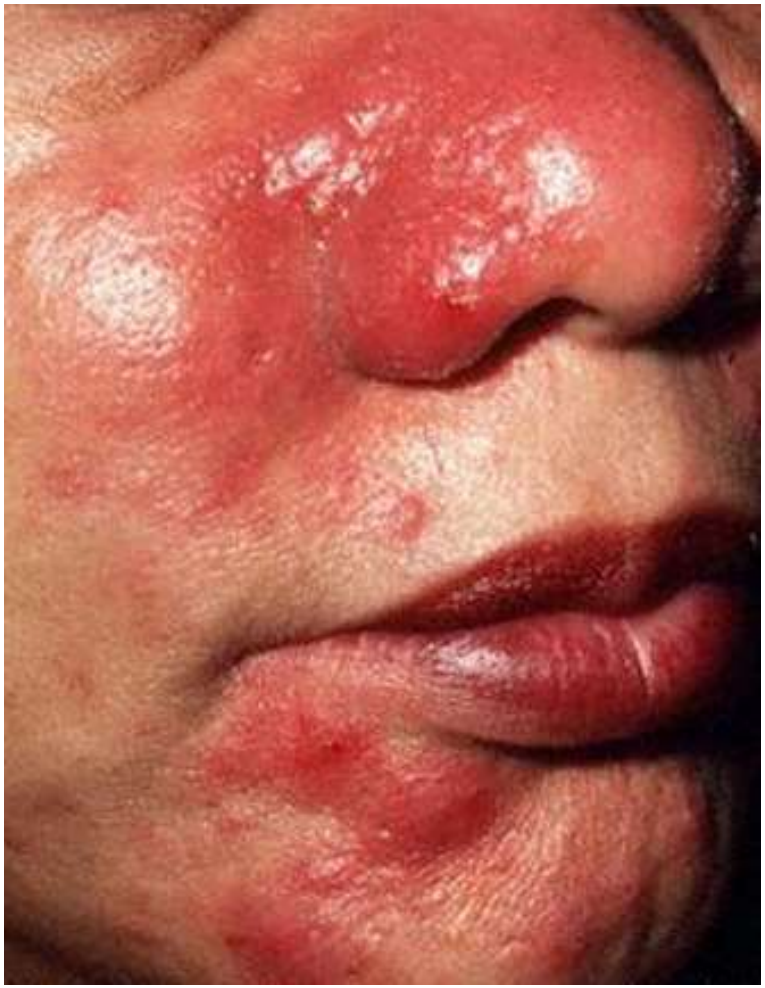
PHYSICAL TREATMENTS

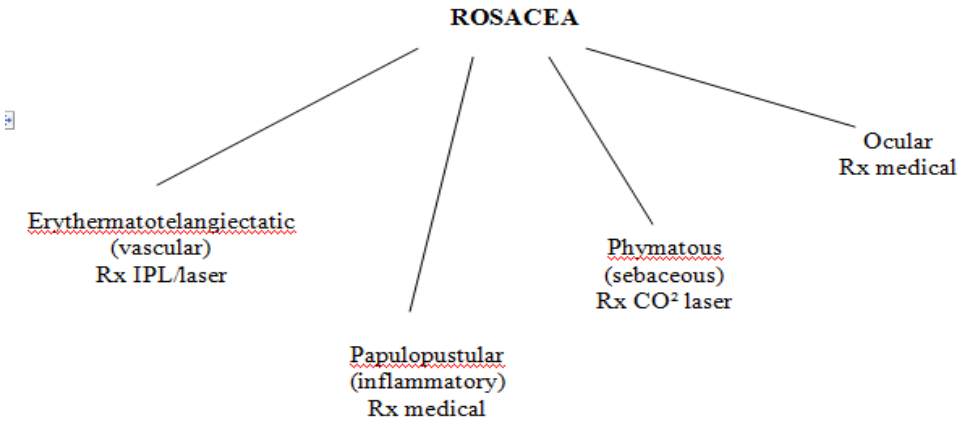
- comedo extraction/peels (TCA, glycolic acid)
- electrosurgery/curettage
- blue light acne therapy
- photodynamic therapy
- near infrared lasers
- subscision/excision/punch grafting
- dermabrasion/laser resurfacing
- deep fractional CO^2 laser resurfacing
- soft tissue augmentation/fat transfer











•Common, disfiguring, male and female, fair skinned, 3rd and 4th decade

•**Pathogenesis multifactoral** -vascular hyper reactivity – vasodilation
-Neuro cutaneous component – bacterial overgrowth – dermotex
-Corticosteroid association – U.V. exposure – 'sensitive skin'

•**Variants** – granulomatous/periorificial/steroid/pyoderma faciale/lymphoedema/lupus miliaris disseminatus

•**1° features:** -flushing (transient erythema)
-non-transient erythema
-papules and pustules
-telangiectasia

•**2° features:** -burning/stinging ensation central face
-pustular plaques/confluence of papules
-dryness and flaking of central facial skin
-soft or solid facial/forehead oedema
-ocular/rhinophyma/extra facial

•**Differential diagnosis** -seborrhoeic dermatitis, acne vulgaris
-erythromelanosis, keratosis pilaris rubra
-lupus erythematosus
-Haber syndrome – demodex folliculitis (HIV)

ROSACEA TREATMENT

Topical
- metronidazole cream or gel (0.75%)
-Sulphur and salicylic acid (<2%)
-Azelaic acid (15% - 20%)
-Benzoyl peroxide 5%, clindamycin 1% (DUAC)
-Tretinoin <0.1% cream or gel
-Vitamin C

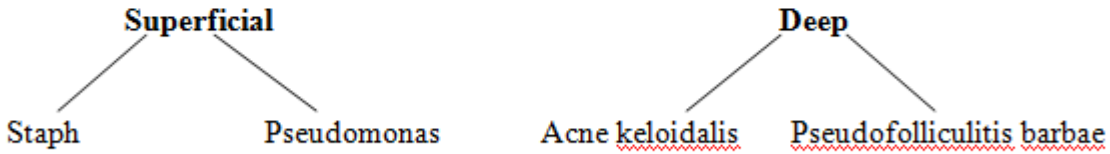
Oral
- Tetracyclines
-Erythromycins
-Cotrimoxazole
-Isotretinoin

Physical
- Intense Pulsed Light
-KTP (532nm) laser
-Pulsed dye laser
-CO^2 laser
-Surgical
-electrosurgical

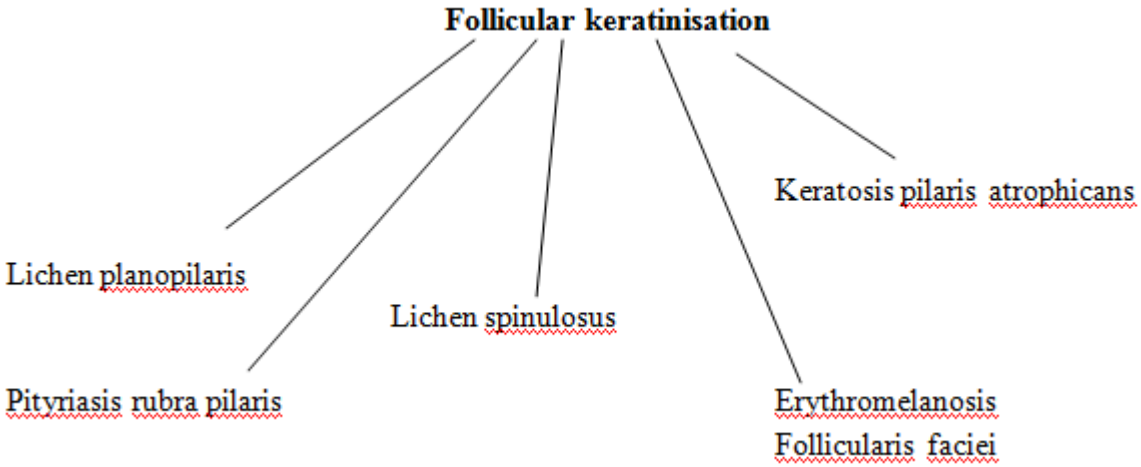
FOLLICULITIS

Superficial and deep

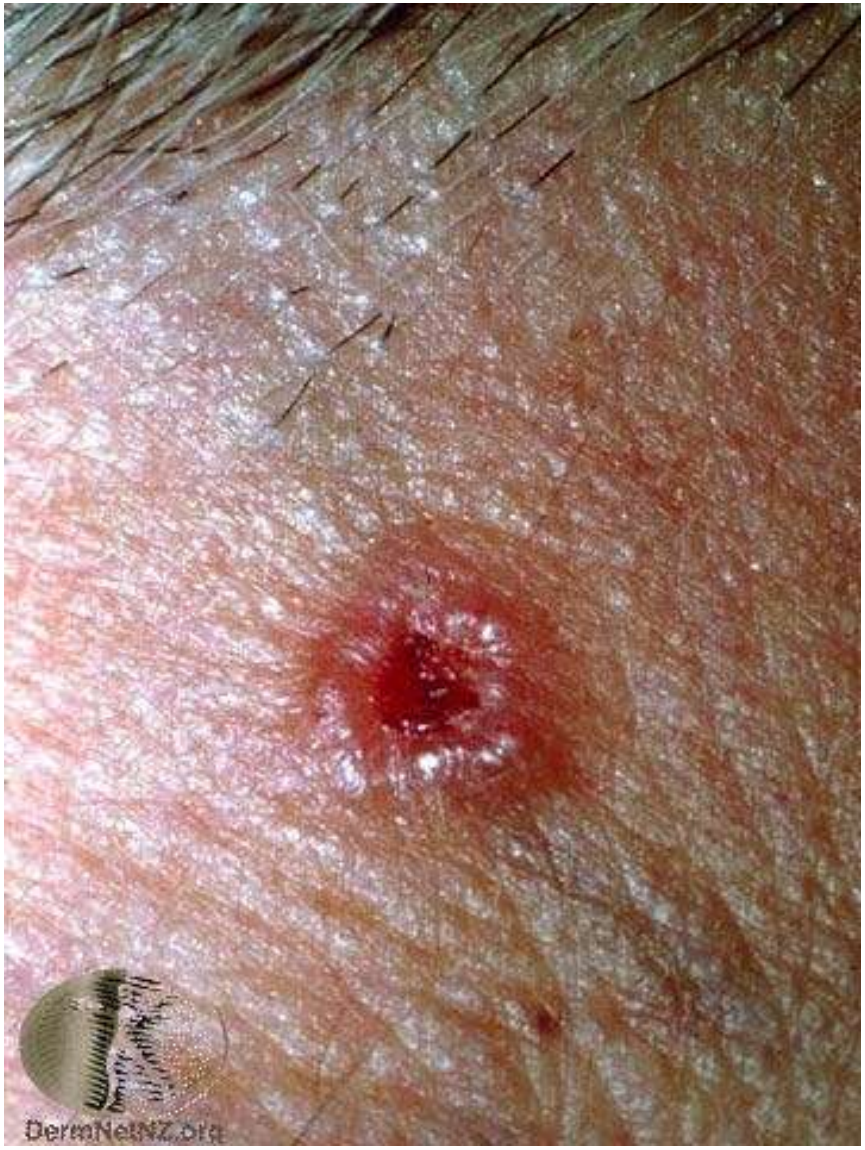
- Disorder of follicular keratinisation
- Follicular occlusion tetral (acne conglobata, hidradenitis suppurativa
- Dissecting cellulitis, pilonidal sinus)



