AETC AIDS Education & Training Center Program
Southeast Regional Conference 2022

DERMATOLOGIC MANIFESTATIONS OF HIV

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Learning Objectives

- By the end of this session, each participant will be able to
  - Describe common neoplastic, inflammatory, and infectious dermatoses commonly observed in PLHIV
  - Recognize the cutaneous manifestations of psychiatric comorbidities in PLHIV
  - List the most common adverse cutaneous drug reactions in PLHIV and their associated triggers

Disclosures

- No relevant financial discolsures

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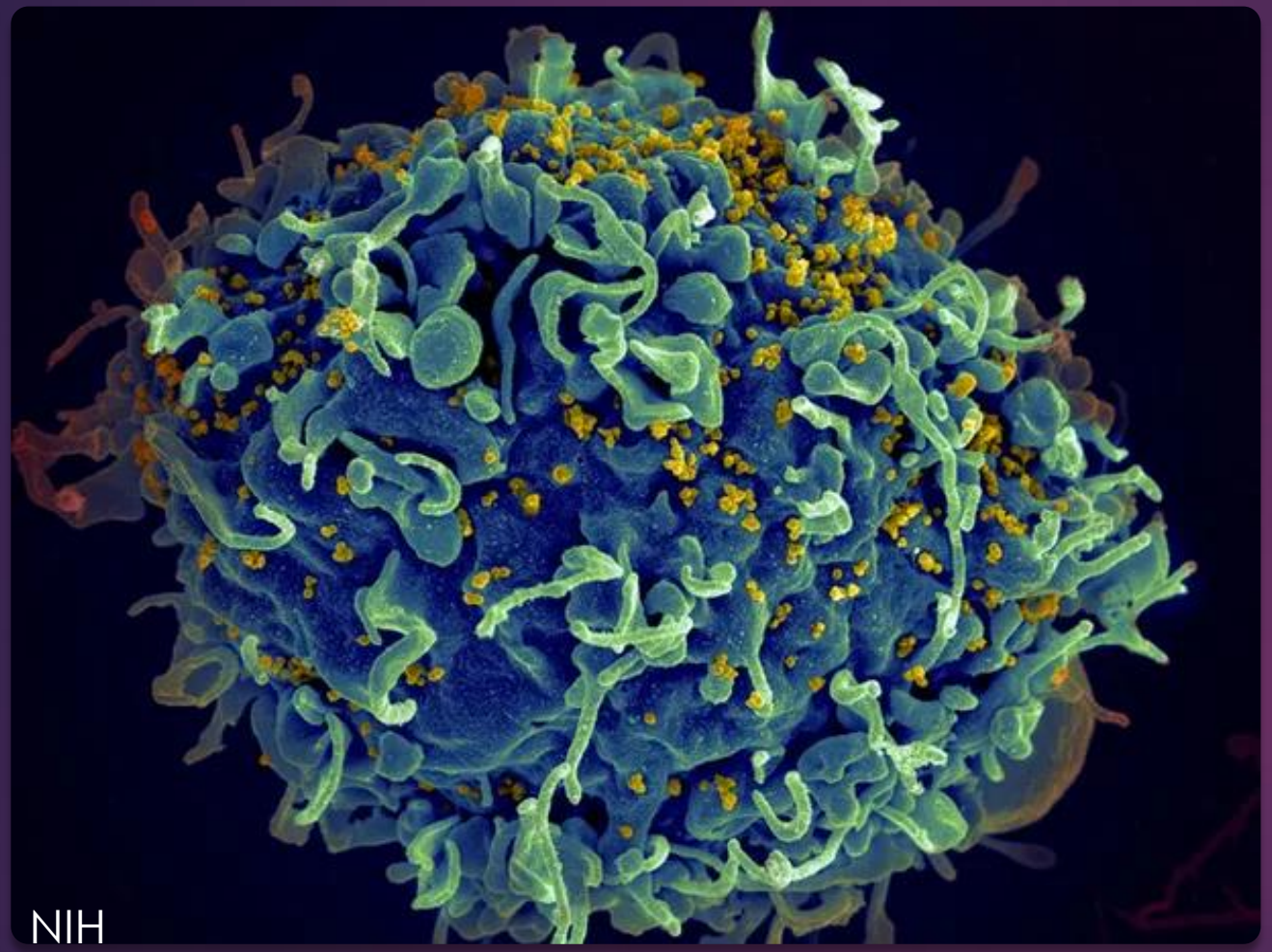
AETC Program National Centers and HIV Curriculum

- **National Coordinating Resource Center –** serves as the central web –based repository for AETC Program training and capacity building resources; its website includes a free virtual library with training and technical assistance materials, a program directory, and a calendar of trainings and other events. Learn more: https://aidsetc.org/
- **National Clinical Consultation Center –** provides free, peer-to-peer, expert advice for health professionals on HIV prevention, care, and treatment and related topics. Learn more: https://nccc/ucsf.edu
- **National HIV Curriculum –** provides ongoing, up –to-date HIV training and information for health professionals through a free, web –based curriculum; also provides free CME credits, CNE contact hours, CE contact hours, and maintenance of certification credits. Learn more: www.hiv.uw.edu

HIV and Skin Disease

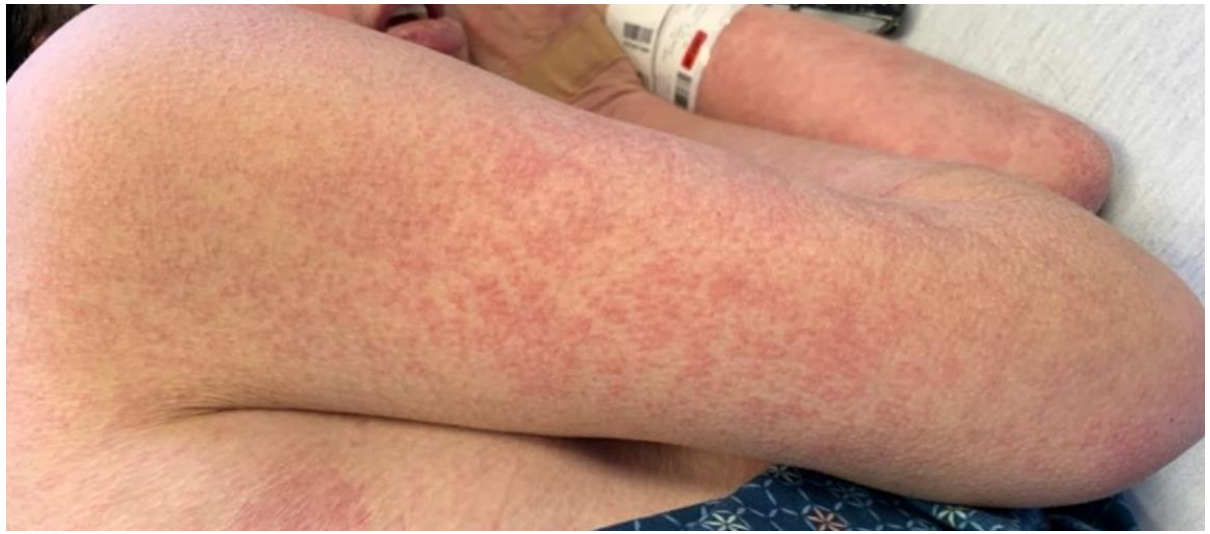
- 80-90% of PLHIV will have a dermatologic disease
- ART has altered the profile of HIV-associated dermatoses
  - Decrease in opportunistic infections
- Increase in Inflammatory conditions
  - Immune dysregulation
- In the setting of HIV/AIDS, infective and inflammatory dermatoses are often atypical, more severe, and more resistant to treatment
- In skin of color, lack of training in HIV-associated dermatoses results in improper diagnosis and treatment, exacerbating disparities.



HIV Specific Diseases

Exanthem of Acute HIV

- Acute retroviral syndrome
  - Occurs in highly viremic phase of acute HIV infection
  - nonspecific symptoms with fever and rash
  - resolves gradually as seroconversion occurs
- 40 to 90% of people infected with HIV during the first few weeks after initial exposure
- Dermatological symptoms
  - Erythematous maculopapular rash
    - Symmetrical
    - Involves face, palms and soles as well as trunk and limbs
  - Mucocutaneous ulceration
- General symptoms
  - Fever, Sore throat, lymph adenopathy, malaise, anorexia, n/v/d, myalgias, HA

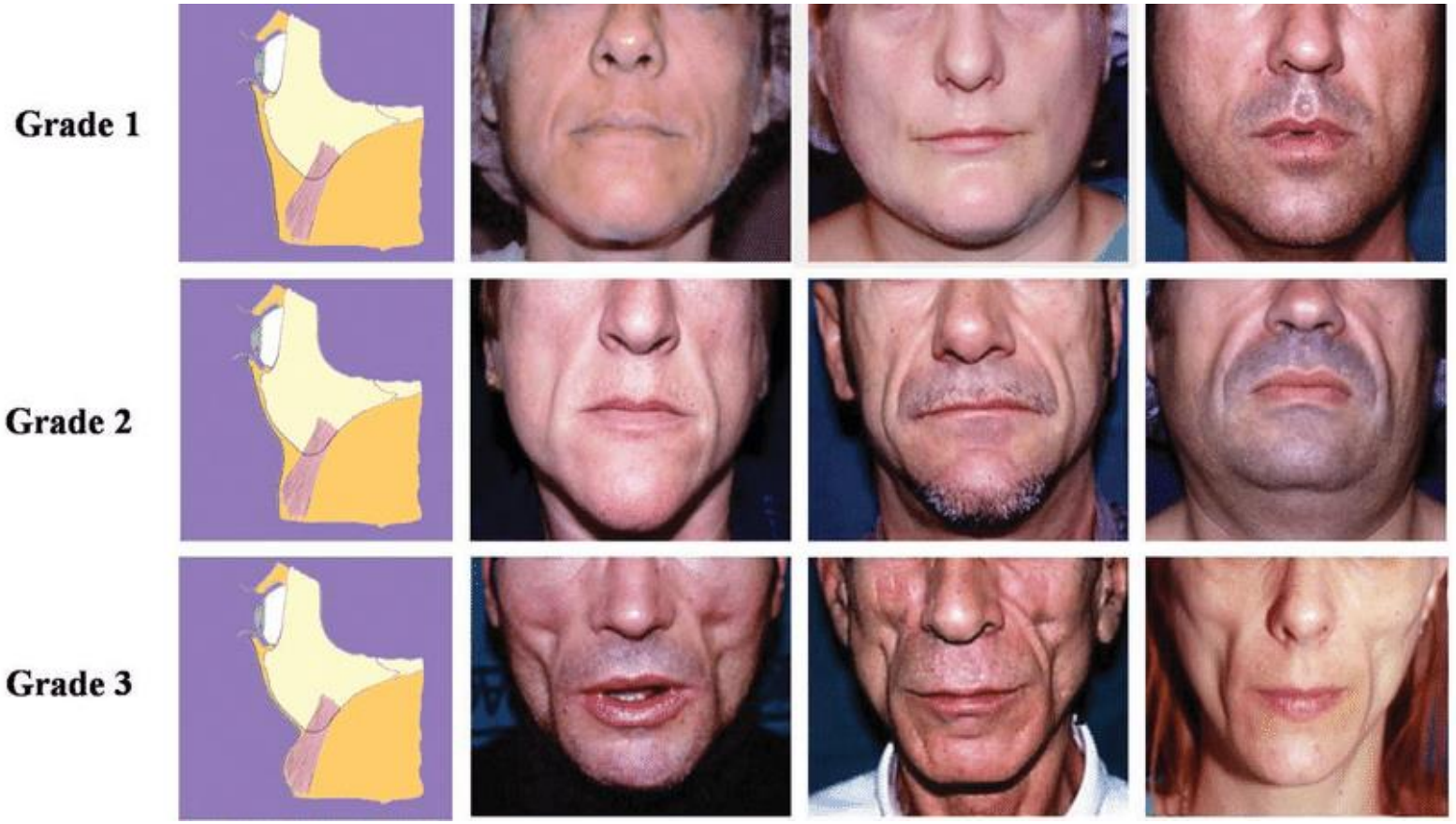


Immune reconstitution inflammatory syndrome

- immune-mediated inflammation directed against antigens including various microorganisms and drugs
- Develops after immune recovery following initiation of ART in HIV
  - In 10–20% of HIV-infected patients starting on antiretroviral therapy, rapid improvement of immune function is followed by its dysregulation.
  - IRIS usually occurs during the early, most rapid phase of immune recovery
  - Weeks to months after start of ART
  - Paradoxical worsening of pre-existing opportunistic infections or inflammatory disorders
    - mycobacterial, fungal, and viral opportunistic infections.
  - Unmasking of a previously undiagnosed opportunistic infection with exaggerated inflammatory features
- RFs
  - Severe CD4 lymphopenia (< 100 cells/µl)
  - The extent and severity of the opportunistic infection
  - HIV viral load before starting antiretroviral therapy
  - Timing of ART and initial response to treatment
- A positive virological and immunological response to antiretroviral therapy
- Zoster, HSV, cutaneous TB, MC, tinea, Kaposi's, PG, Sweet's, acne, folliculitis, psoriasis

Facial Lipoatrophy

- Loss of SQ fat peripherally
- Associated with central fat accumulation, hyperlipidemia, IR, T2DM, ↑ LFTs
- Prior tx with thymidine analog (d4T > ZDV)
  - Despite d/c fat recovery remains slow (years) and incomplete
- Treatment
  - Sculptra
  - Autologous fat grafting



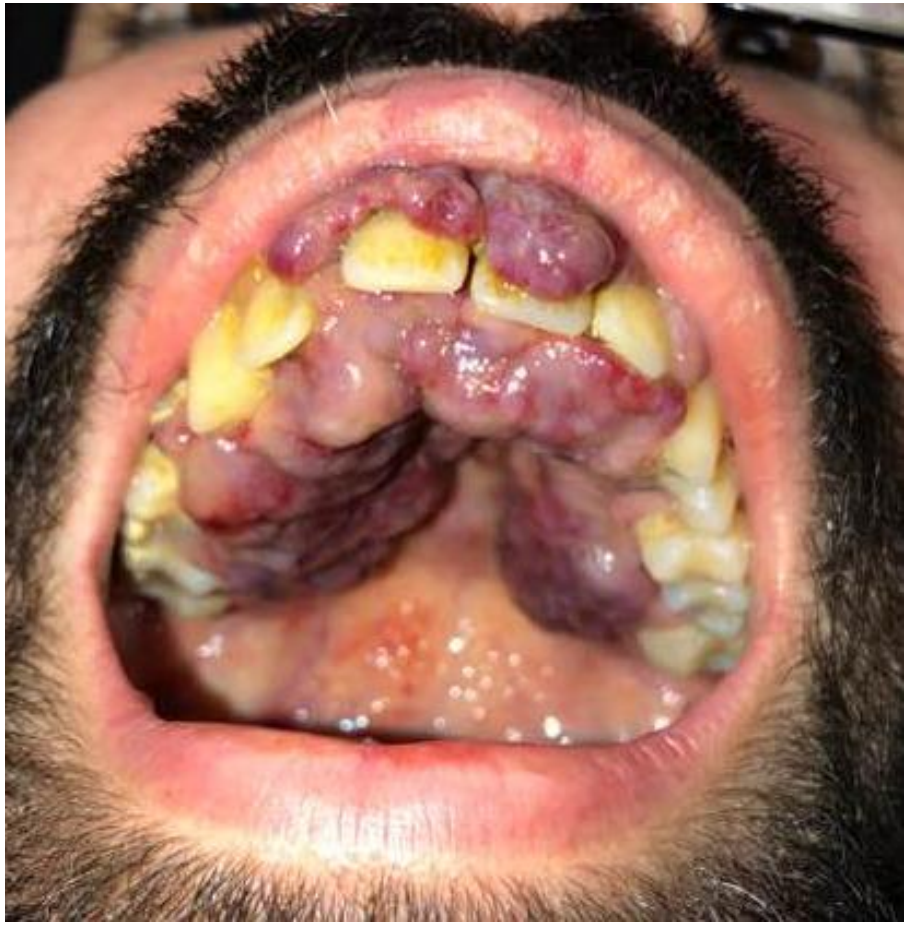
Fontdevila et al. Aesthet Surg J (2008). doi: 10.1016/j.asj.2008.05.002