- Pustules and erythema
- Terminal hairs



- Eosinophilic (lymphoma, AIDS, neonatal) – pustular (Ofuji's)
- Irritant folliculitis (tars, ointments, etc)
- Gram negative folliculitis (pseudomonas, klebsiella, enterobacter, proteus spp)
  - - long term antibiotics RX/hot tbb "spa" folliculitis - -)
- Dermatophyte folliculitis (T. metagrophytes/verrucosum/rubrum 'Majocchi's')
- Pityrosporum folliculitis (young adults/warm weather/occlusion/↑sebum)
- Candida folliculitis (diabetics)
- Phrynoderma (vit A deficiency)
- Herpes simplex folliculitis (males shaving, HIV positive)
- Dermodex folliculitis (immune suppression)
- Drug induced folliculitis (steroids, androgens, iodides, lithium (AGEP), cotrimoxazole)
- Actinic folliculitis (hours x sun exposure or x phototherapy)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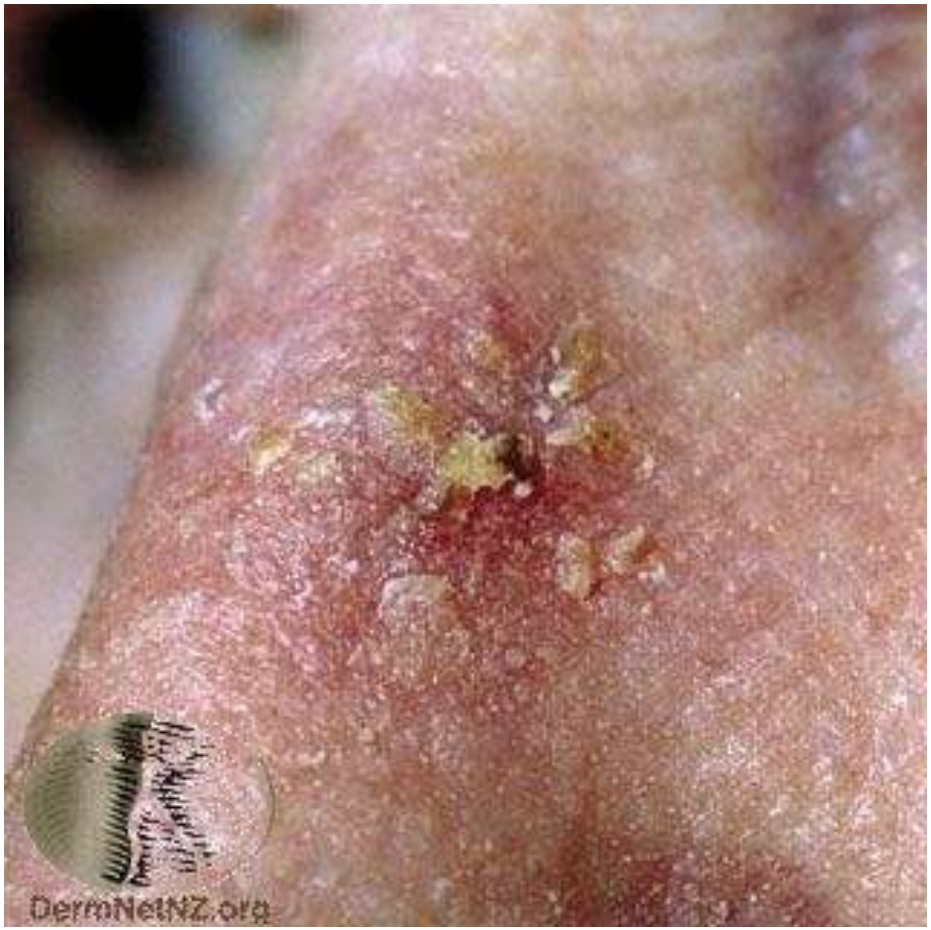
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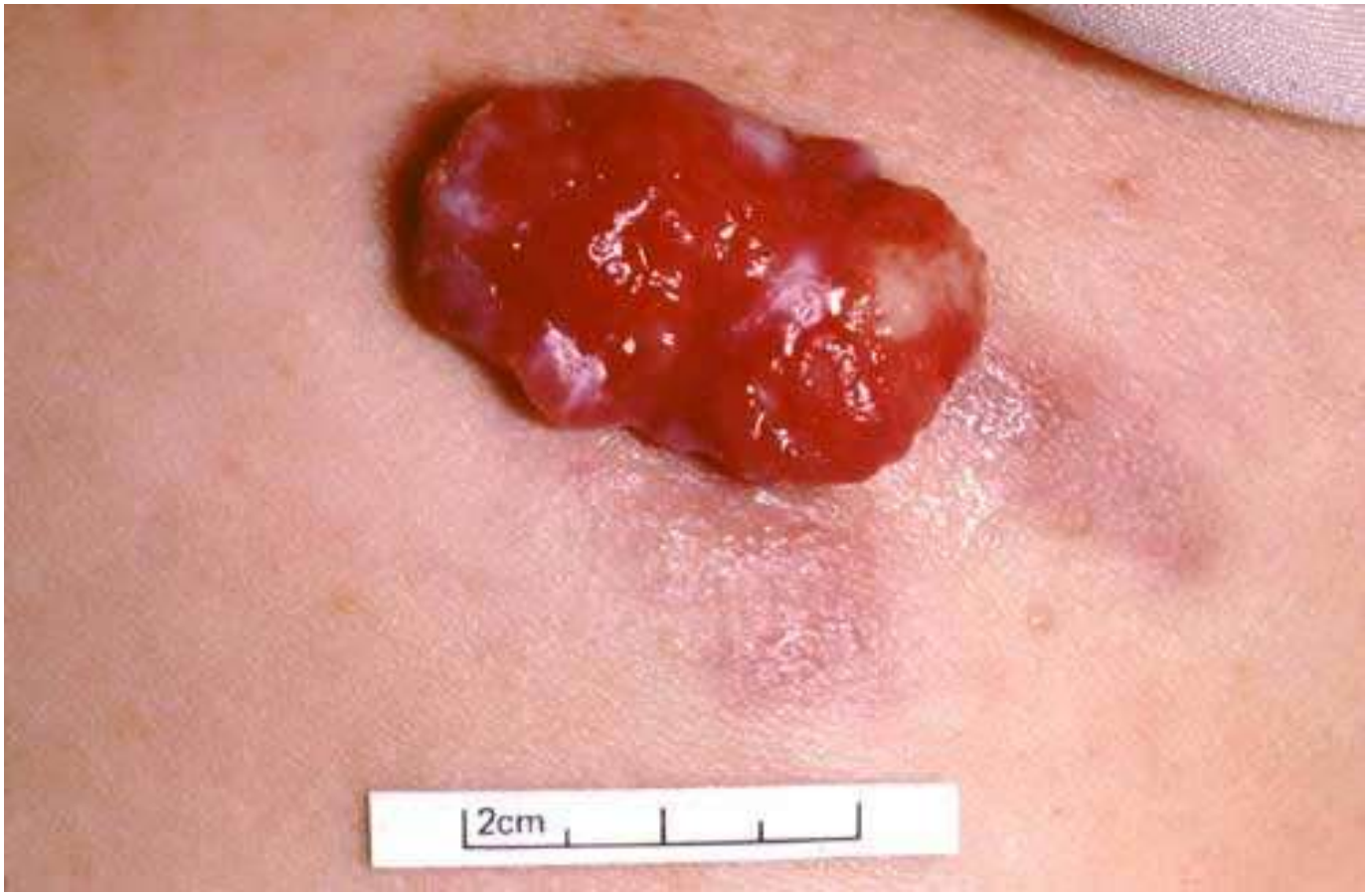
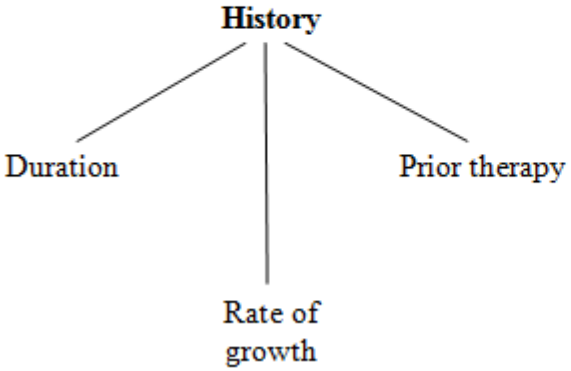

2cm

NON MELANOMA SKIN CANCER (NMSC)

Evaluation and risk management:



Physical exam

- Location and size
- Palpation/tethered
- Definition

Biopsy

- Tumour type
- Depth
- Prognosis

Neurologic symptoms
Past history
Family history
Lymphadenopathy

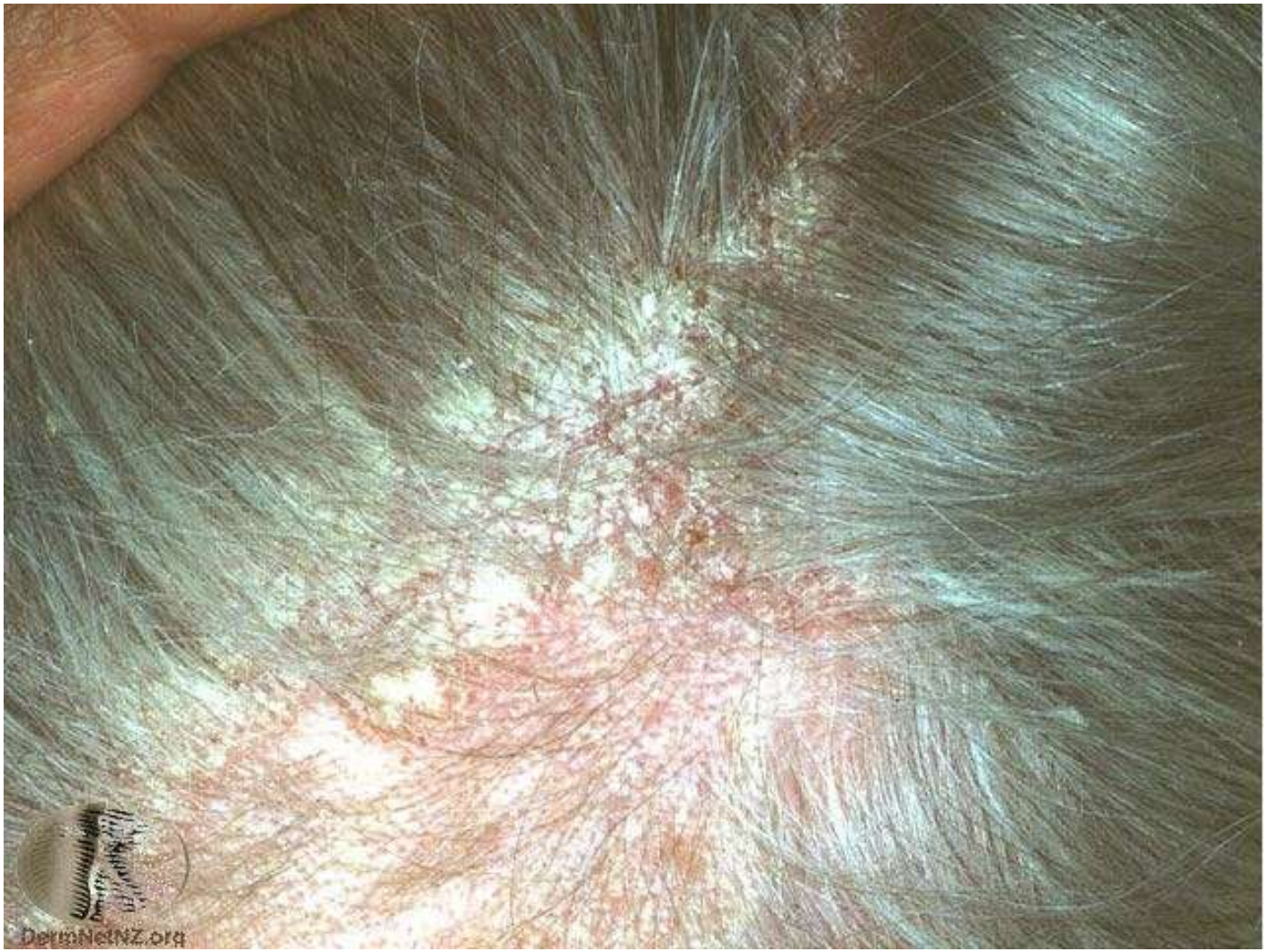
Surgical Mangement (tumour size is important)

BCC invasive	4mm excision margins or Mohs
SCC (high risk)	6mm excision margins or Mohs

RISK FACTORS FOR RECURRENCE OF NON MELAMONA SKIN CANCER

	LOW RISK	HIGH RISK
CLINICAL RISK FACTORS		
Location/size	Area L <20mm Area M <10mm Area H <6mm	Area L >20mm Area M >10mm Area H >6mm
Borders	Well defined	Poorly defined
Primary vs recurrent	Primary	Recurrent
Immunosuppression	Negative	Positive
Tumour at site of prior radiation therapy	Negative	Positive
Rapidly growing tumour (SCC only)	Negative	Positive
Neurologic symptoms: pain, paresthesia, paralysis (SCC only)	Negative	Positive
PATHOLOGIC RISK FACTORS		
Perineural involvement	Negative	Positive
Subtype (BCC only)	Nodular, superficial	Micronodular, infiltrating, sclerosing
Degree of differentiation	Well differentiated	Moderately or poorly differentiated
Adenoid, adenosqauamous or desmoplastic (SCC only)	Negative	Positive
Depth; Clark level or thickness (SCC only)	I, II, III or <4mm	IV, V or >4mm

Area L: Low risk: trunk, extremities
Area M: Medium risk: cheeks, forehead, neck, scalp
Area H: High risk: central face, eyelids, eyebrows, periorbital, nose, lips, chin, mandible, periauricular, ears, genetalia, hands and feet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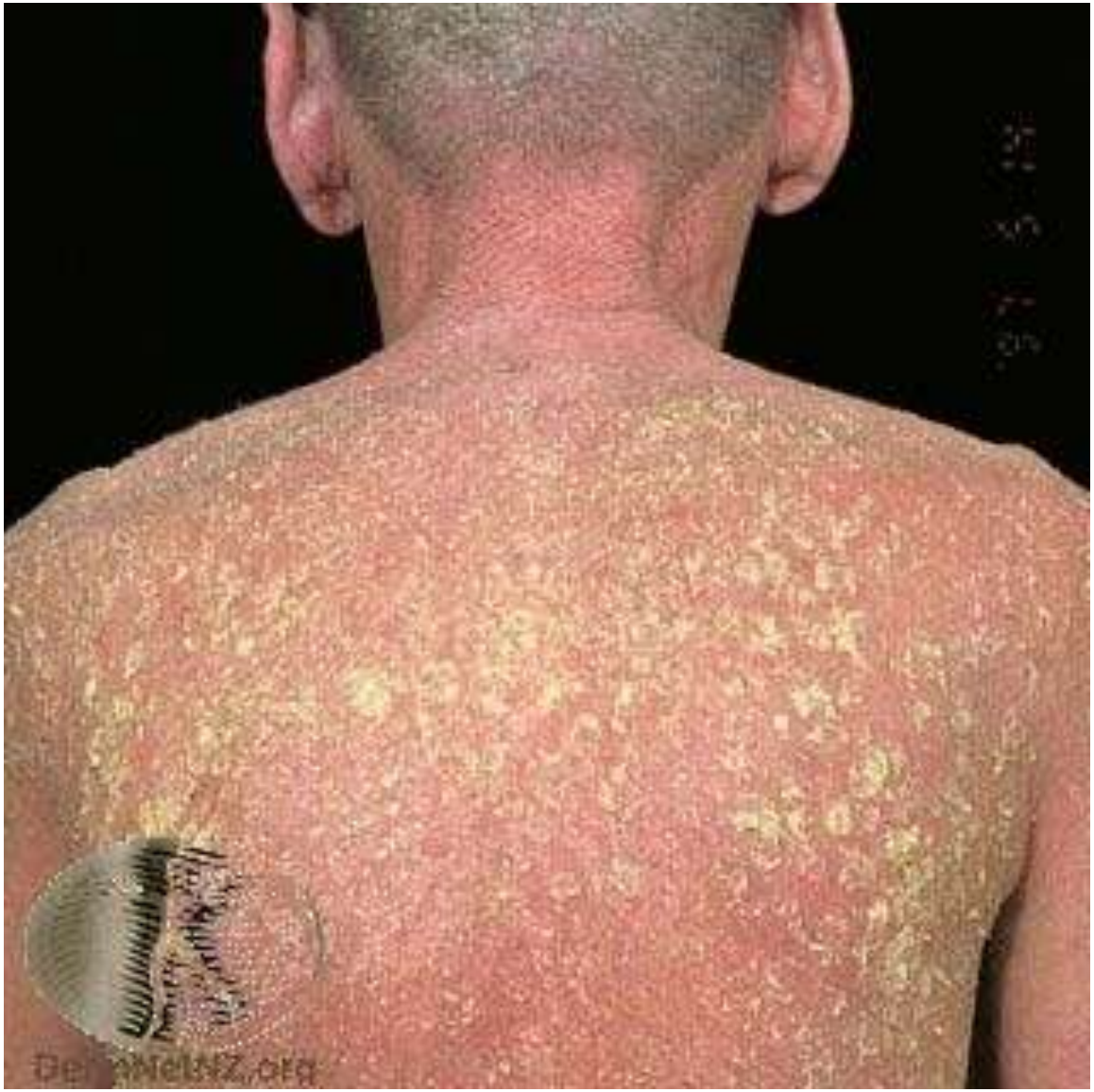