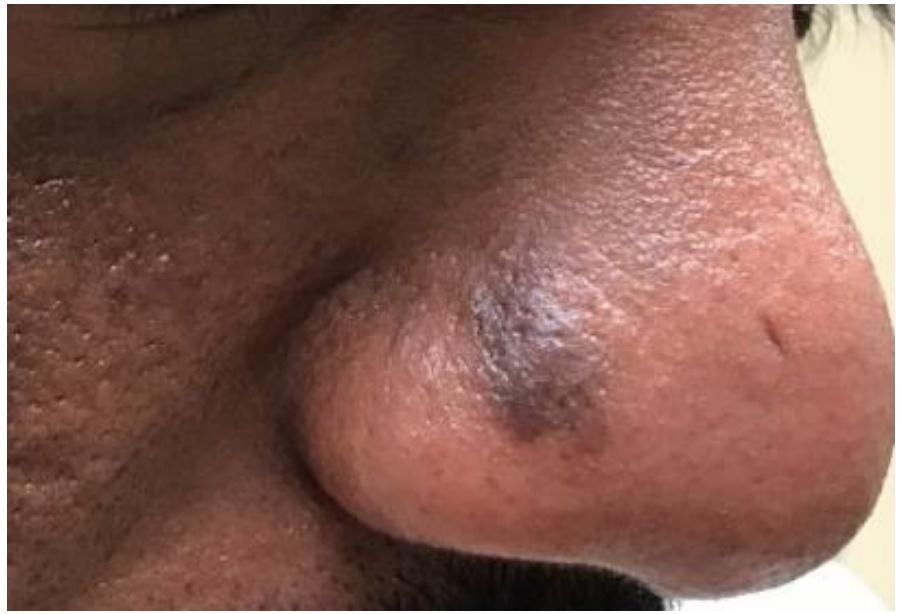
Malignancy

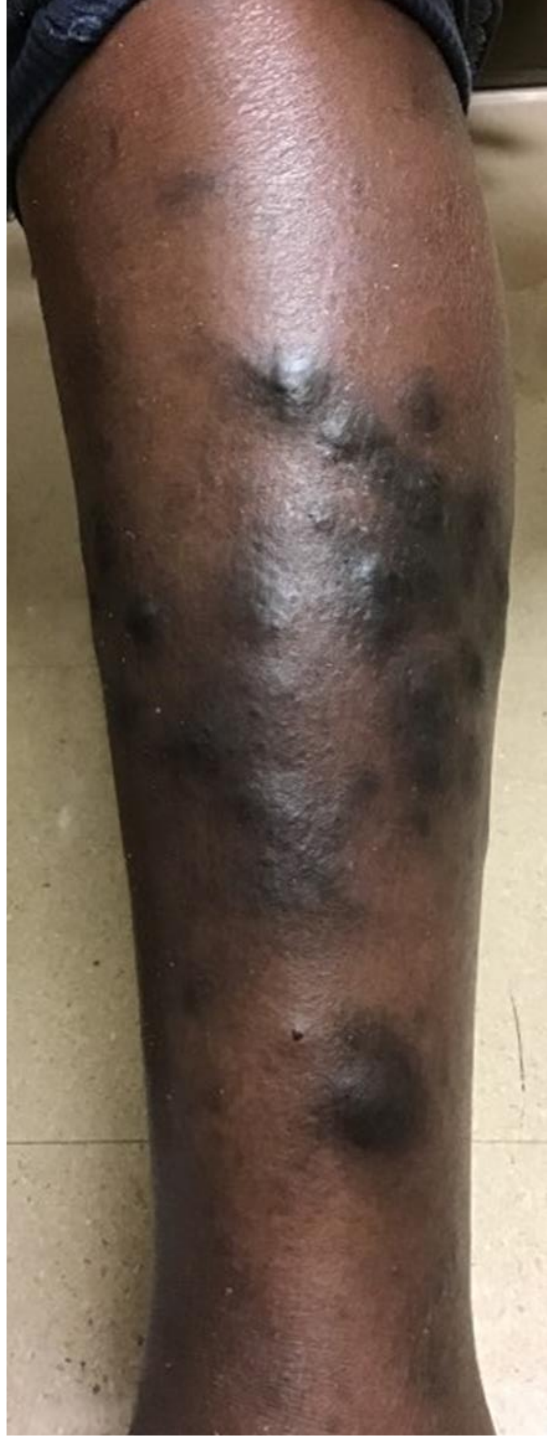
- KAPOSI'S SARCOMA
- HPV-INDUCED SCC
- NMSC (3-5X IN HIV)

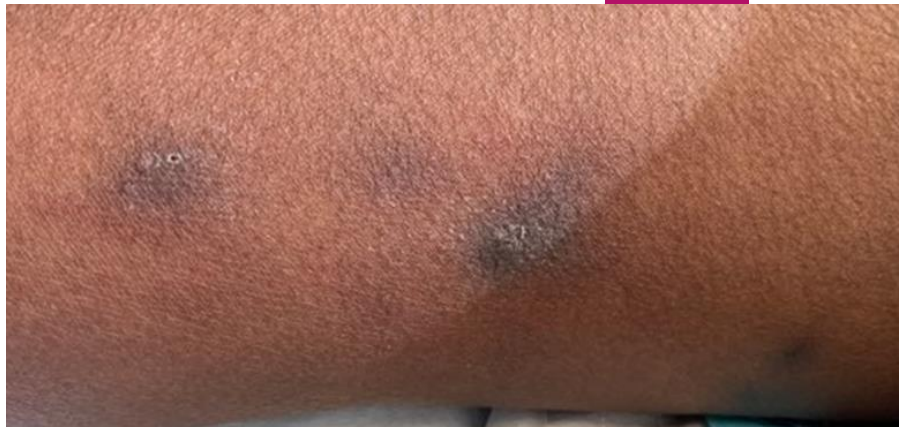
KAPOSI

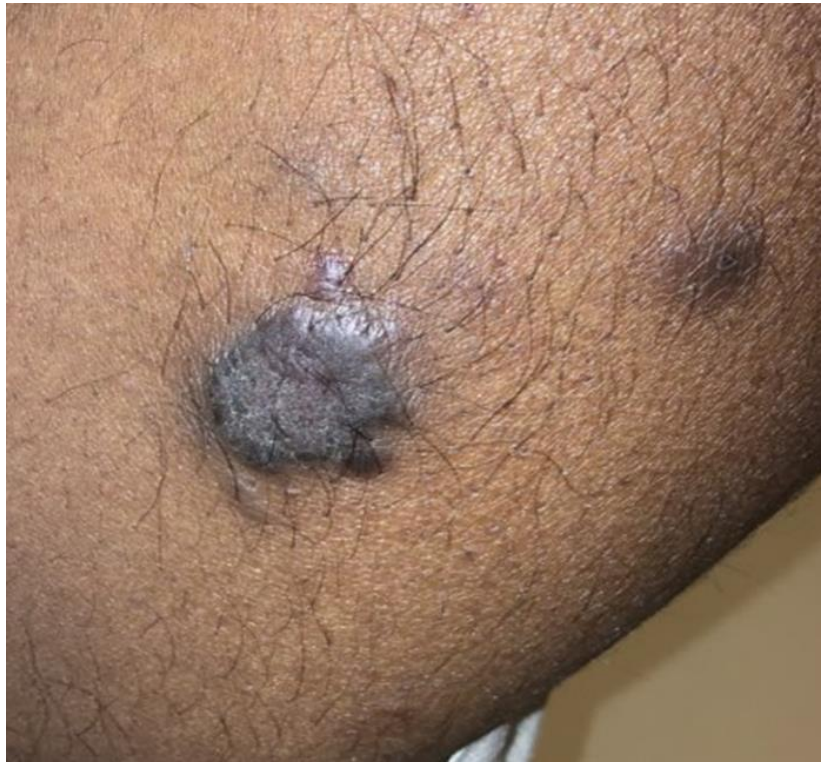
- HHV-8
- Oral exam and palpate lymph nodes
- Screen for hemoptysis, melena
- TOC = ART
- Severe or aerodigestive involvement = chemo