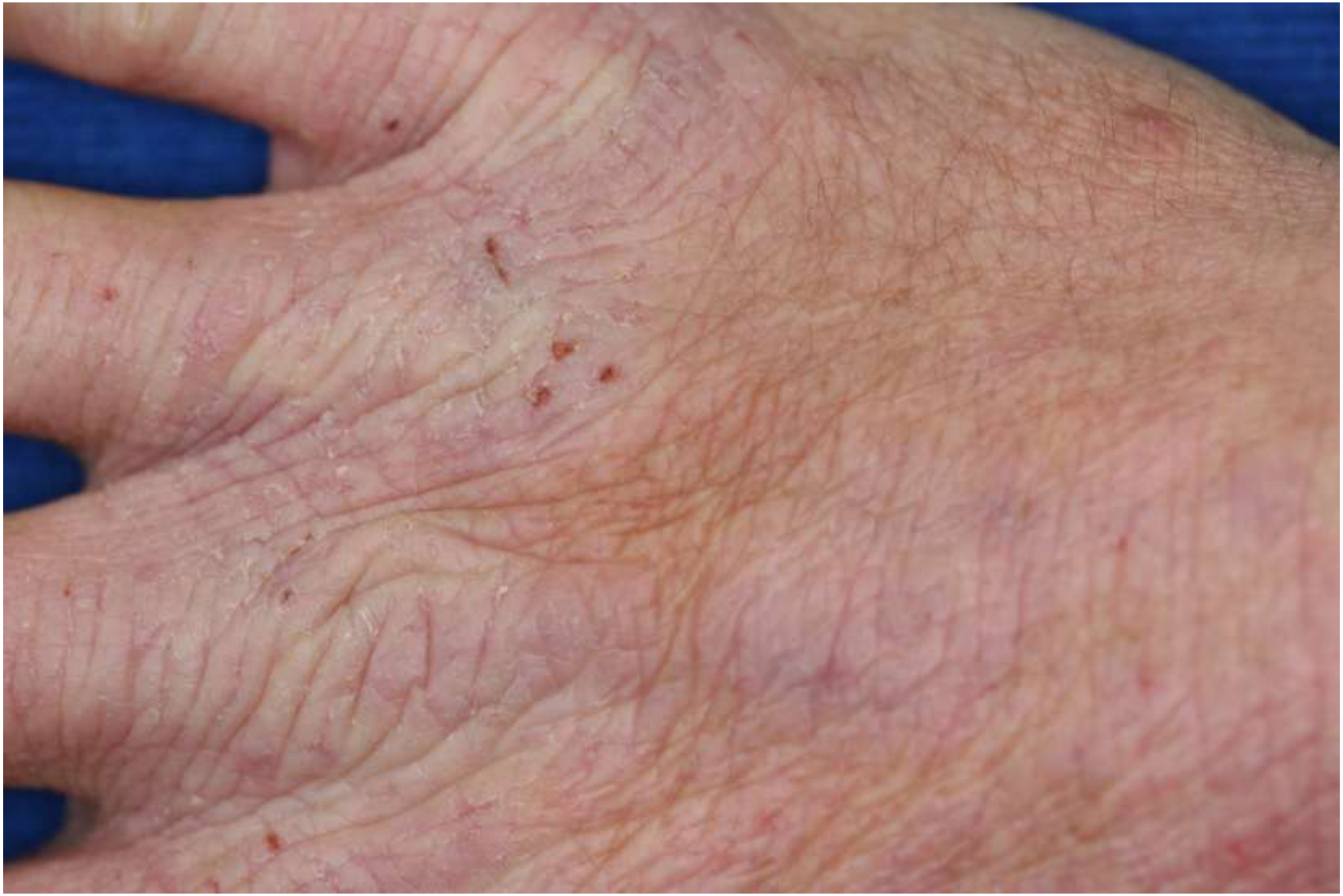

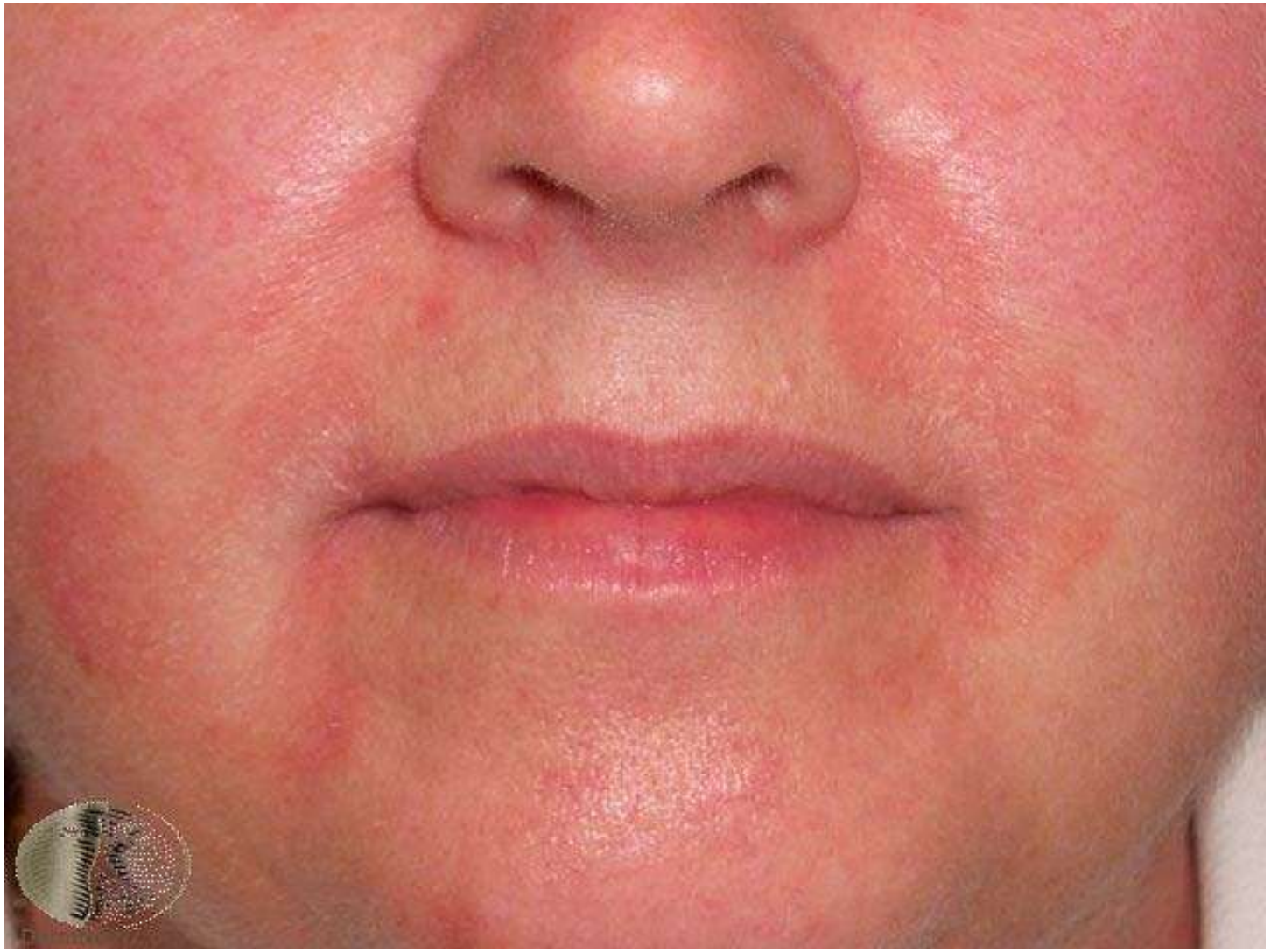

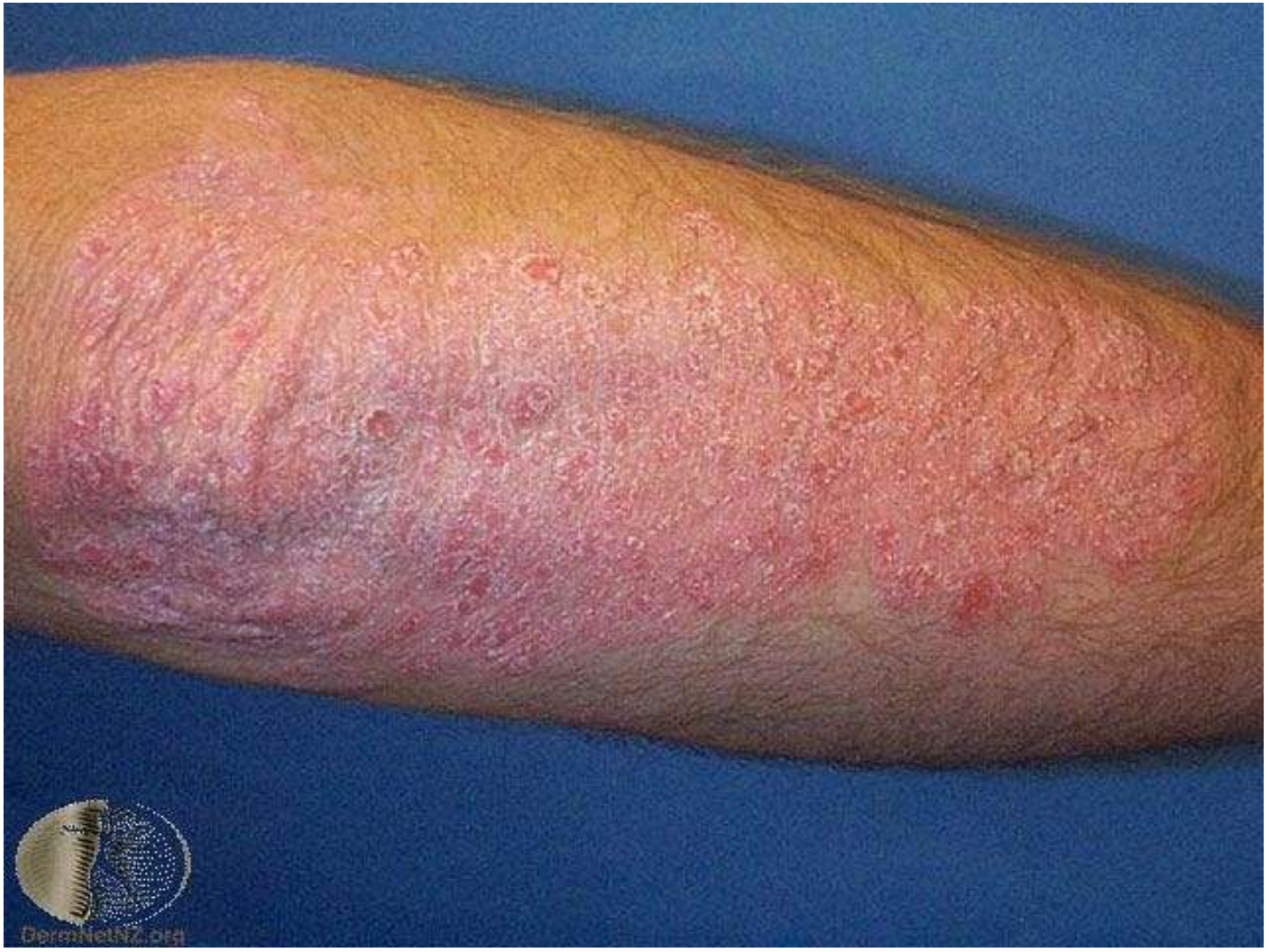
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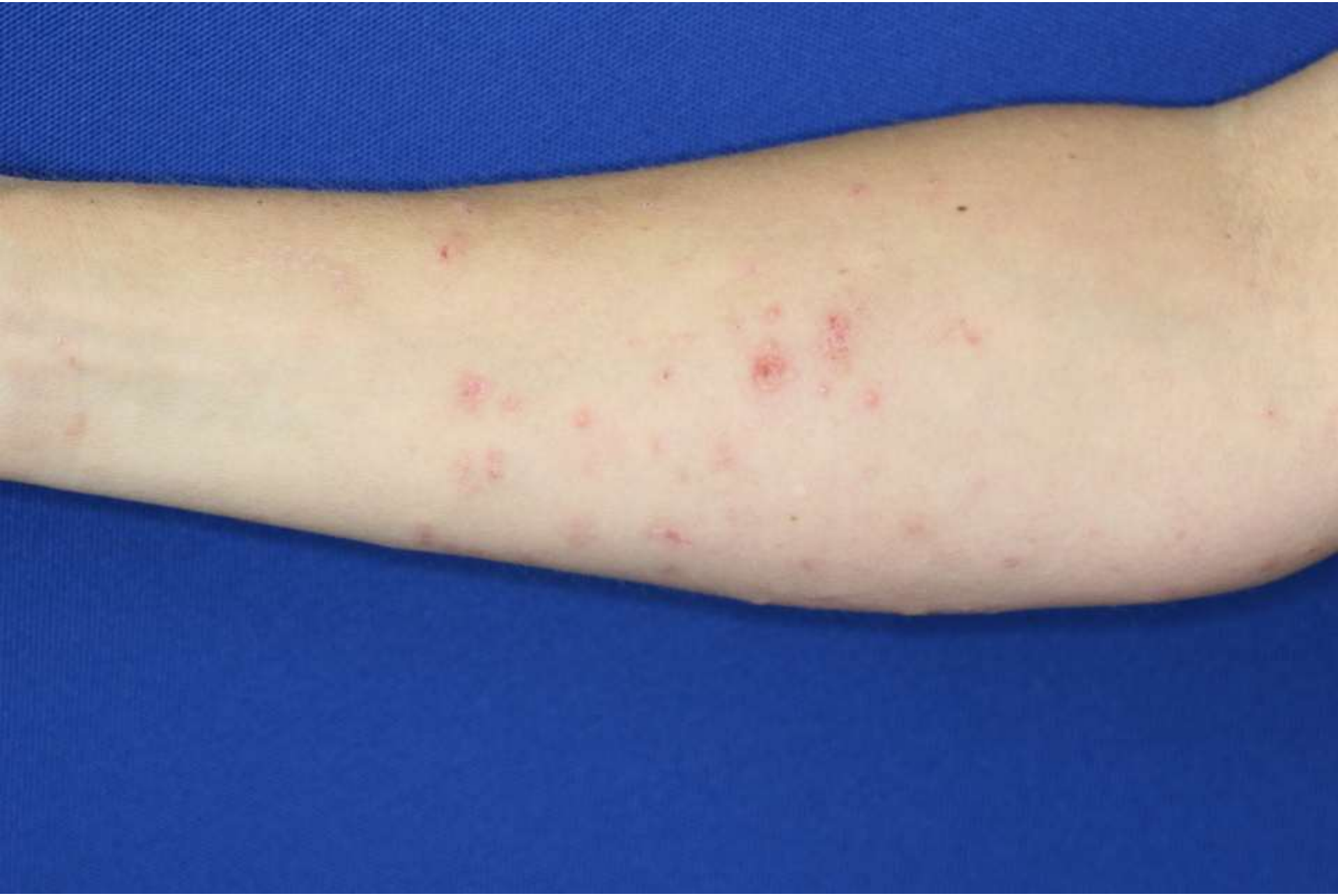


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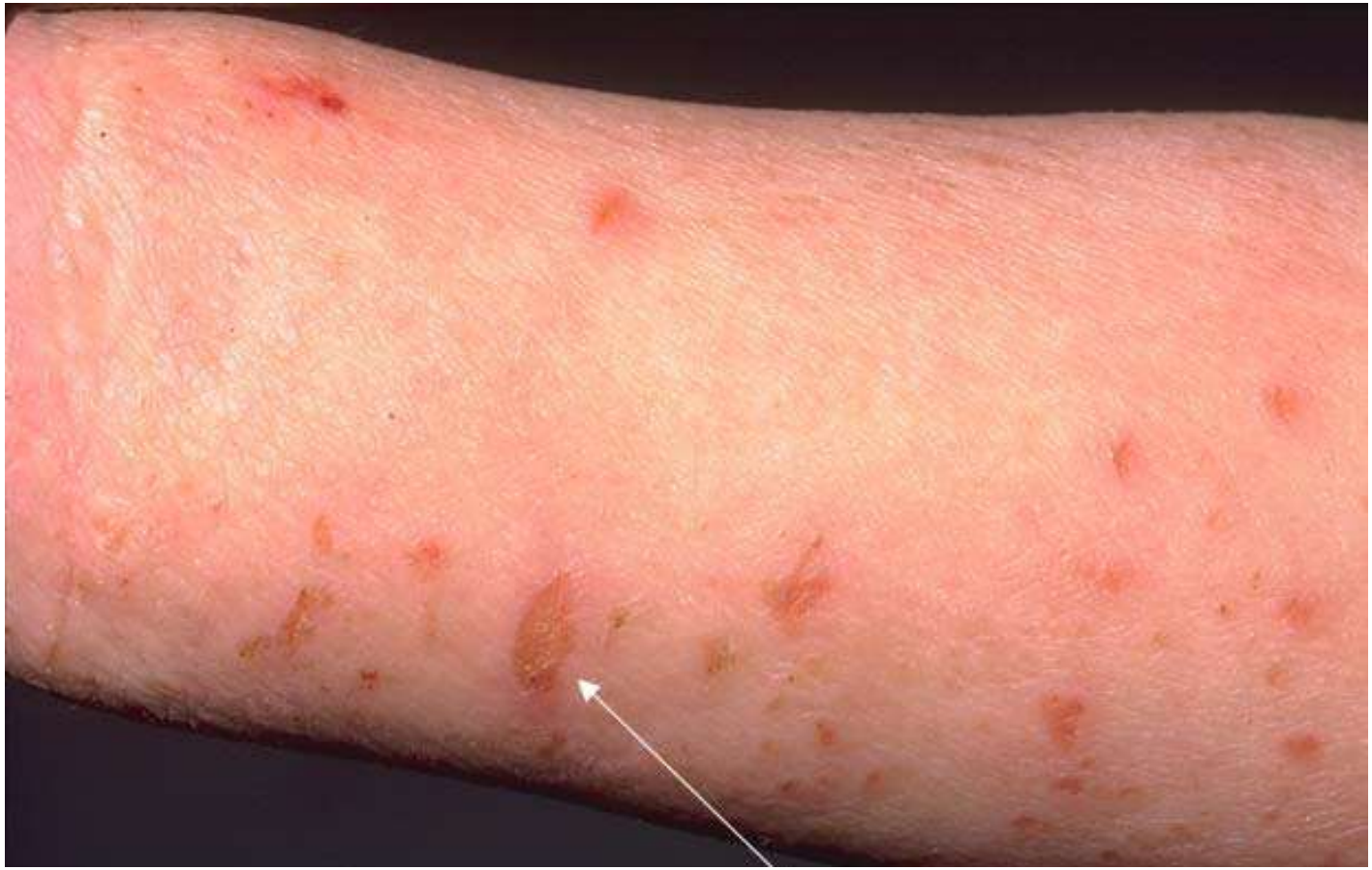