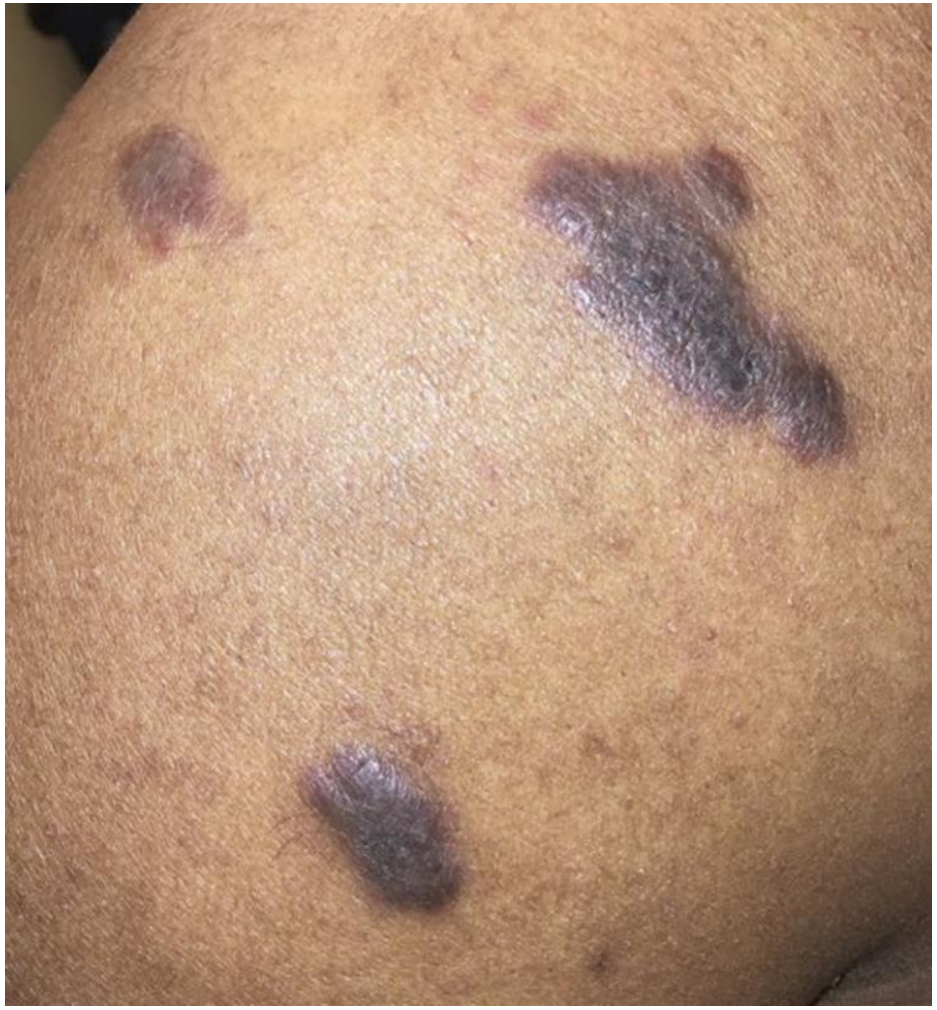


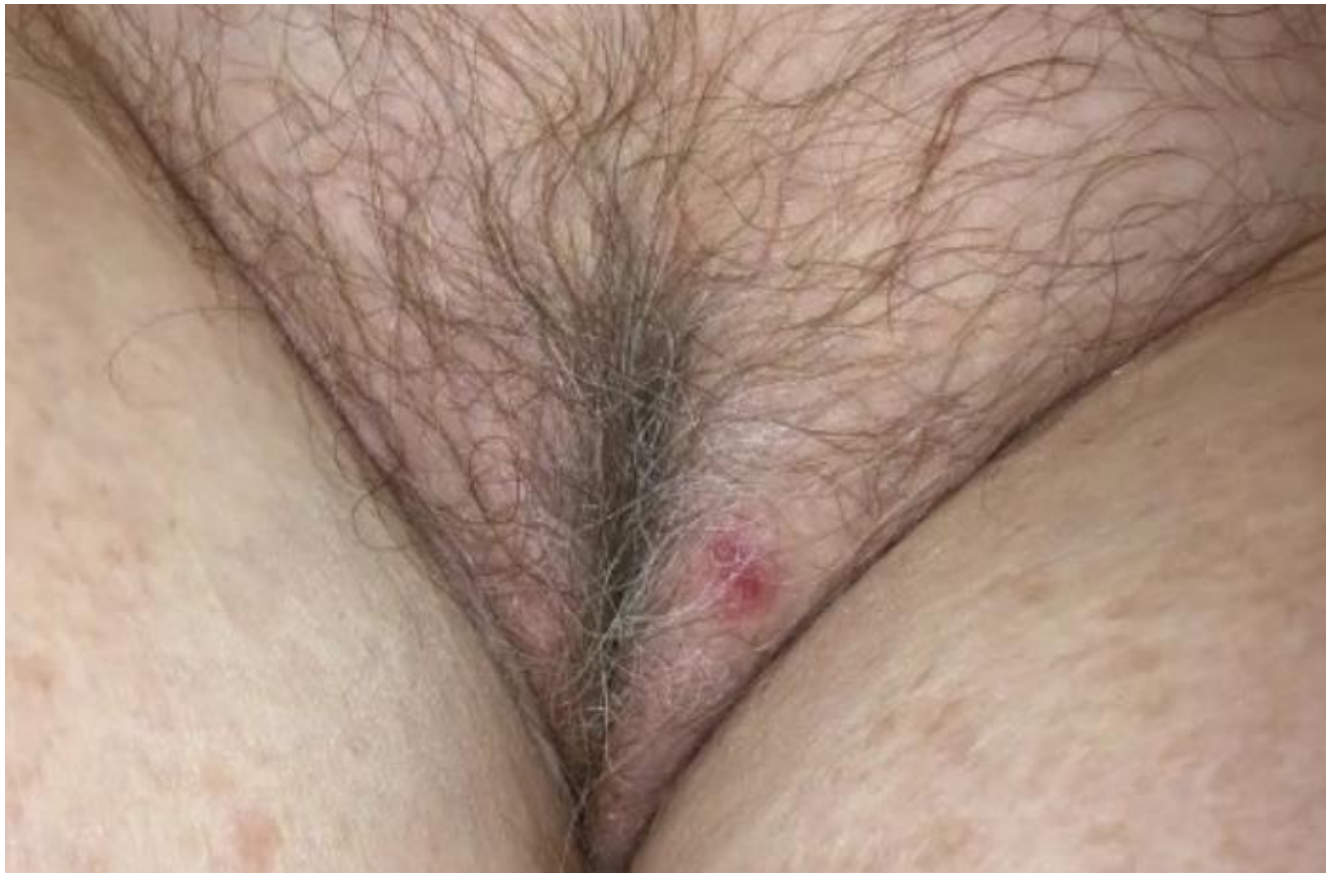


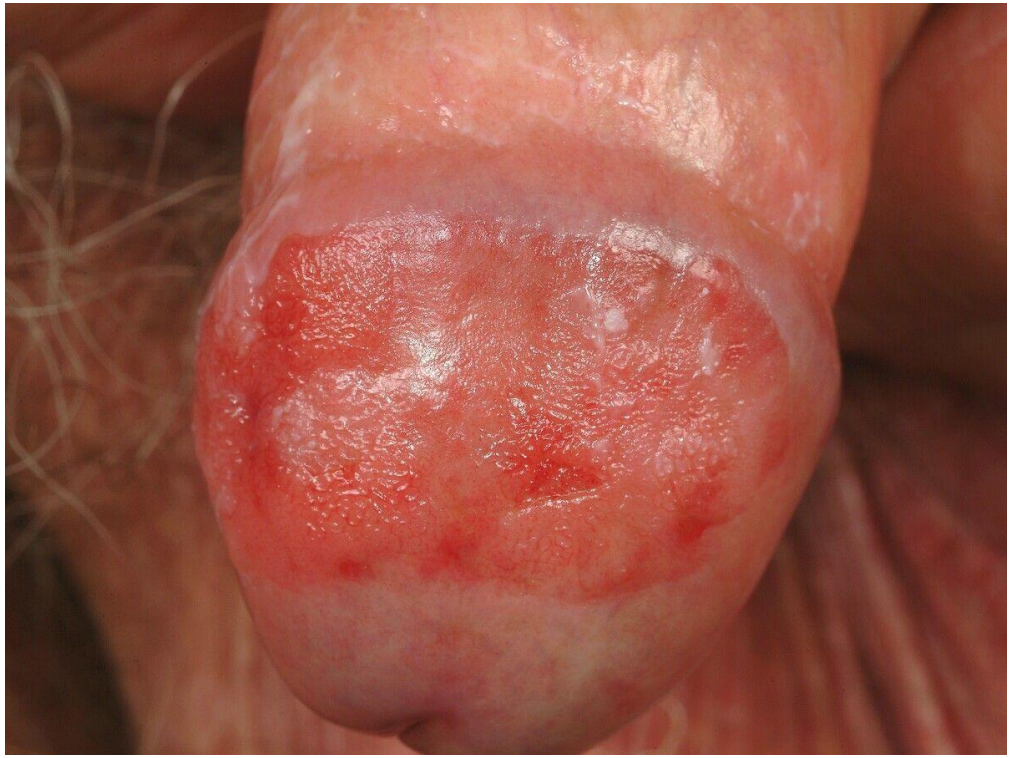


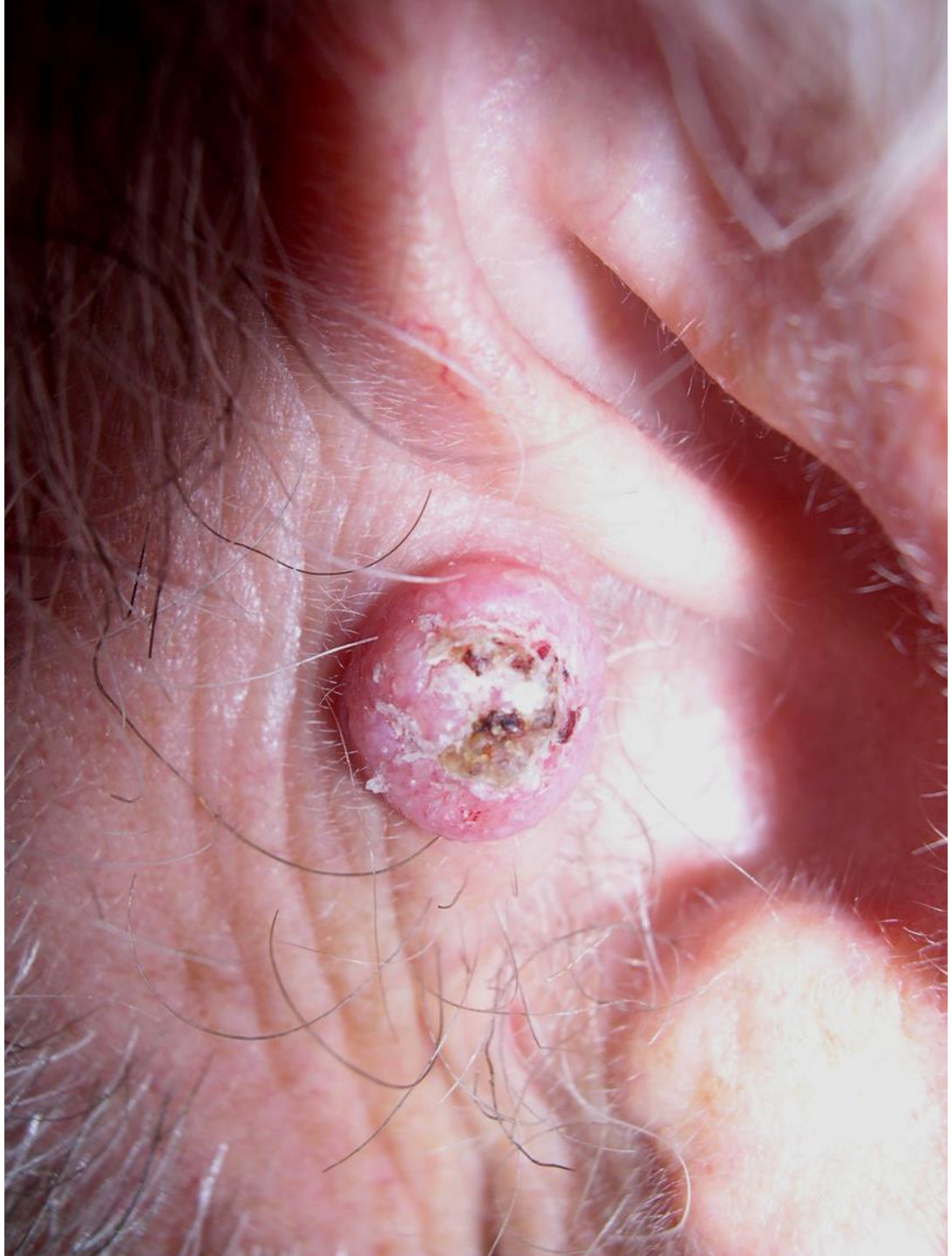


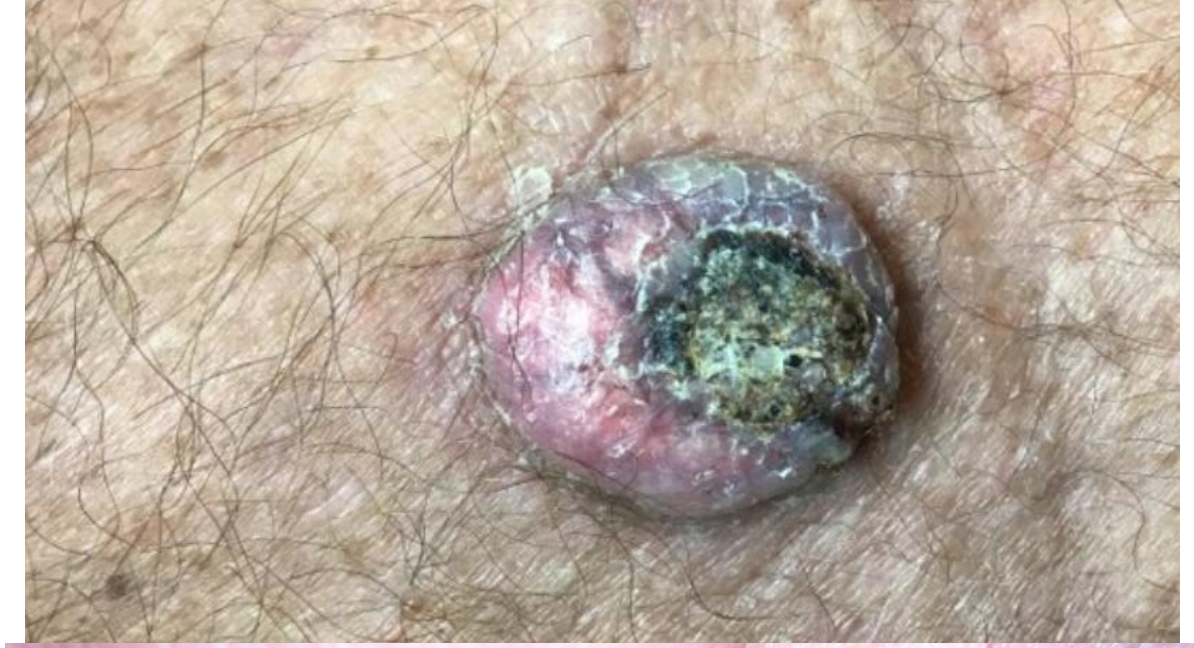


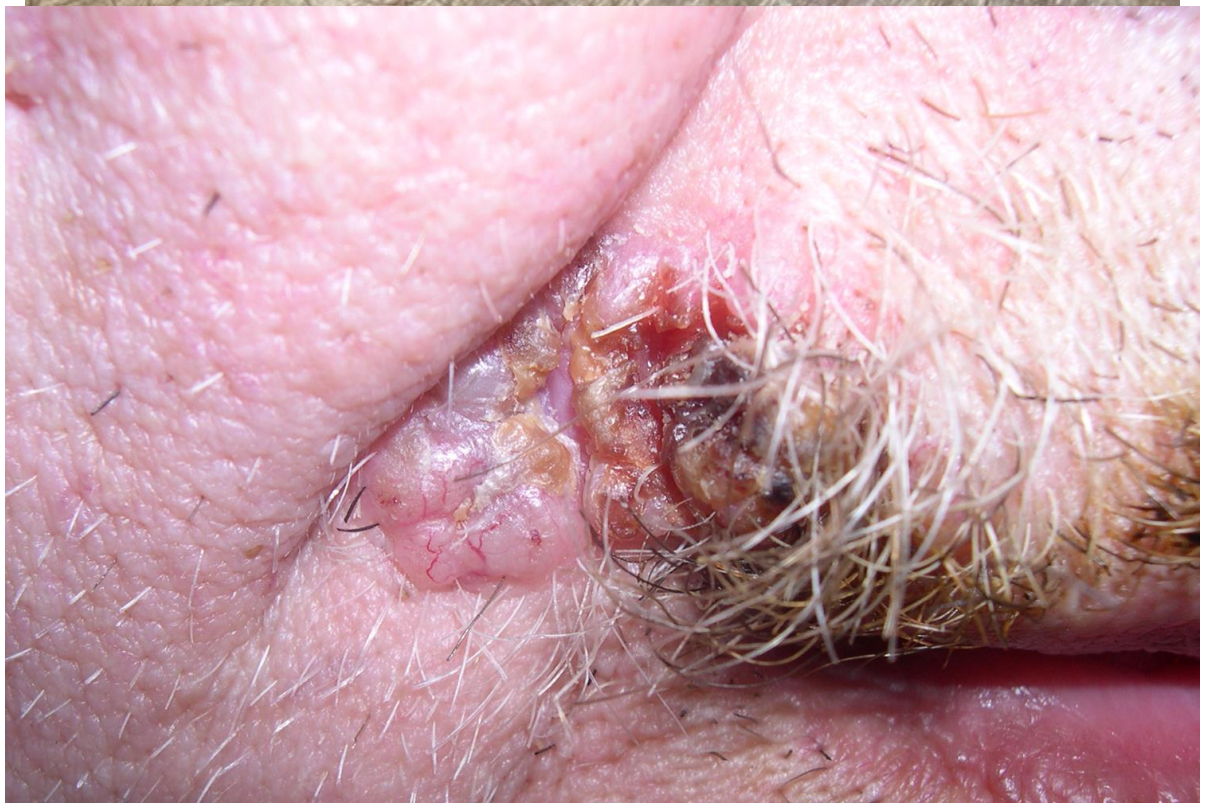


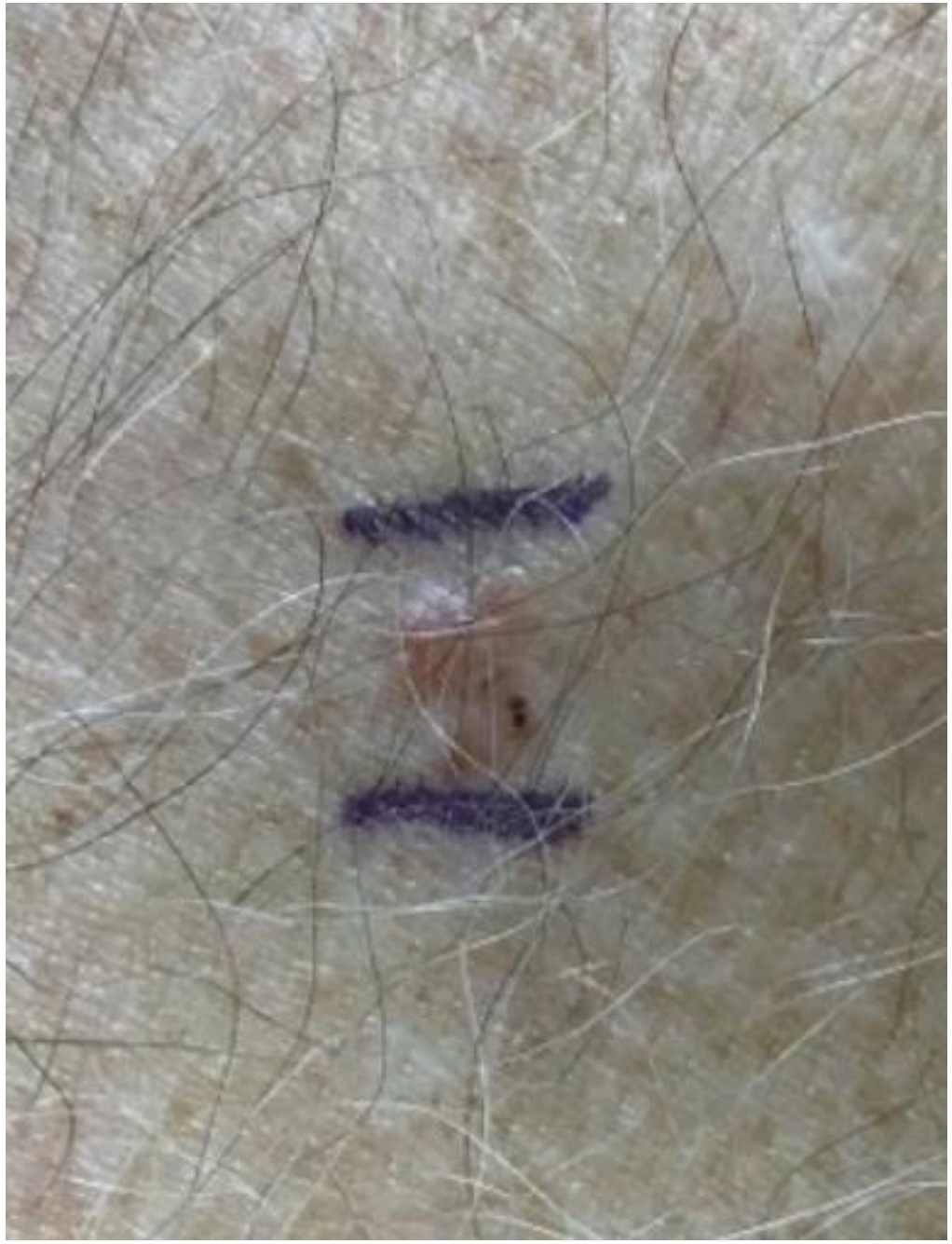


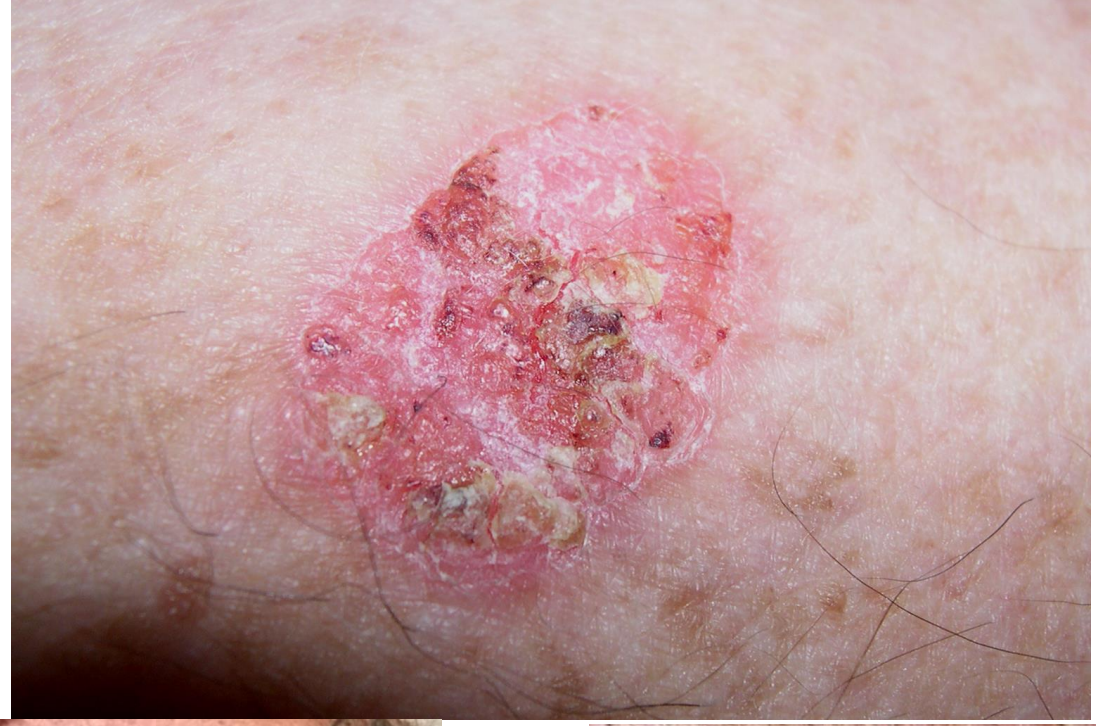


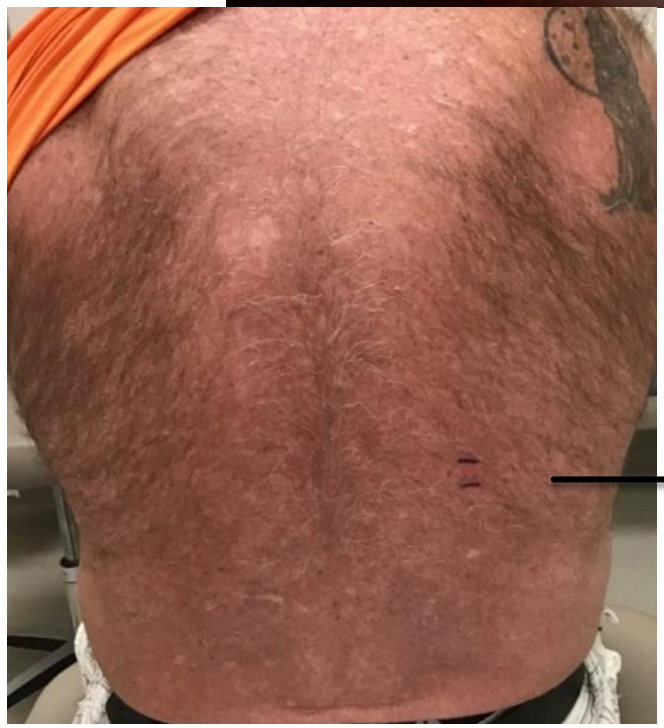


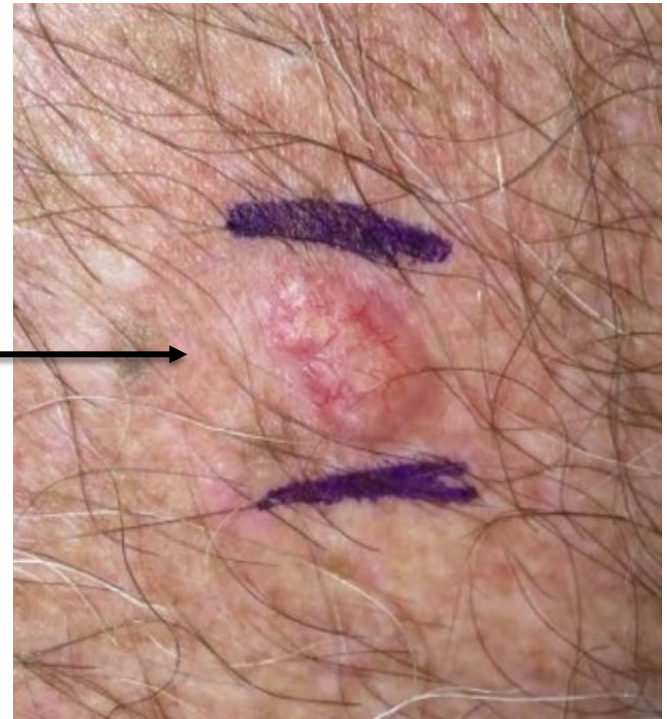


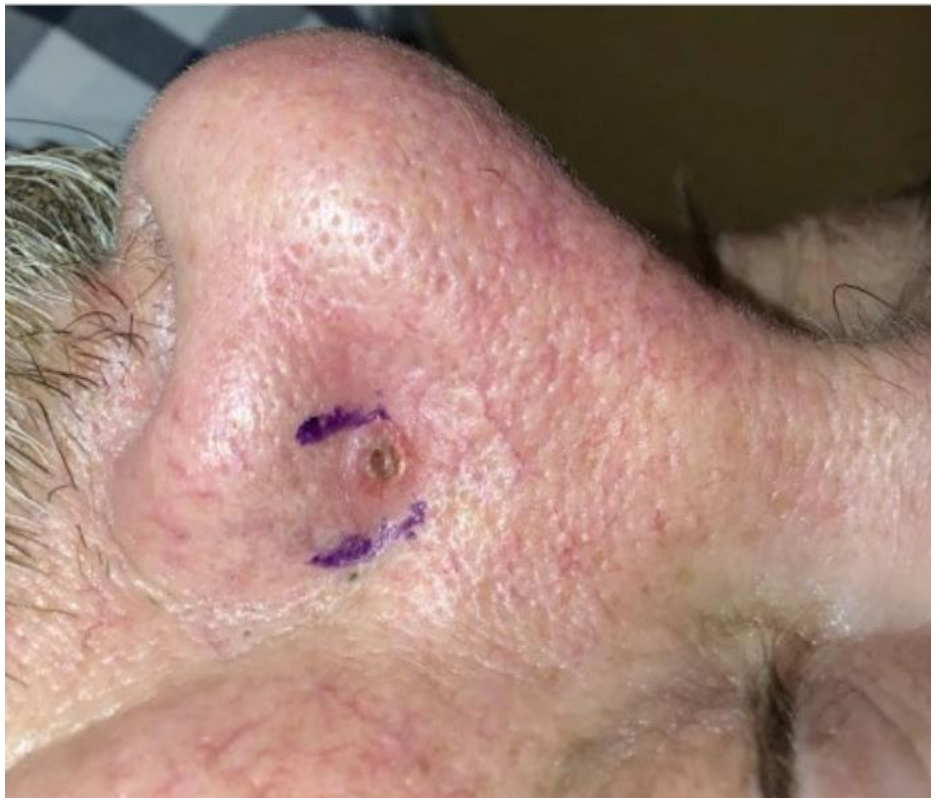


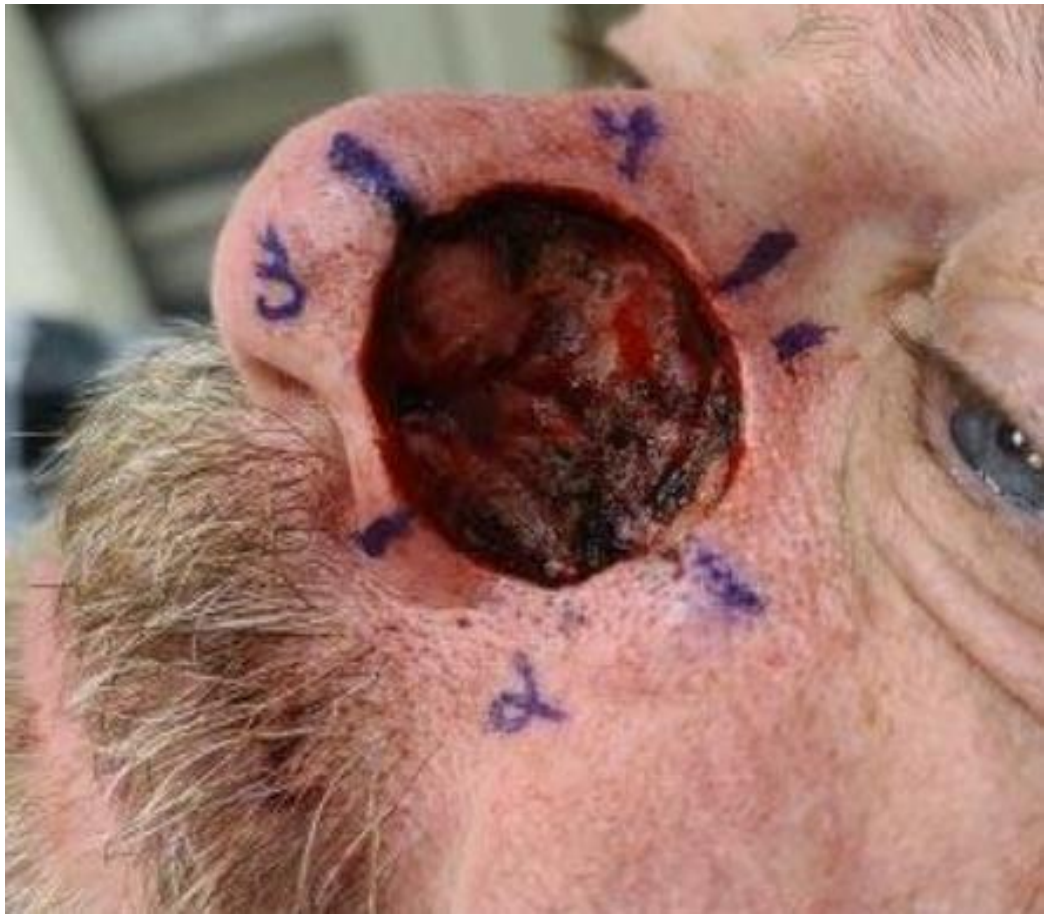


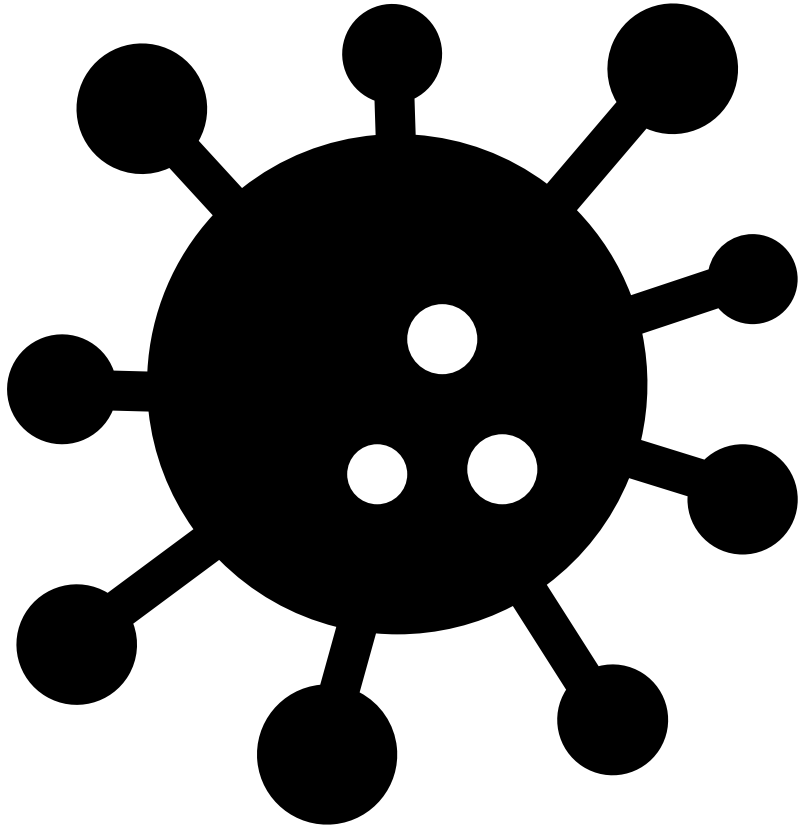