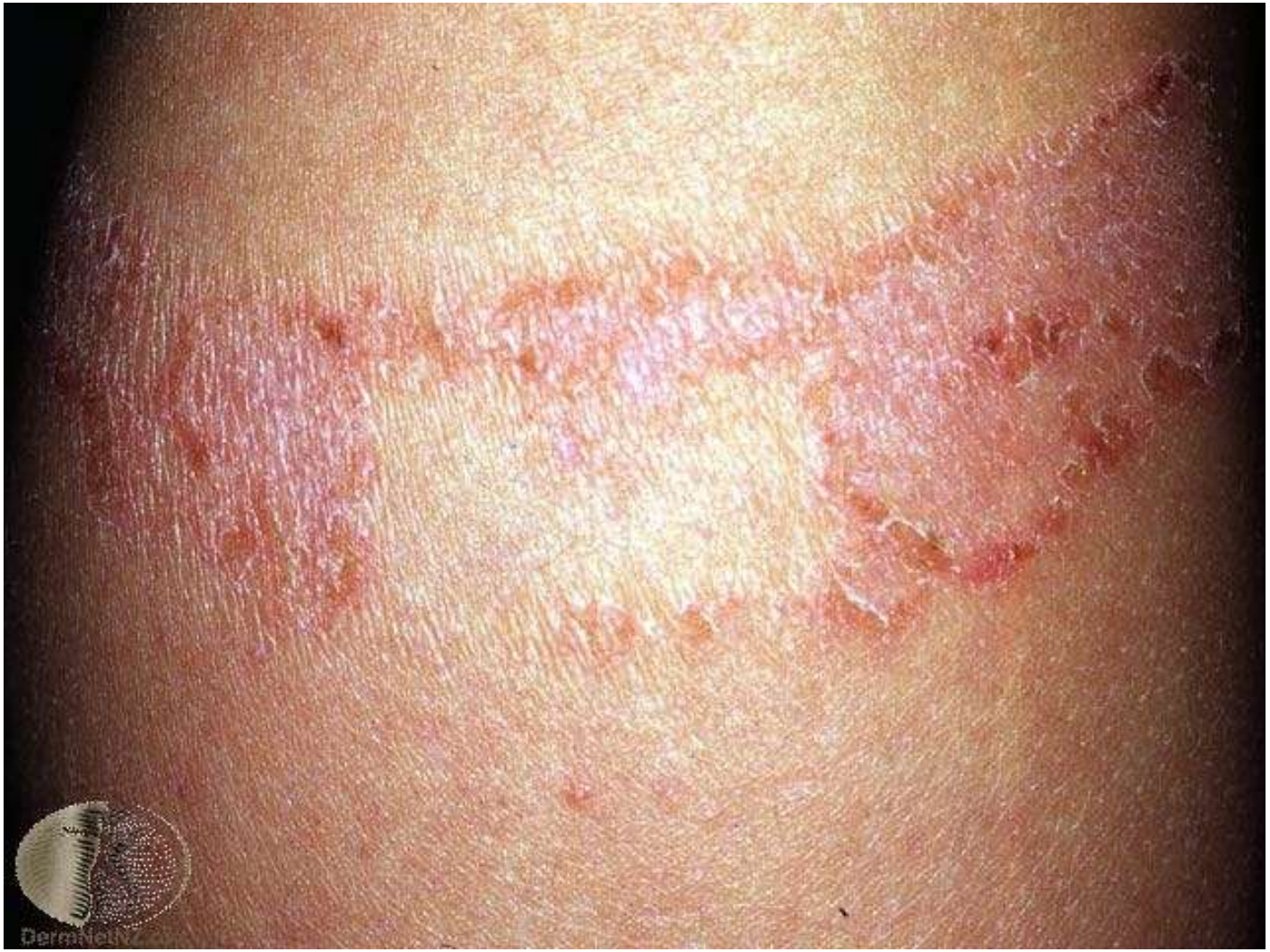

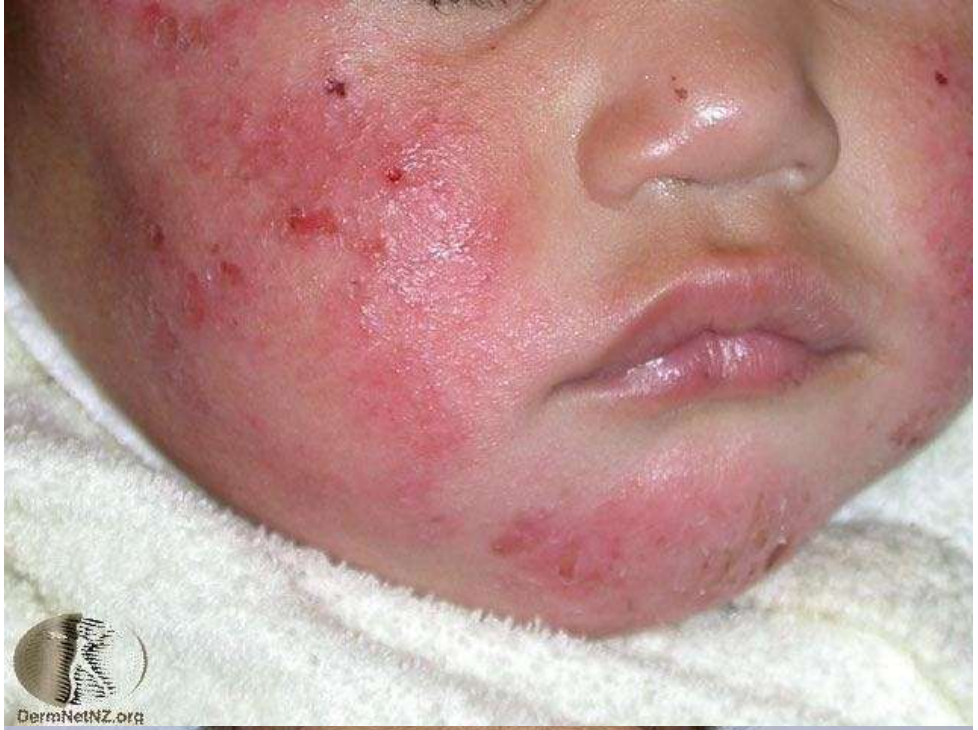
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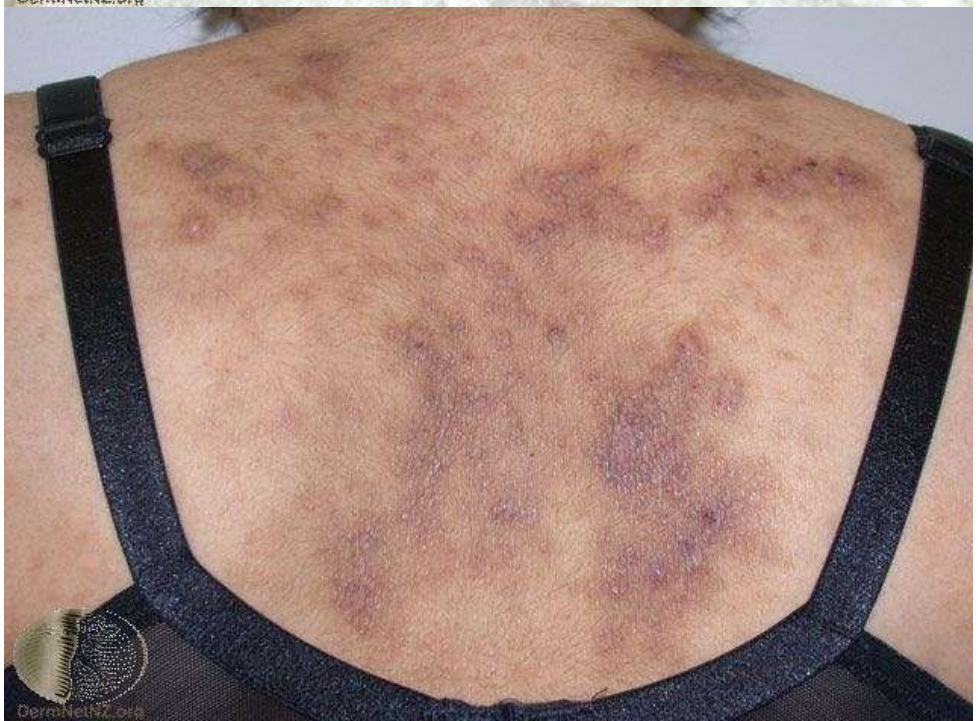
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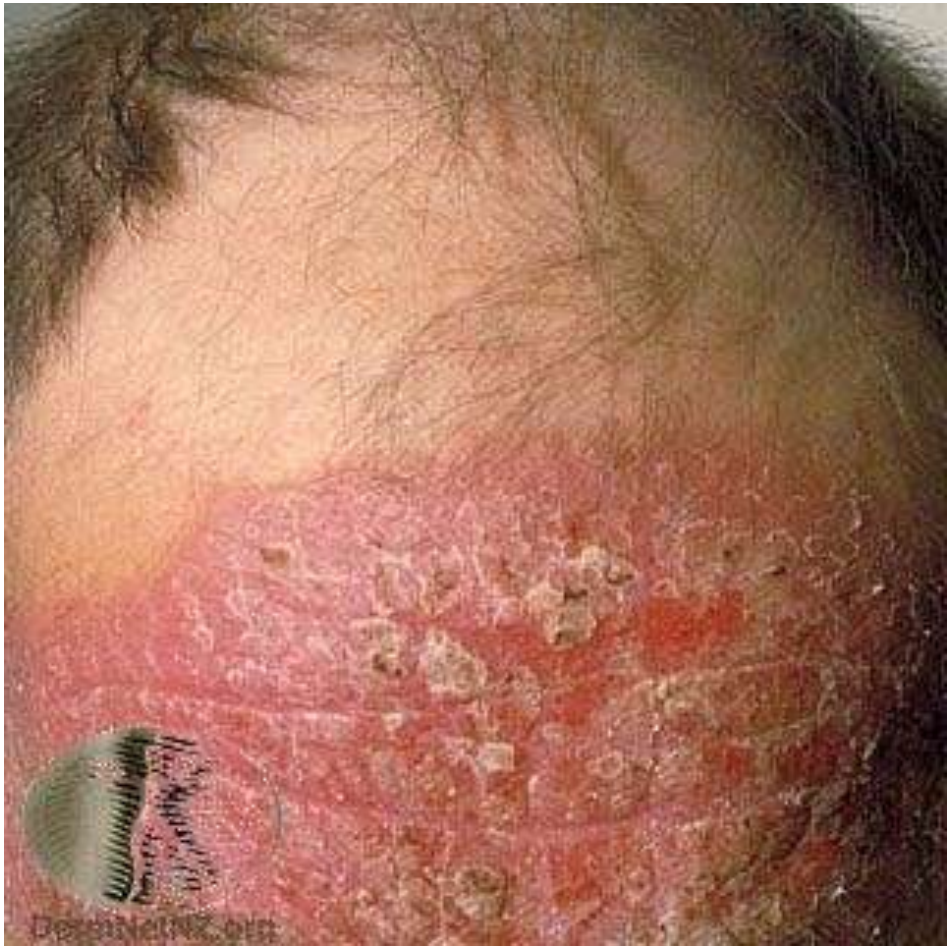

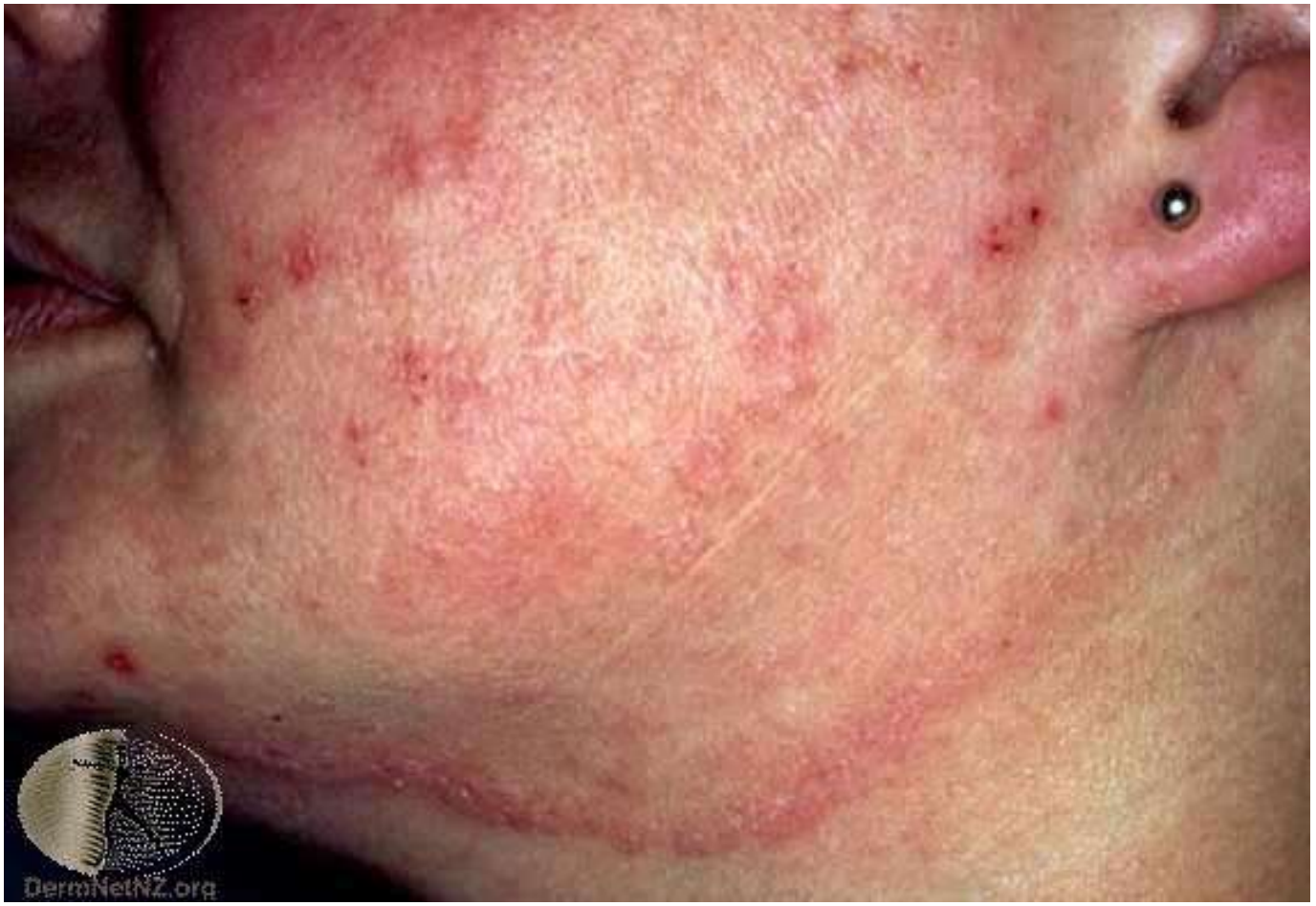
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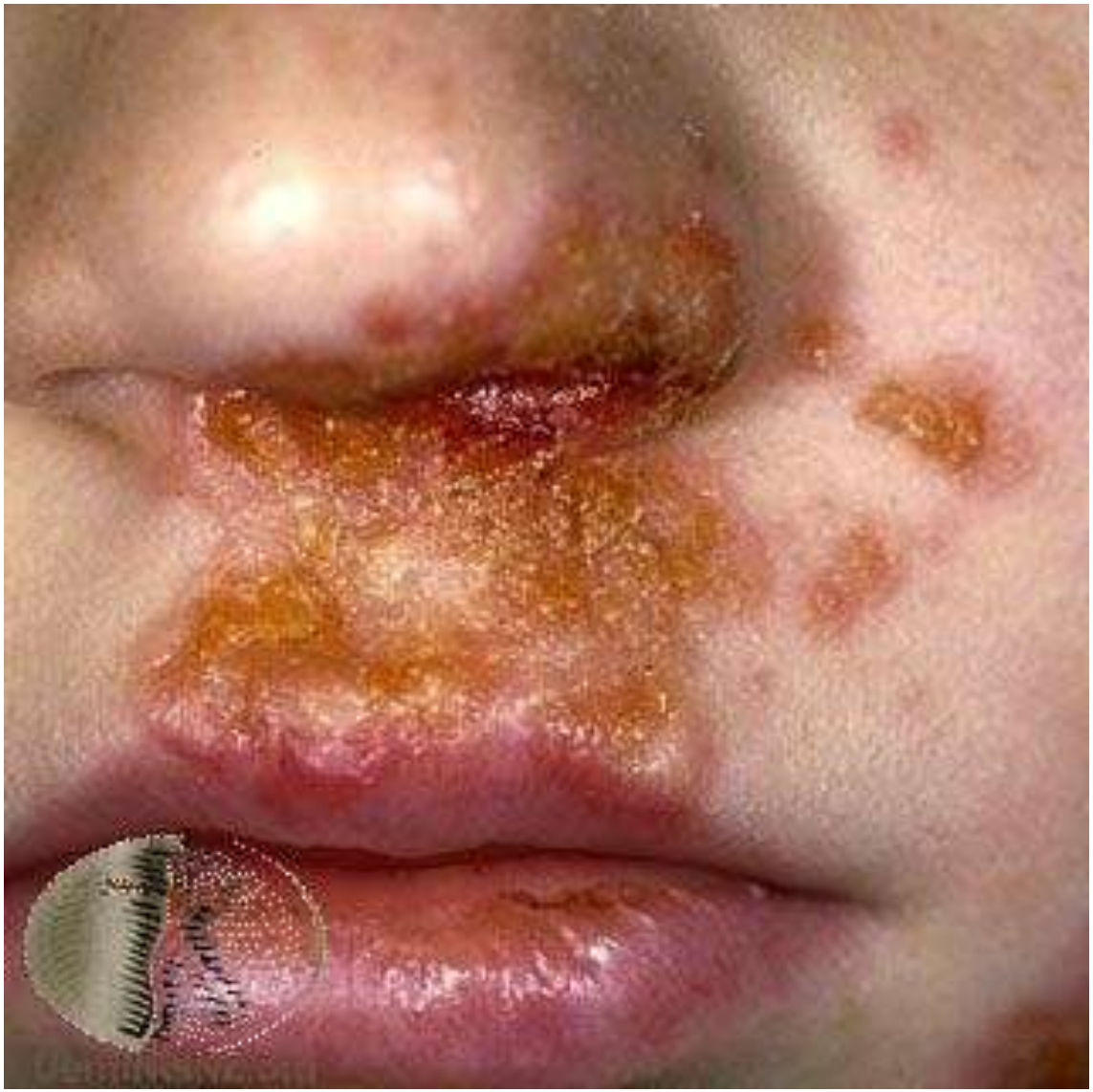