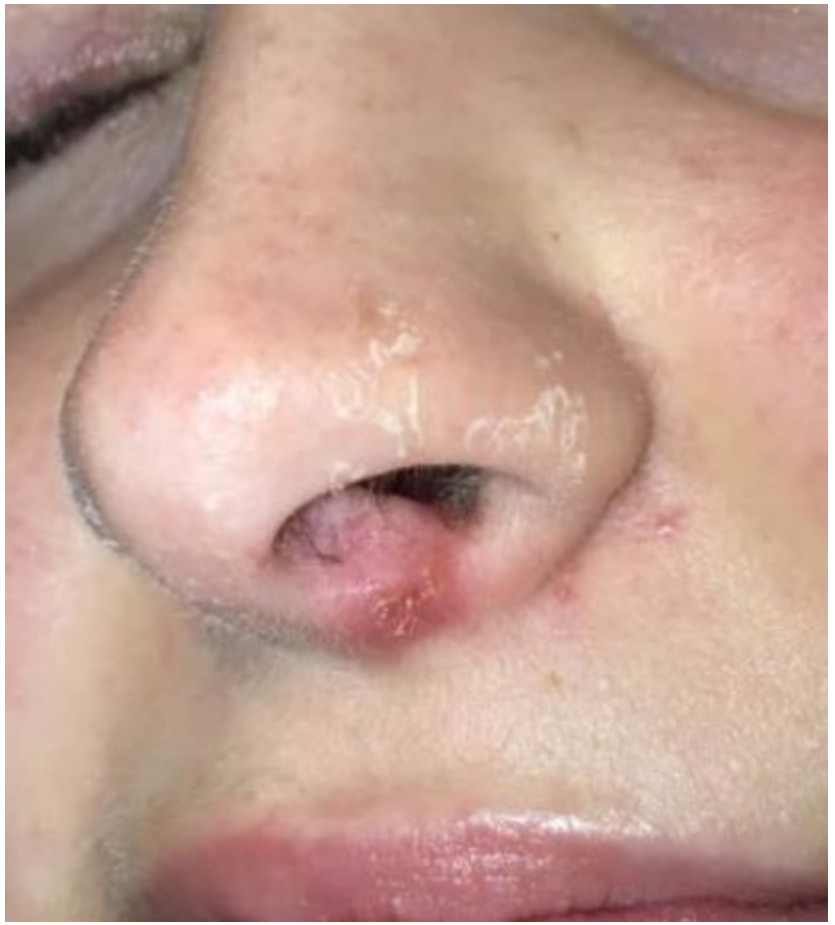


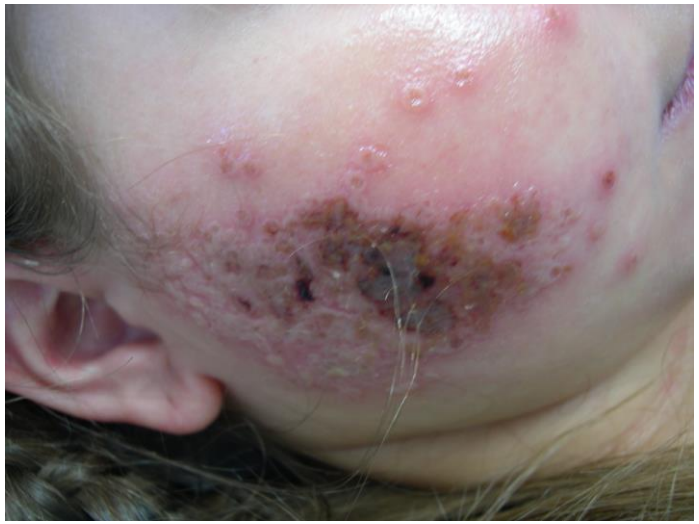


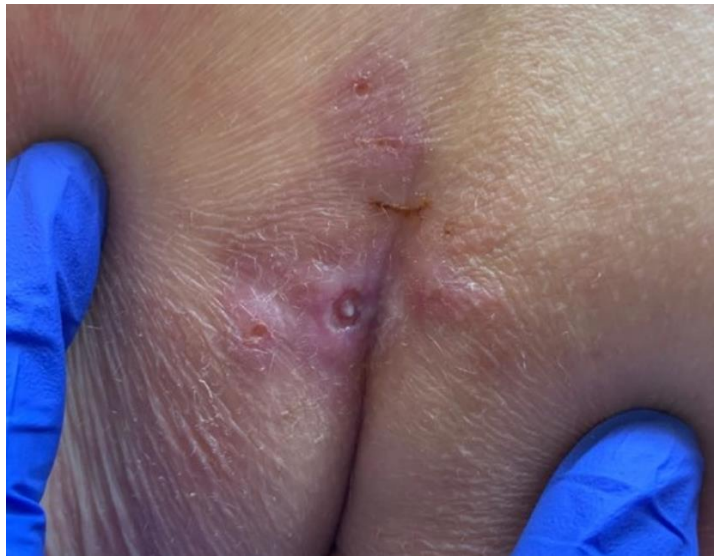
Viral Infections

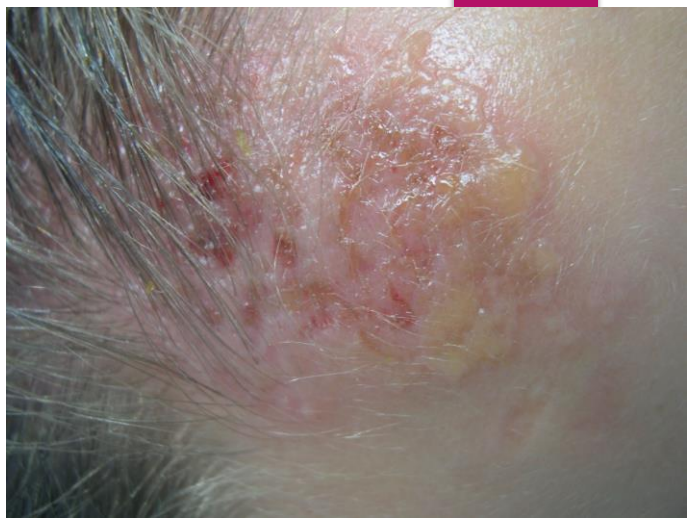
HSV

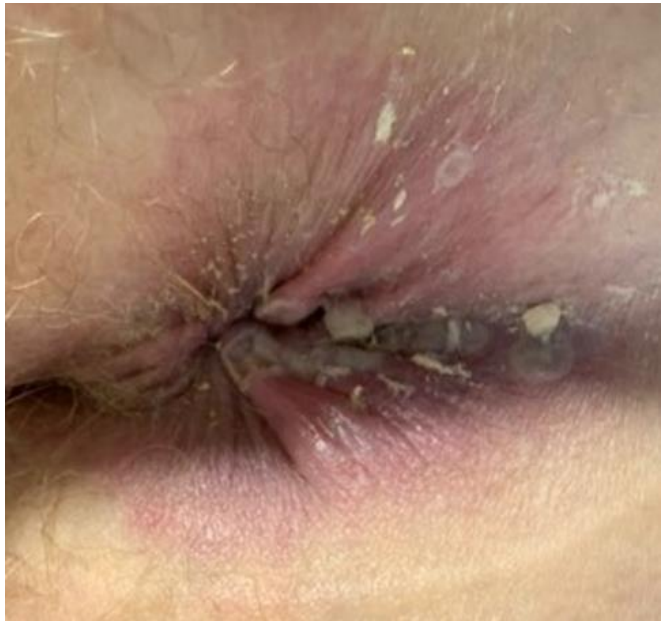
- Herpes genitalis (HSV-2) is the most frequent genital ulcer disease in HIV patients
- HSV serves as cofactor in the progression of HIV
  - Simultaneous isolation of HSV + HIV from the same lesion
  - Reduction of HIV shedding in coinfected individuals on antiherpetic treatment,
  - HSV infection may adversely affect progression of immunodeficiency in HIV

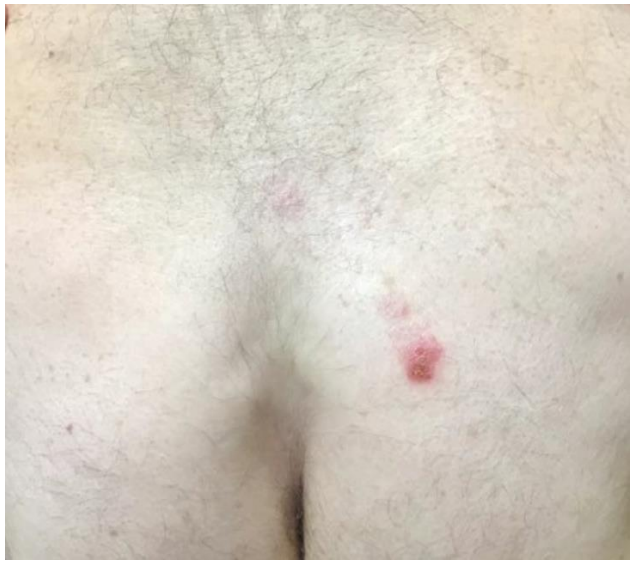


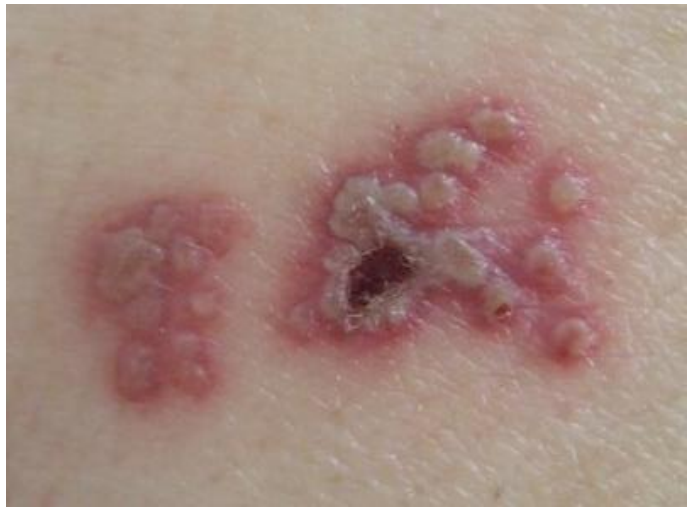






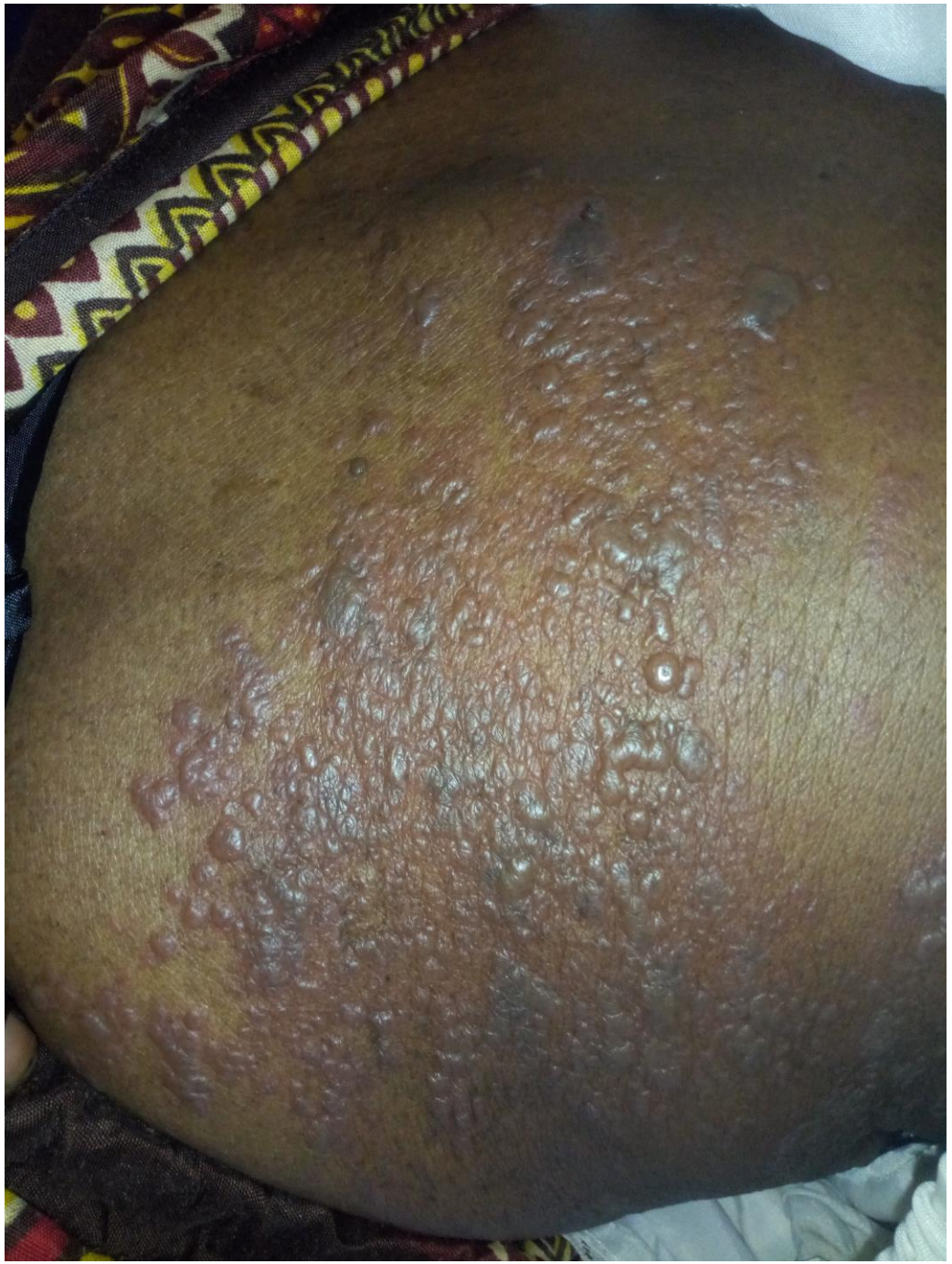


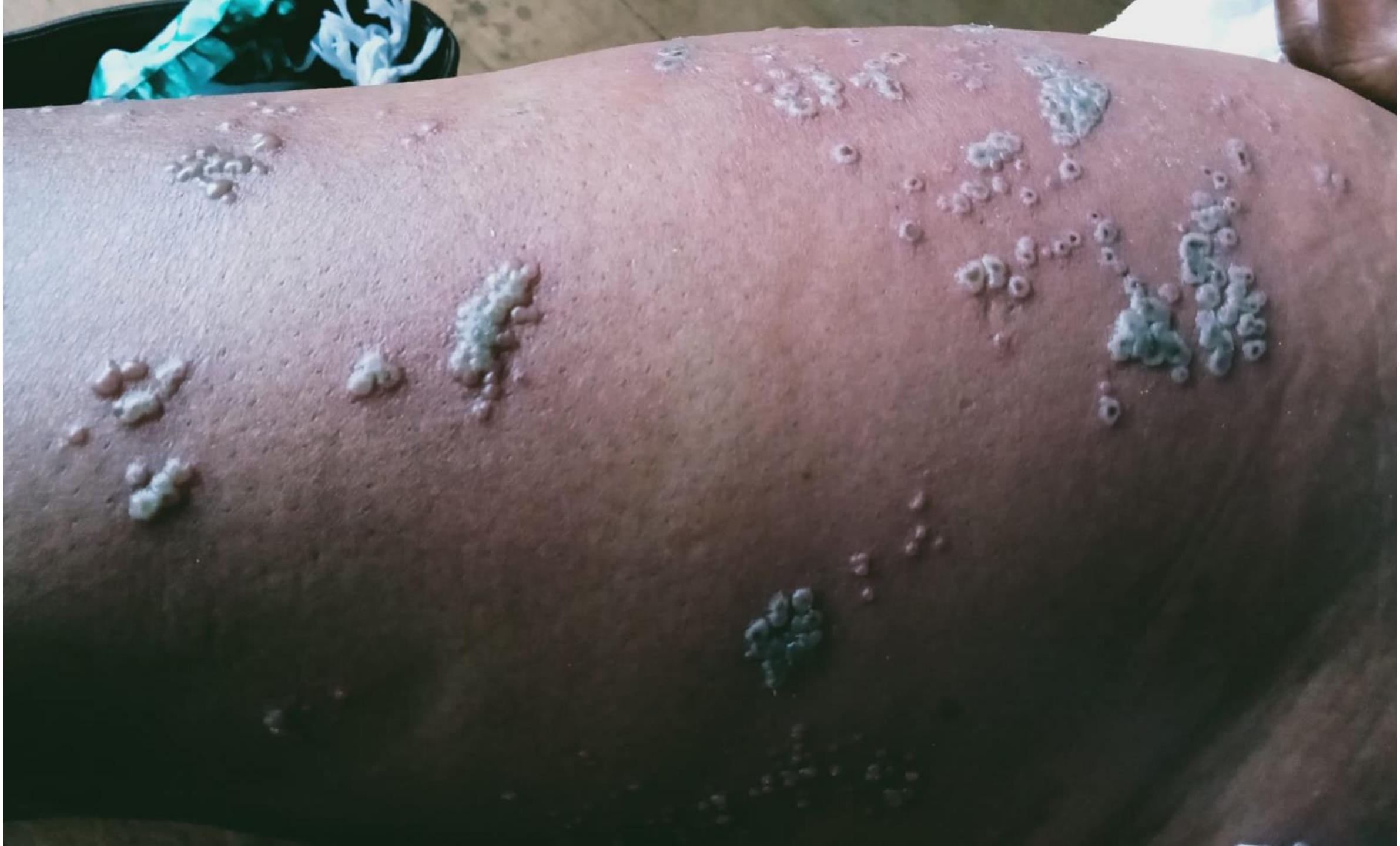


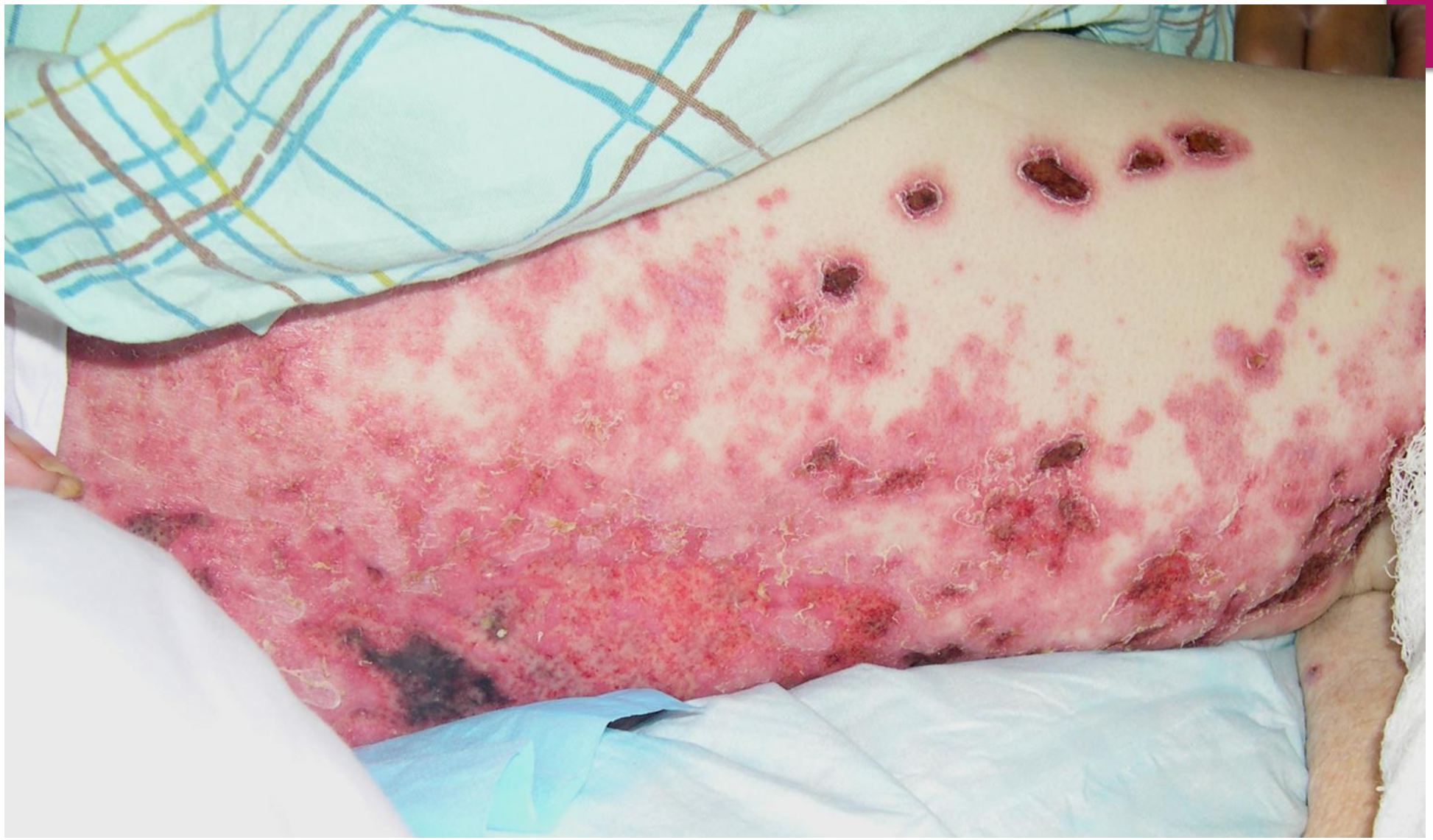


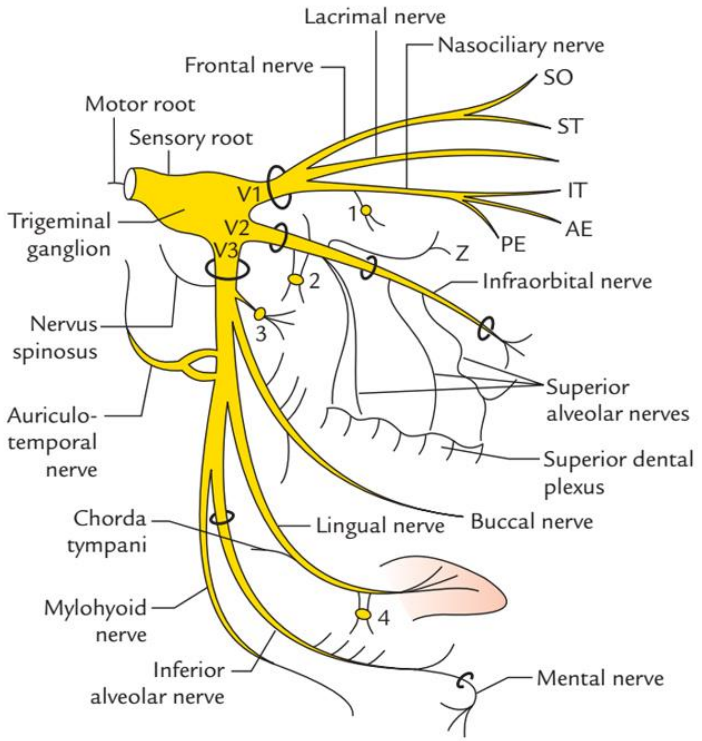
Herpes Zoster

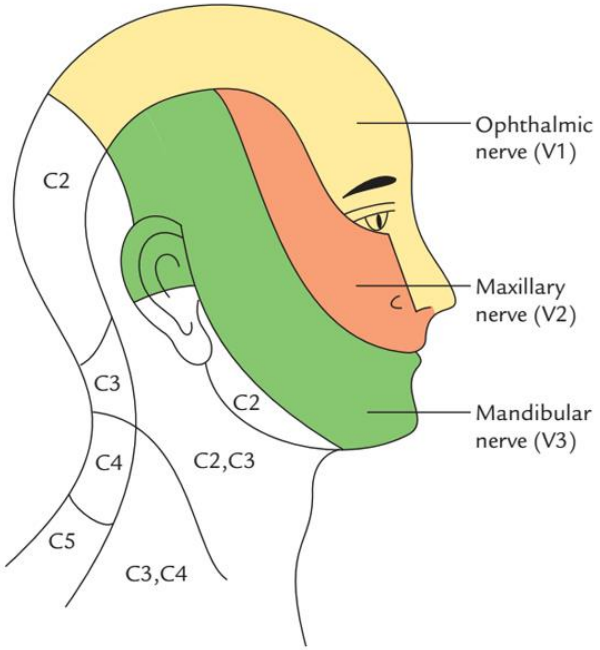
- Multi-dermatomal
- Recurrent episodes
- Treatment Acyclovir 800mg 5x/day x 7-10 days
- Valacyclovir 1000mg TID x 7 days
- Management of pain / PHN
  - Analgesics/NSAIDs
  - Gabapentin
  - Amitriptyline