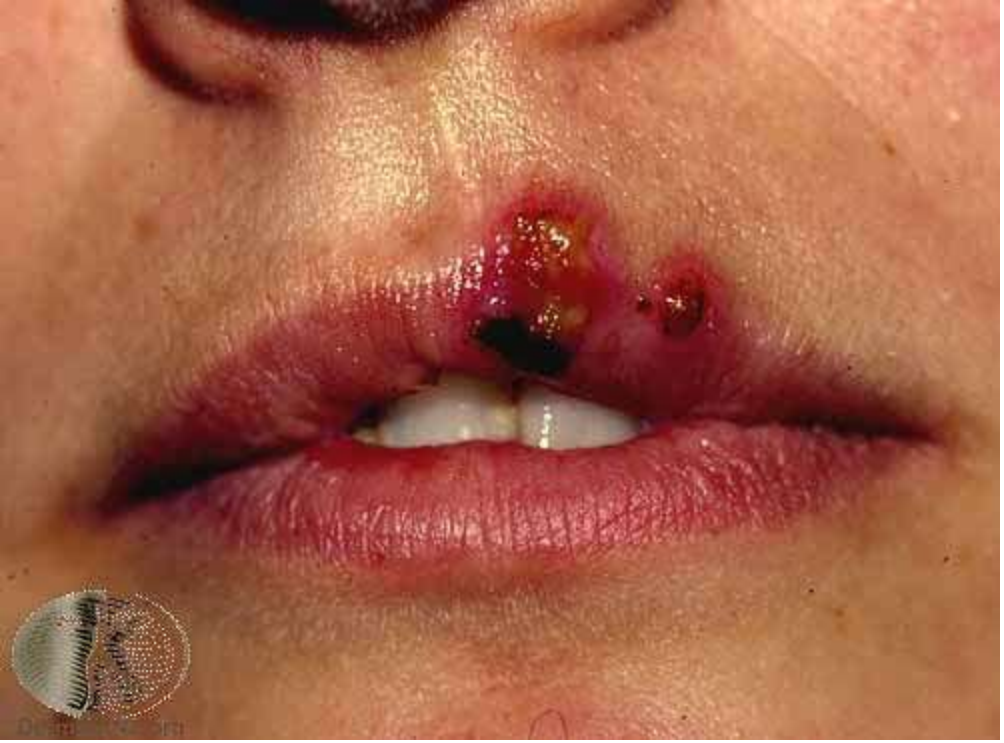

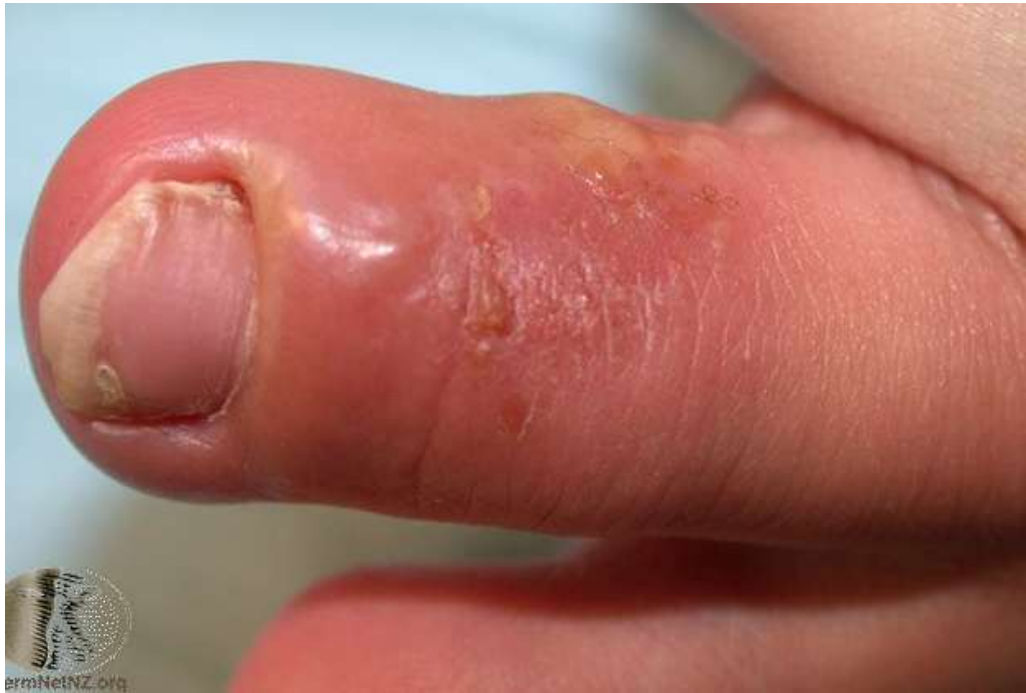

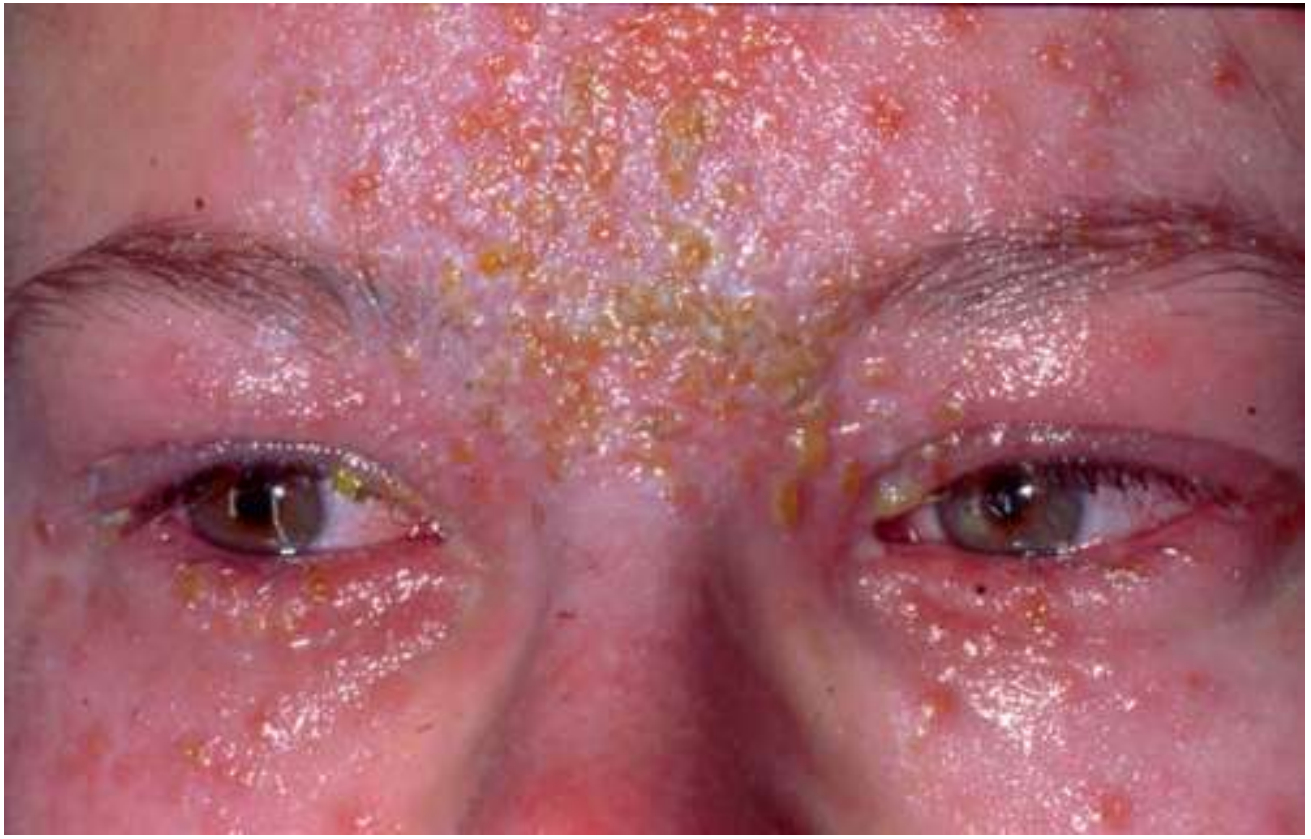

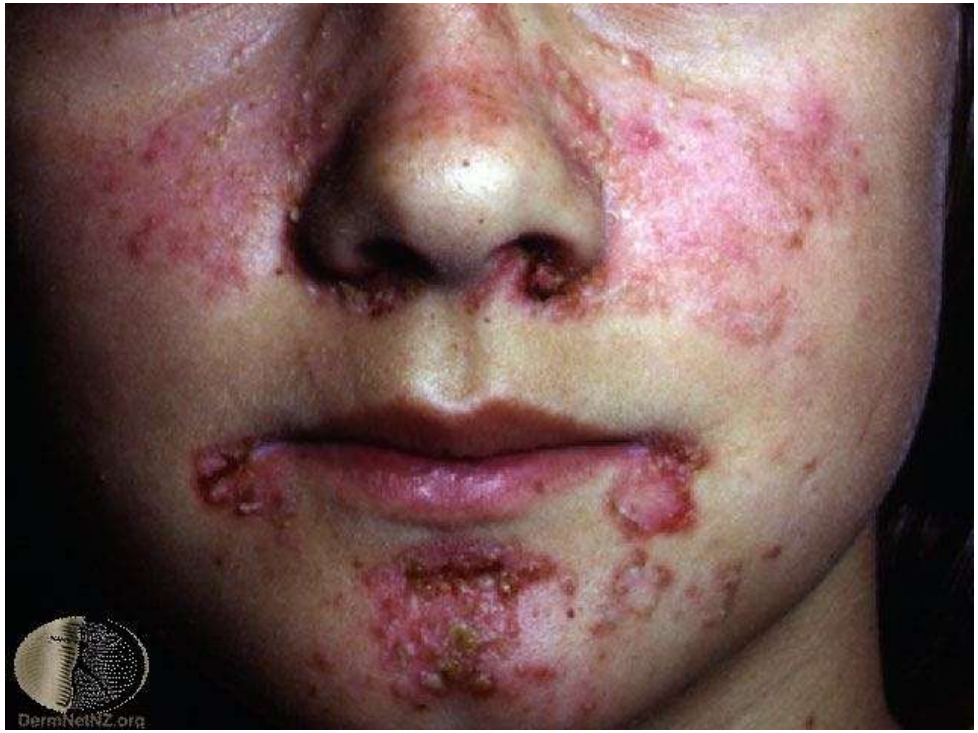
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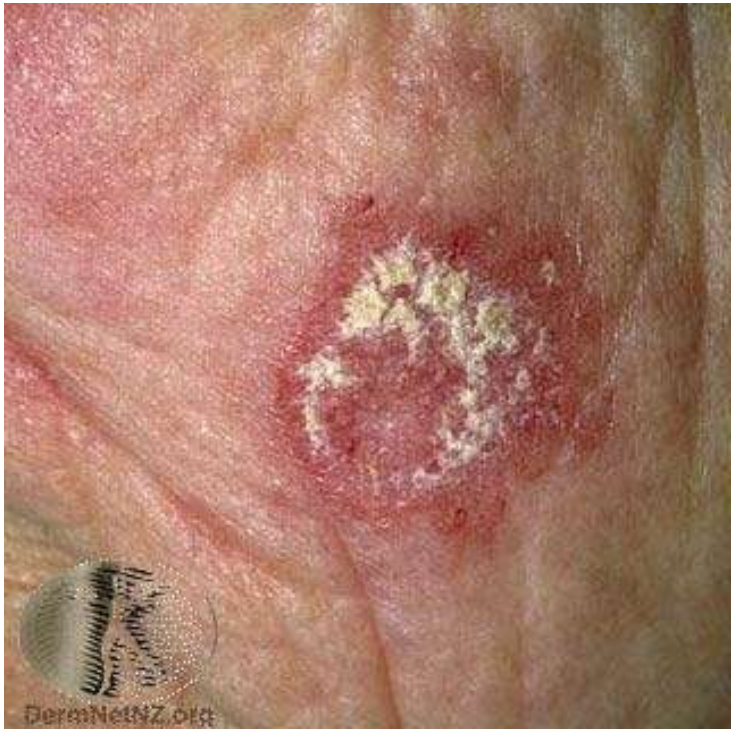
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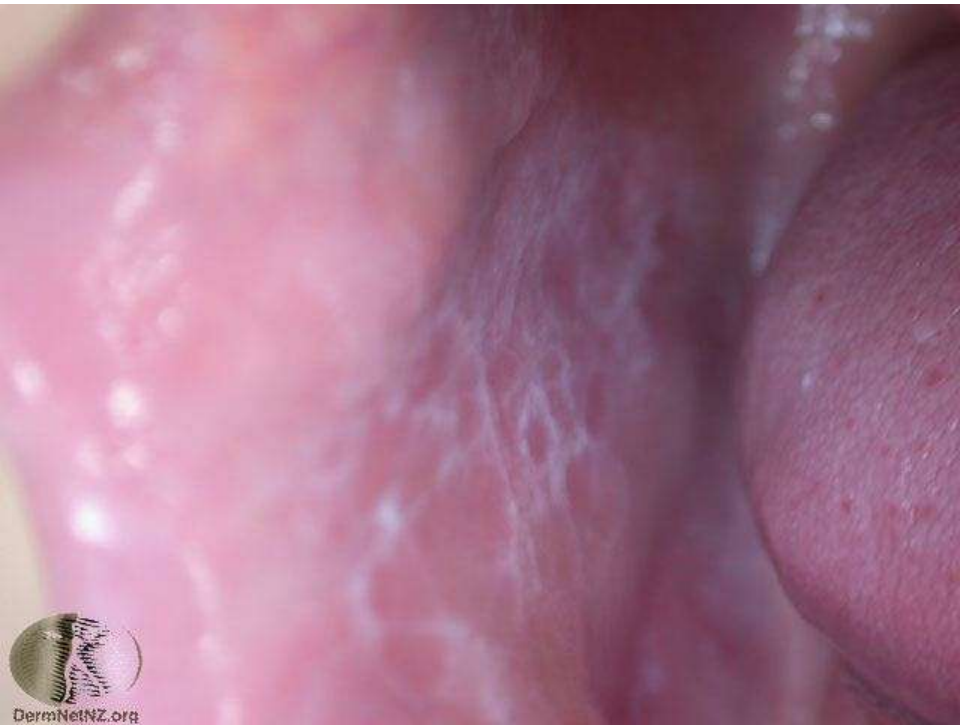
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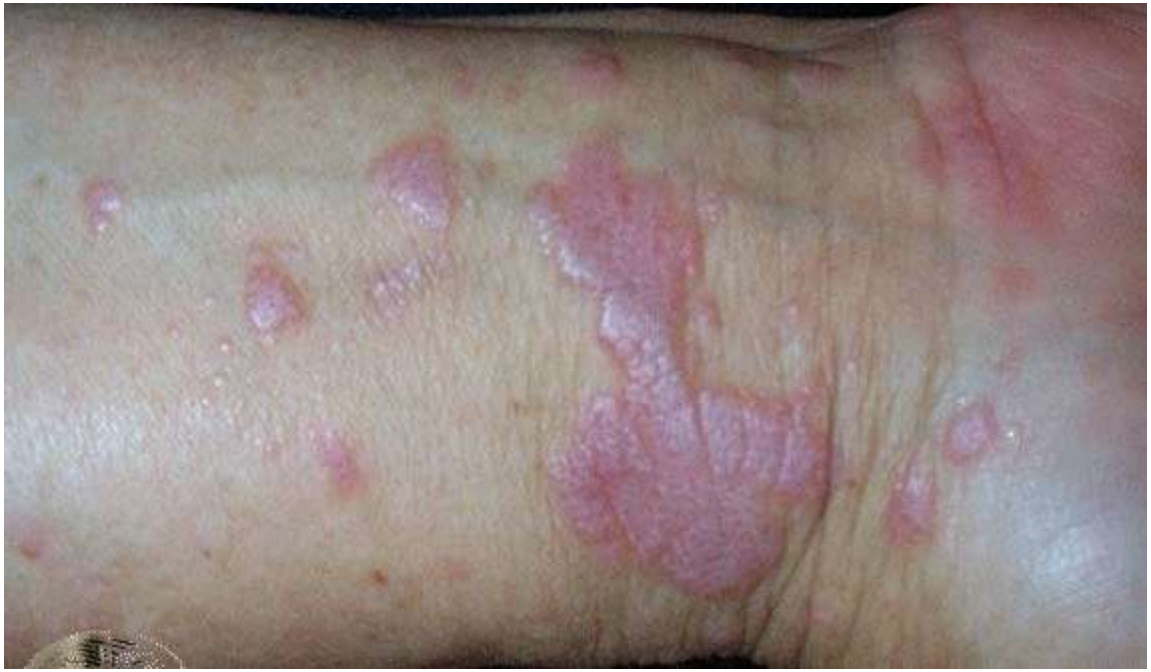

ATOPIC DERMATITIS

Major Features (3 of 4 present)

Pruritus (polished nails/subungual debris)
Typical morphology/distribution of skin lesions
Chronic or chronically relapsing dermatitis
Personal or family history of atopy

Minor Features

Xerosis/asteatosis/dryness of skin
AD ichthyosis/palmar hyperlinearity
'Type I' skin test reactivity
Elevated IgE/positive RAST tests
Cheilitis/conjunctivitis/blepharitis
Infraorbital fold/'nasal' salute
Facial pallor/erythema
White dermographism

ATOPIC DERMATITIS

Therapeutic ladder

- Emollients (maintenance and relapse prevention)
- Irritant avoidance and recognition of other trigger factors
- Treatment of associated bacterial, viral or fungal infections
- Oral antihistamines for antipruritic and sedative effects
- Topical corticosteroids/intralesional corticosteroids
- Topical calcineurin inhibitors
- Other topical including coal tar derivatives
- Narrowband UVB phototherapy