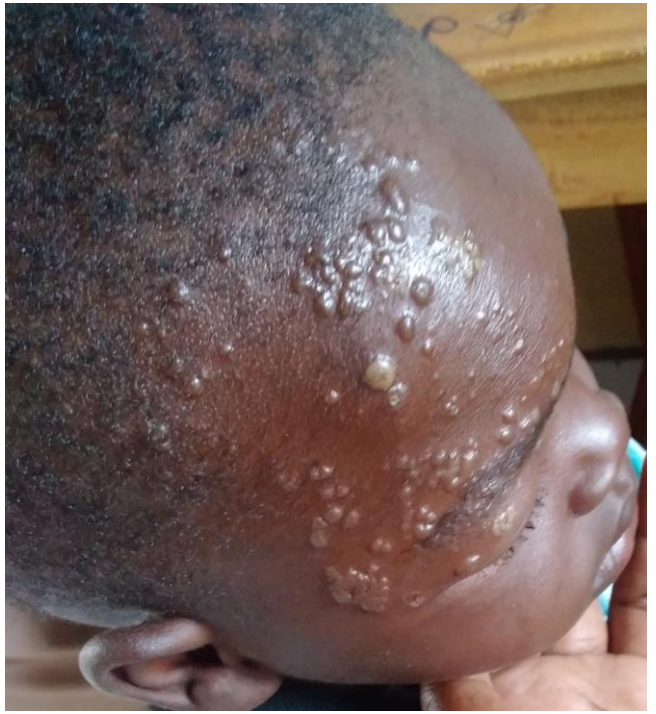


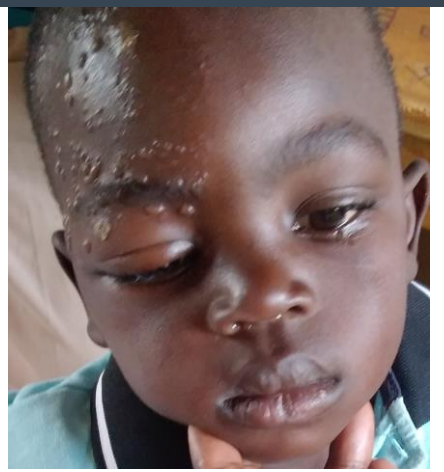


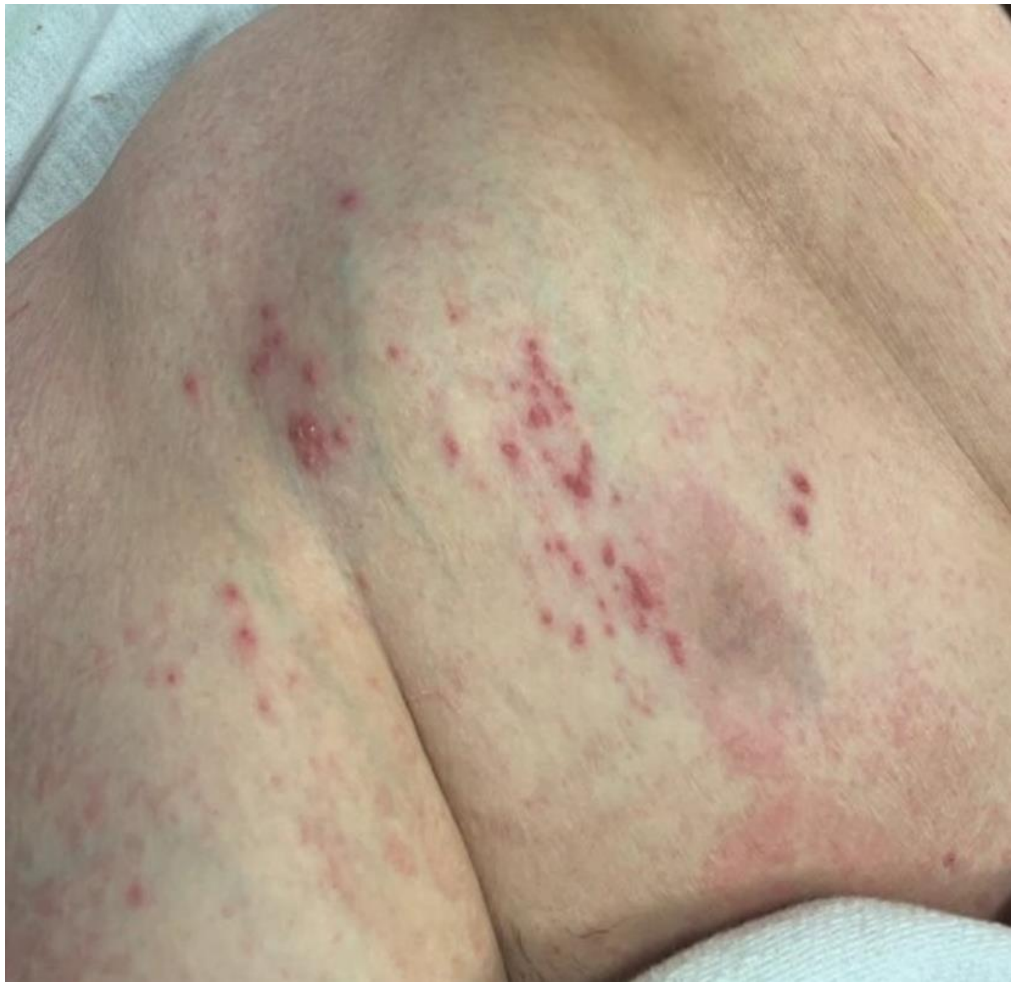


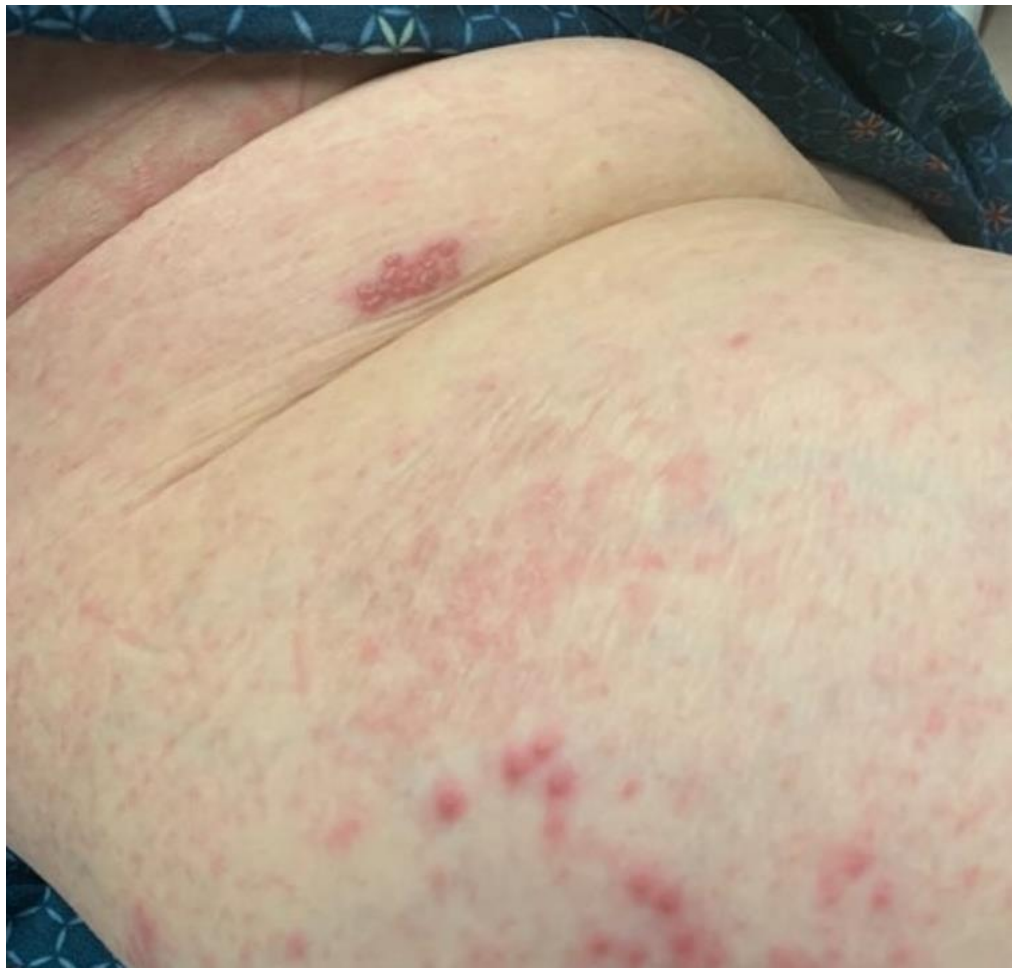

Lacrimal nerve
Nasociliary nerve
Frontal nerve
SO
Motor root
ST
Sensory root
IT
V1
AE
Trigeminal ganglion
V2
1
PE
V3
Z
2
Infraorbital nerve
3
Nervus spinosus
Superior alveolar nerves
Auriculo-temporal nerve
Superior dental plexus
Chorda tympani
Lingual nerve
Buccal nerve
Mylohyoid nerve
4
Inferior alveolar nerve
Mental nerve


Ophthalmic nerve (V1)
C2
Maxillary nerve (V2)
C3
C2
Mandibular nerve (V3)
C4
C2,C3
C5
C3,C4



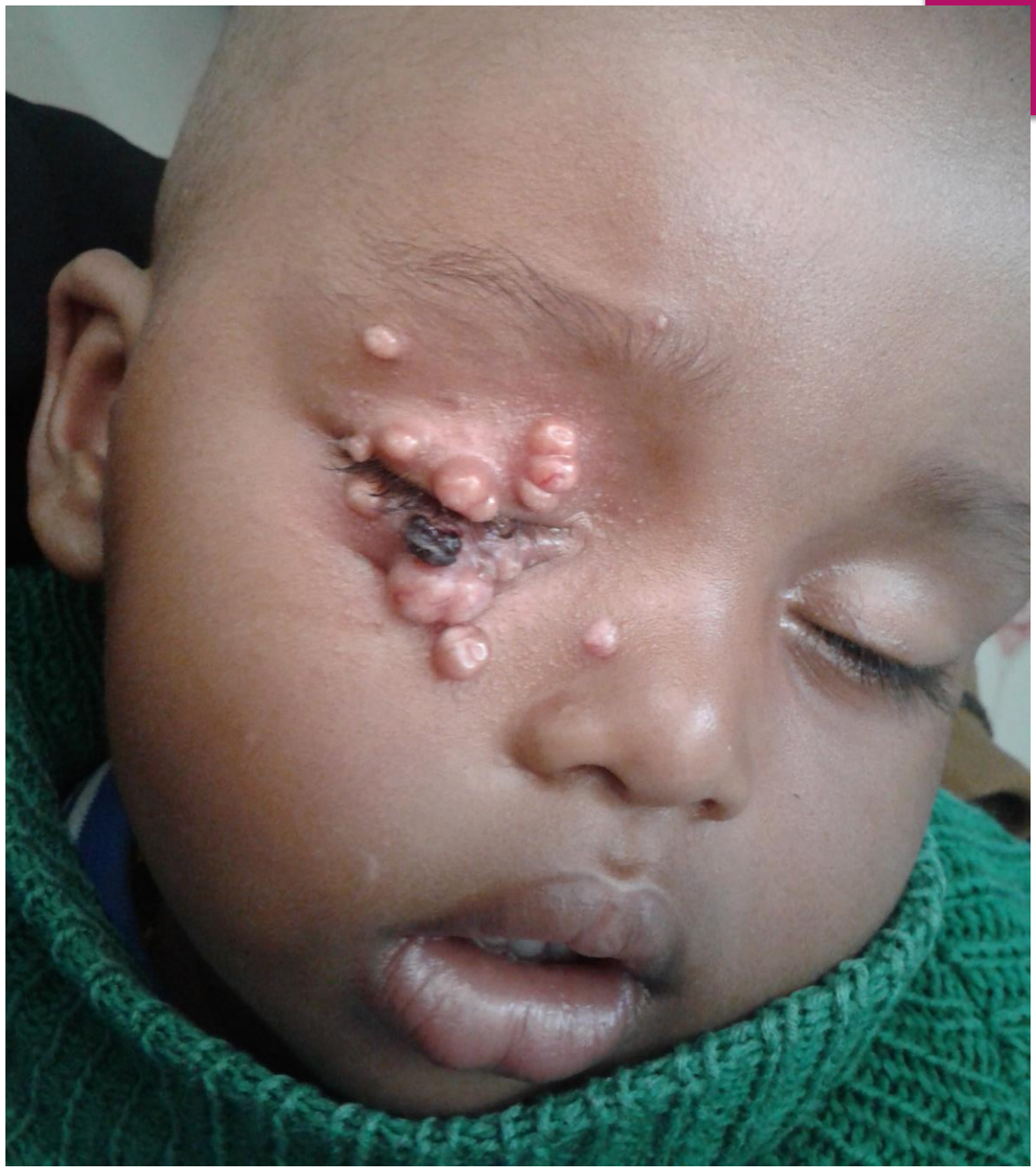






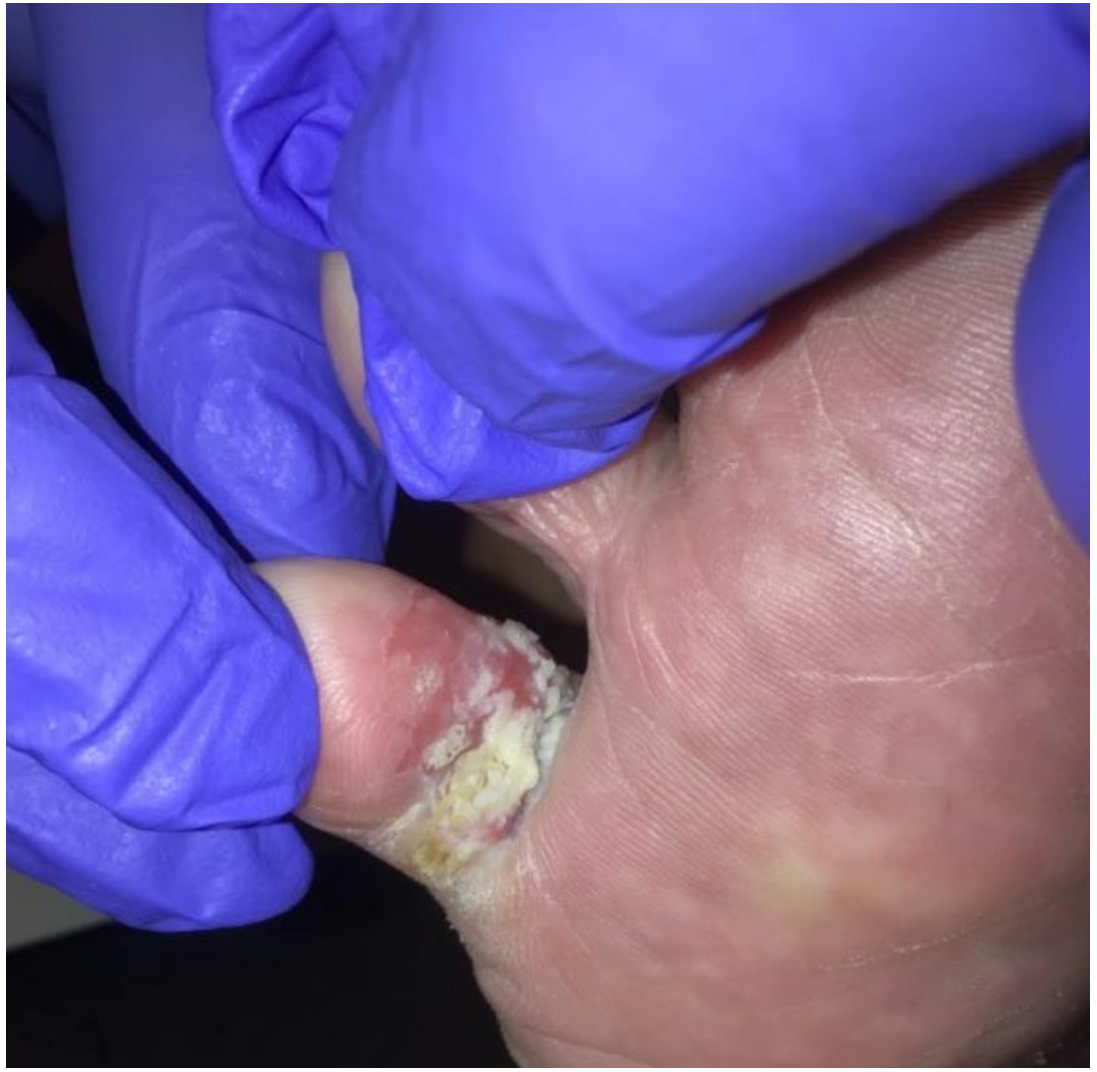
Molluscum Contagiosum

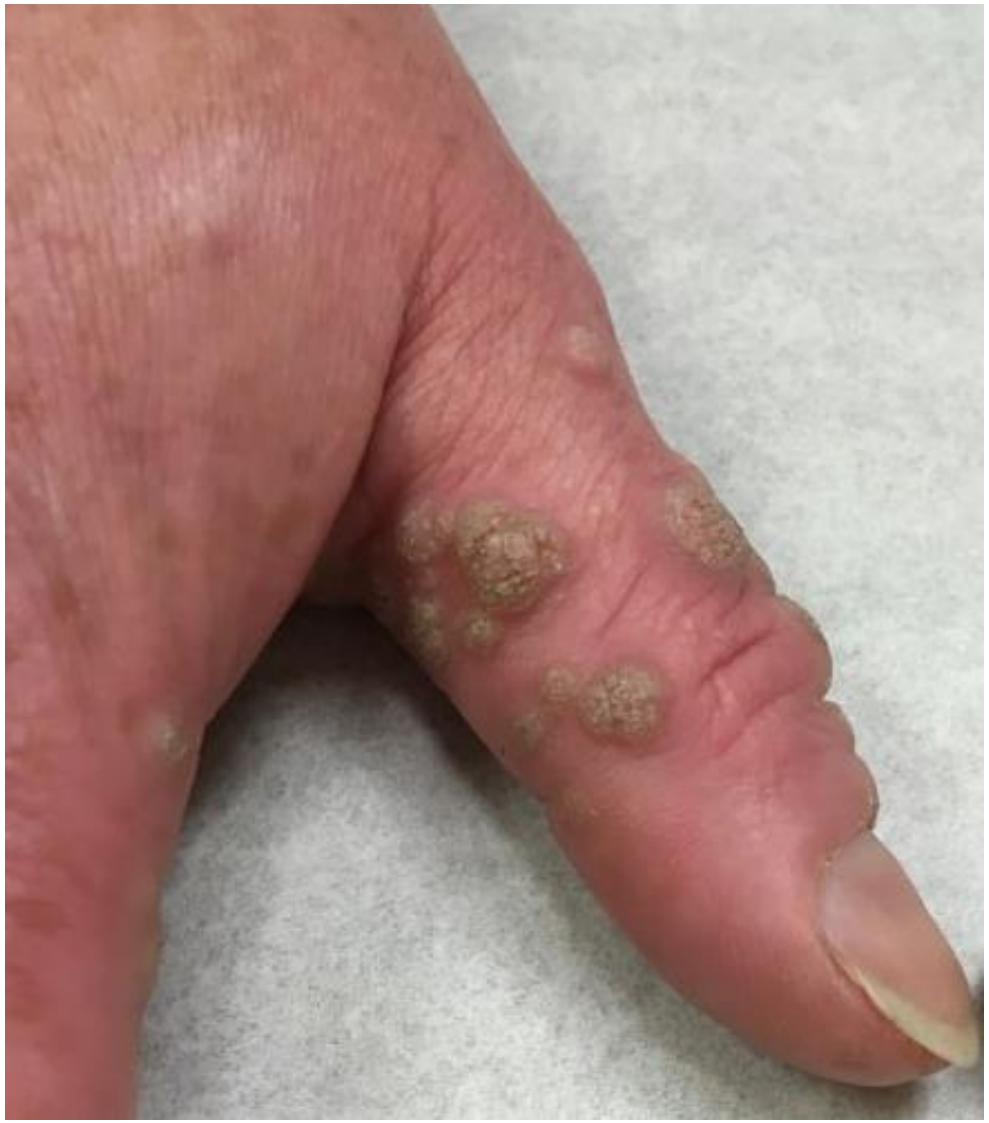
- Pox virus
- Tends to be atypical and extensive
- Treatment
  - ART
  - Topicals
    - Tretinoin
    - Imiquimod
    - Cantharidin
  - Cryo

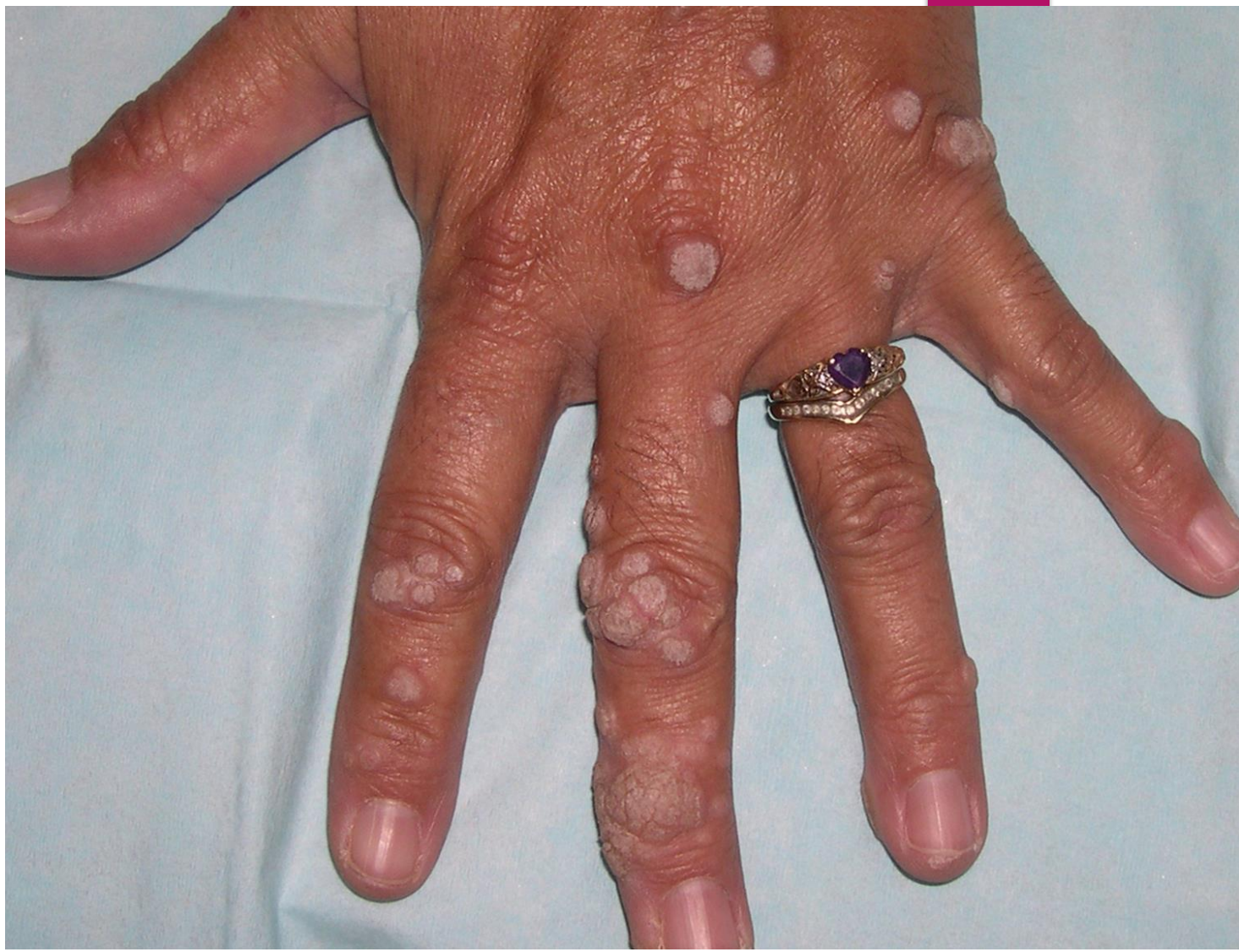


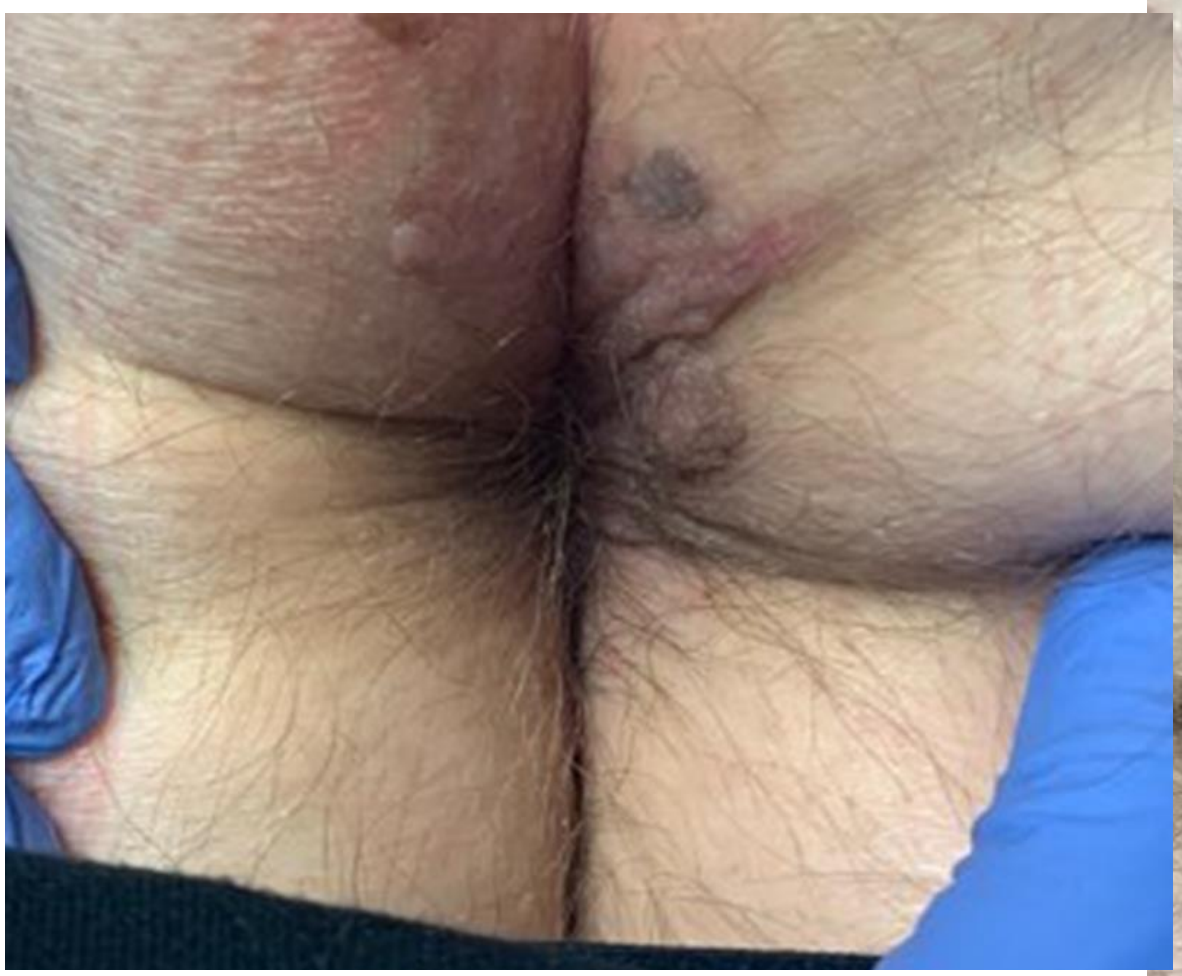
HPV

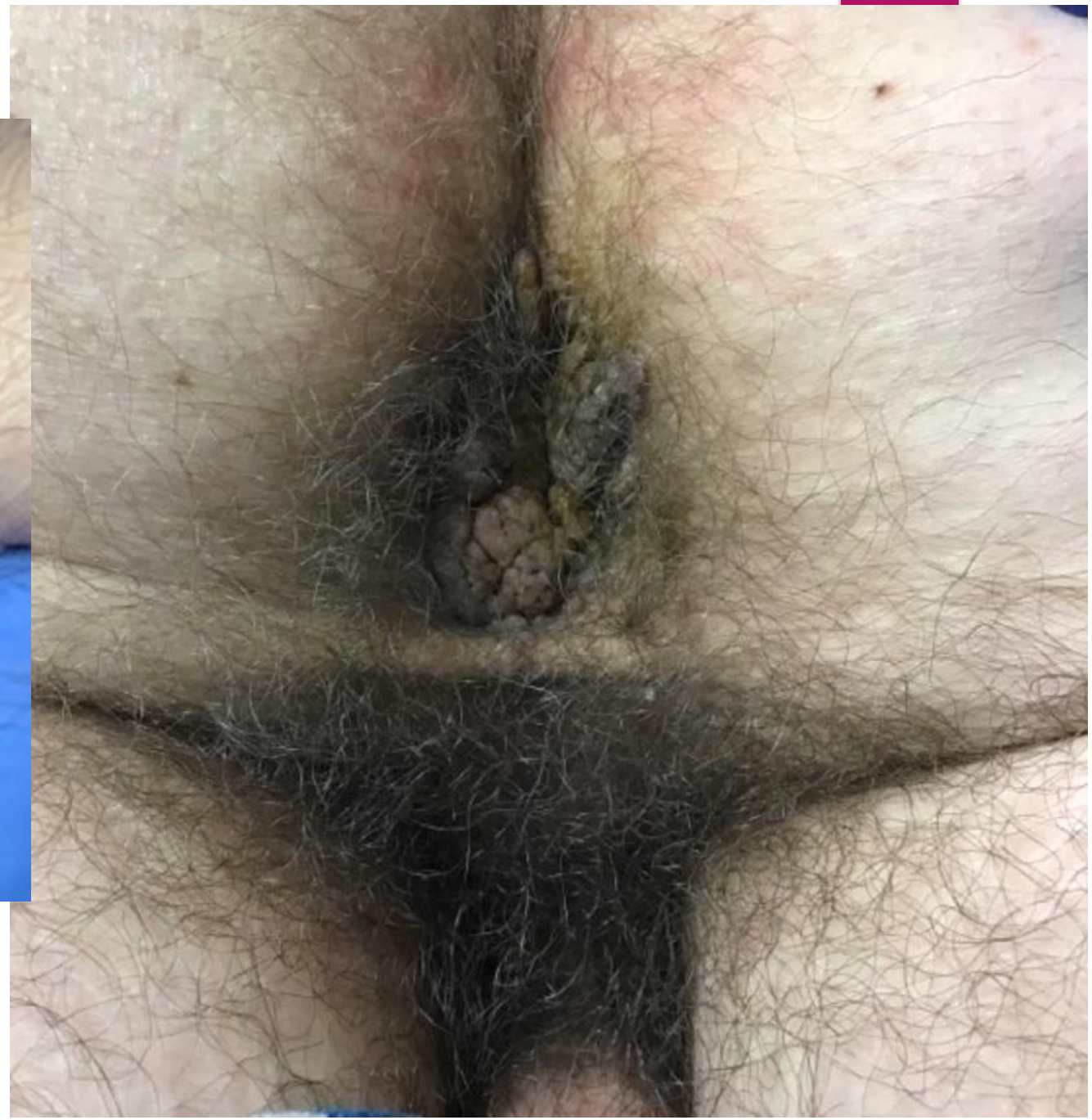
- High risk strains most concerning for dysplasia and SCC
- Often recalcitrant to tx
- Destructive & immune modulating methods
  - salicylic acid
  - imiquimod 5% cream QD x 5d/wk,
  - podophyllotoxin 0.5% soln BID x 3 d/wk
  - Veregen
  - 5-FU 5% cream QHS
  - cidofovir 1% QD face/mucosal OR 5% TID acral
  - cimetidine 30-40 mg/kg/d in 2 divided doses max of 2400 mg/day or
  - zinc gluconate 30mg po TID
  - cryo
  - IL candida
  - IL bleomycin
  - PDL
  - shave excision