- Systemic corticosteroids (short term)
- Cyclosporine
- Azathioprine
- Methotrexate/mycophenolate
- Interferon/ intravenous immunoglobulin
- Biologic agents (efalizumab, infliximab, omalizamab)

ATOPIC DERMATITIS

Interaction between environmental and genetic factors

- Hygiene hypothesis – Auto allergy IgE x link
- Defective epidermal barrier and bacterial colonisation
- Acute stage: Th2 cells and cytokines. Chronic stage: Th1.
- Loss of function mutations in the filaggrin gene – keratin aggregation

ATOPIC DERMATITIS

DIFFERENTIAL DIAGNOSIS

Psoriasis/pityriasis rubrapilaris
Seborrhoeic dermatitis
Asteatotic eczema
Venous syndrome dermatitis
Nummular dermatitis
Pityriasis alba
Pityriasis rosea
Juvenile plantar dermatosis
Parapsoriasis/superficial scaly dermatitis
Impetiginised eczema
Eczema herpeticum
Dermataphytosis/eczema herpeticum
Rosaceous dermatitis (POD)
Lichen planus/lichen planopilaris
Keratosis pilaris/follicular ichthyosis
Lichen simplex chronicus
Nodular prurigo

Contact irritant/allergic dermatitis
Photosensitivity dermatitis
Chronic actinic dermatitis
Drug eruption
Graft versus host disease
Systemic lupus erythematosus
Dermatomyositis
Pemphigus foliaceus
Cutaneous T-cell lymphoma
Histiocytosis (Langerhaus cell)
Primary immune deficiencies
Metabolic and genetic disorders
HIV associated dermatosis
Scabies/cutaneous larva migrans
Sarcoid/TB/syphilis
Dermatitis artefacta