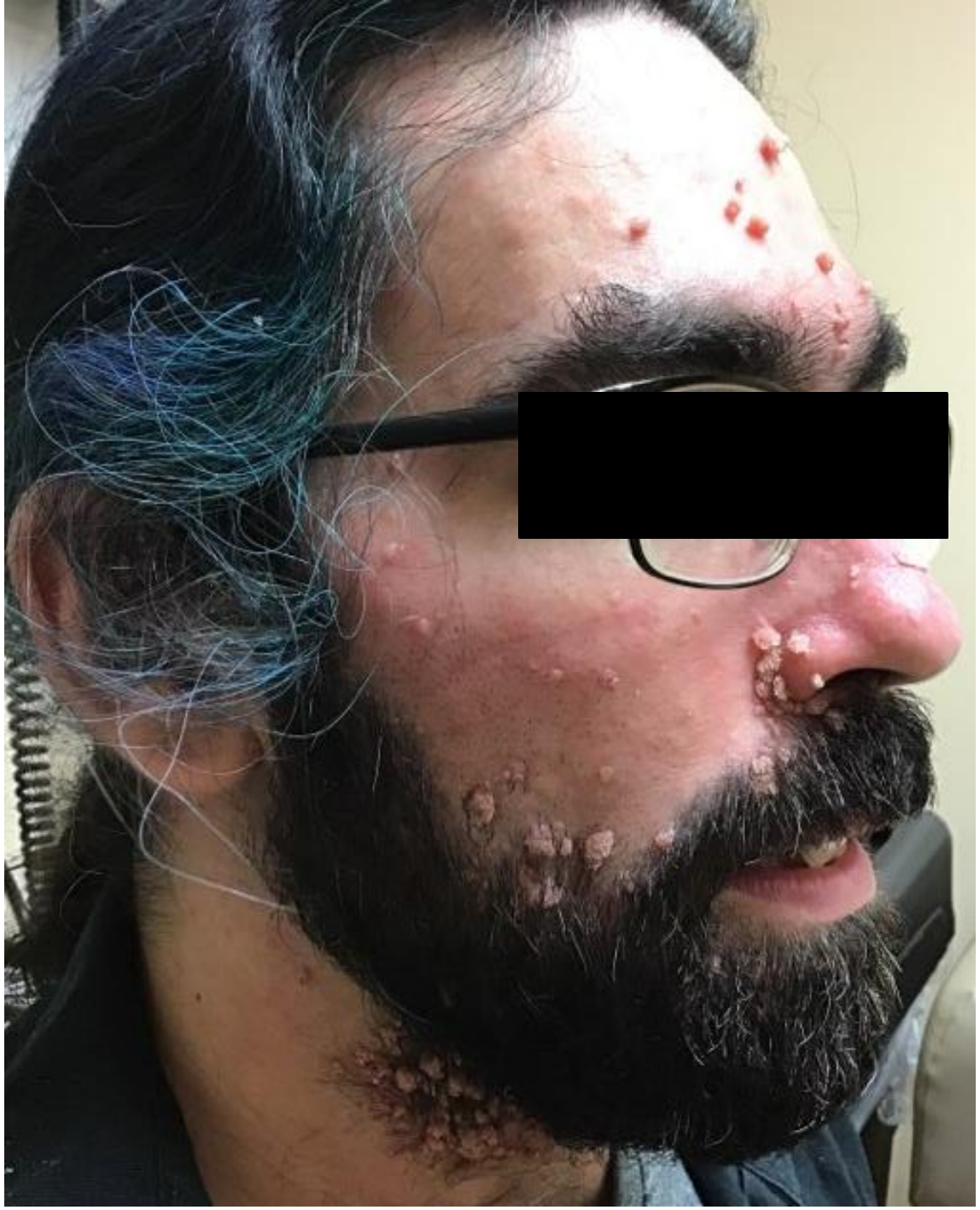


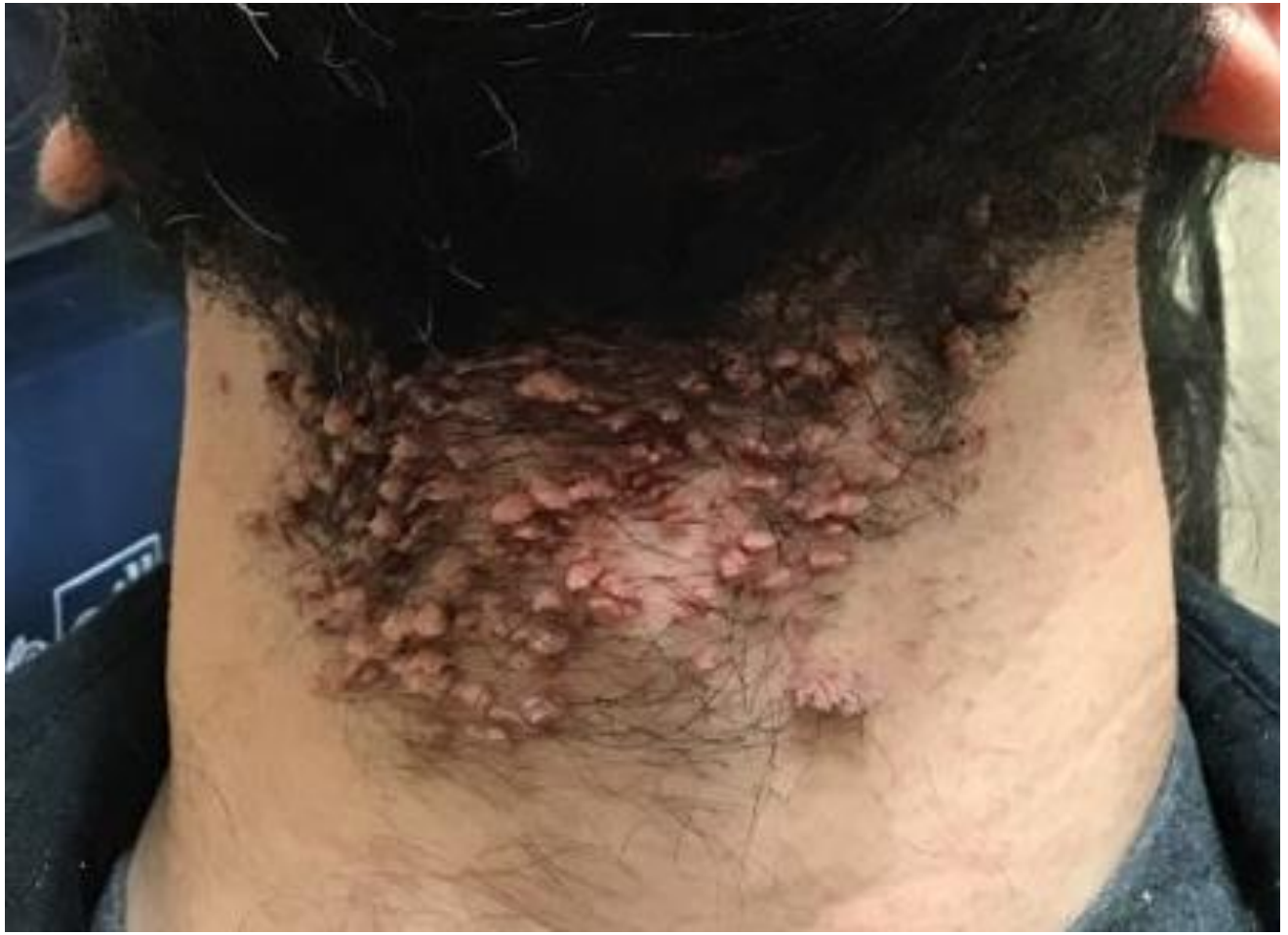


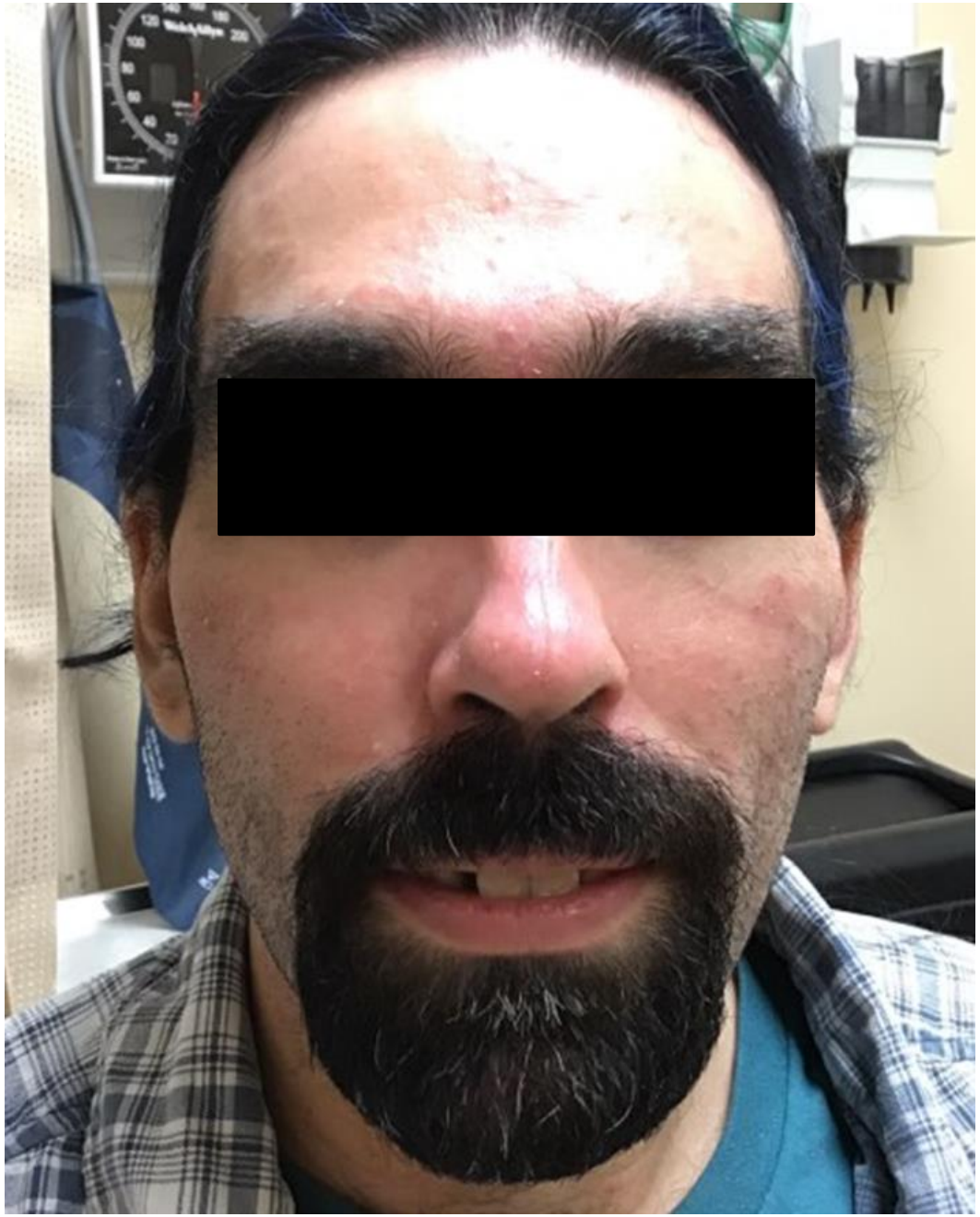


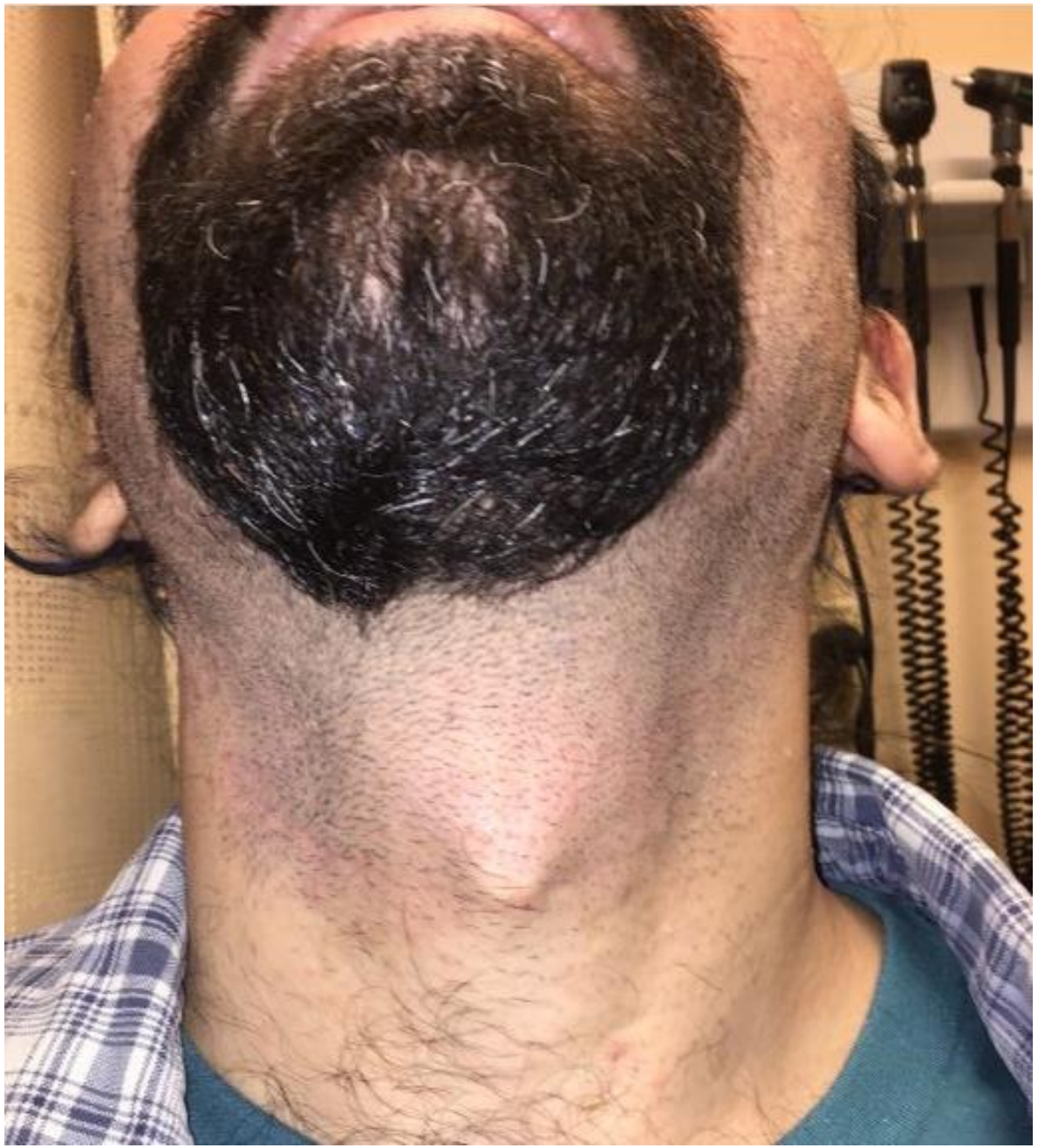






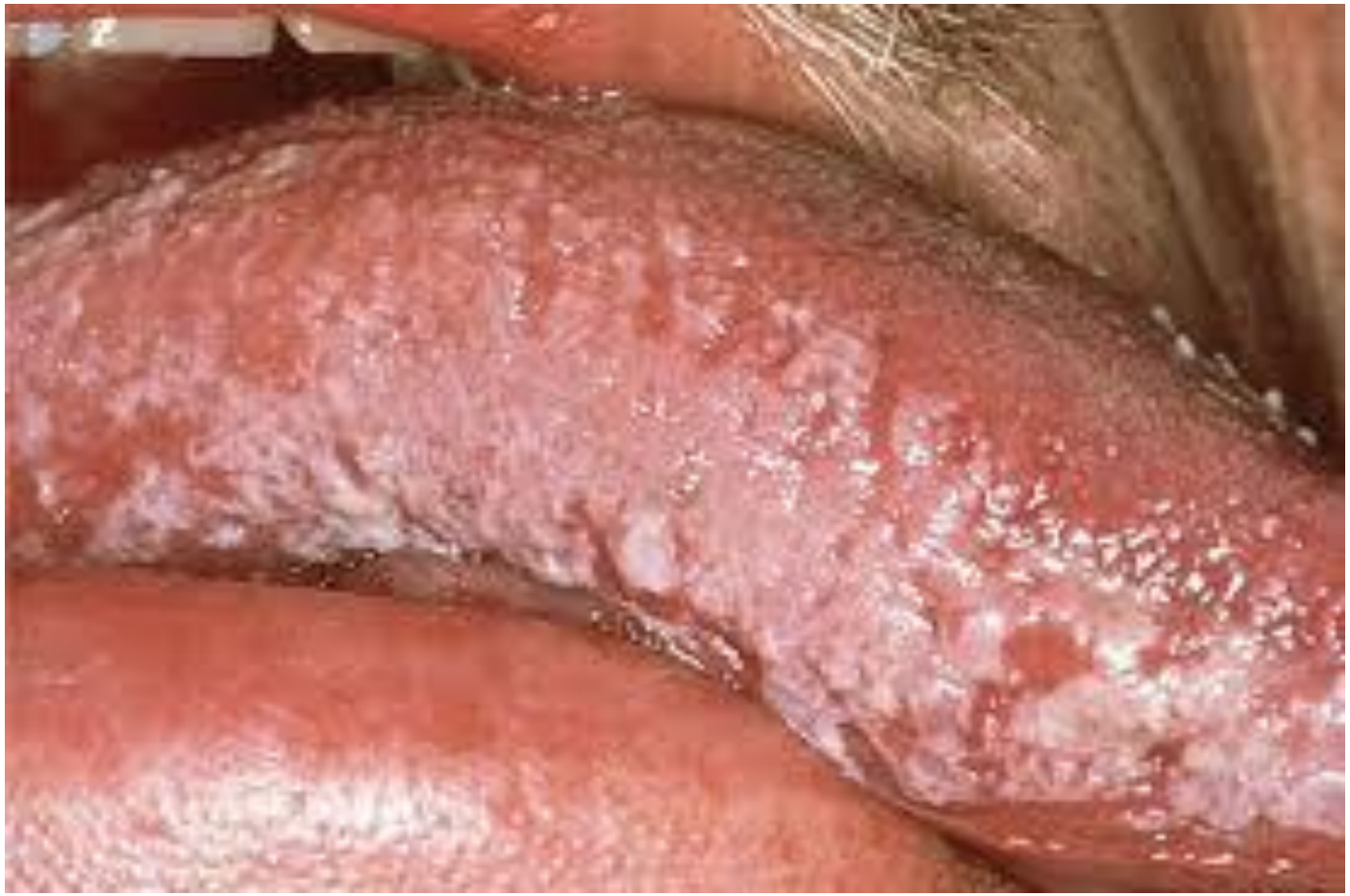






Oral Hairy Leukoplakia

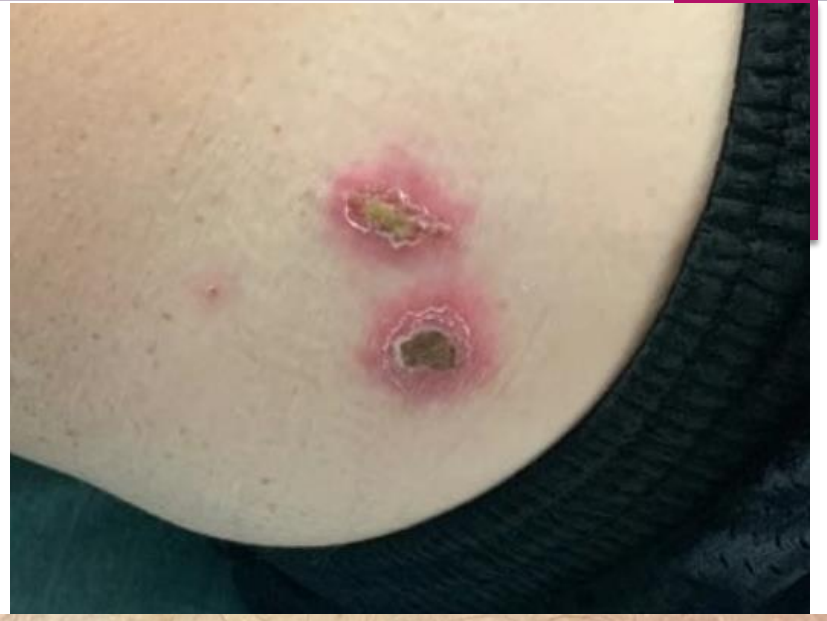
- Intraoral EBV in the setting of immune suppression
- Gray-white corrugated plaques on lateral tongue
- No known premalignant potential
- Tends to clear with ART
- Can recur after antivirals and concern for promotion of resistance

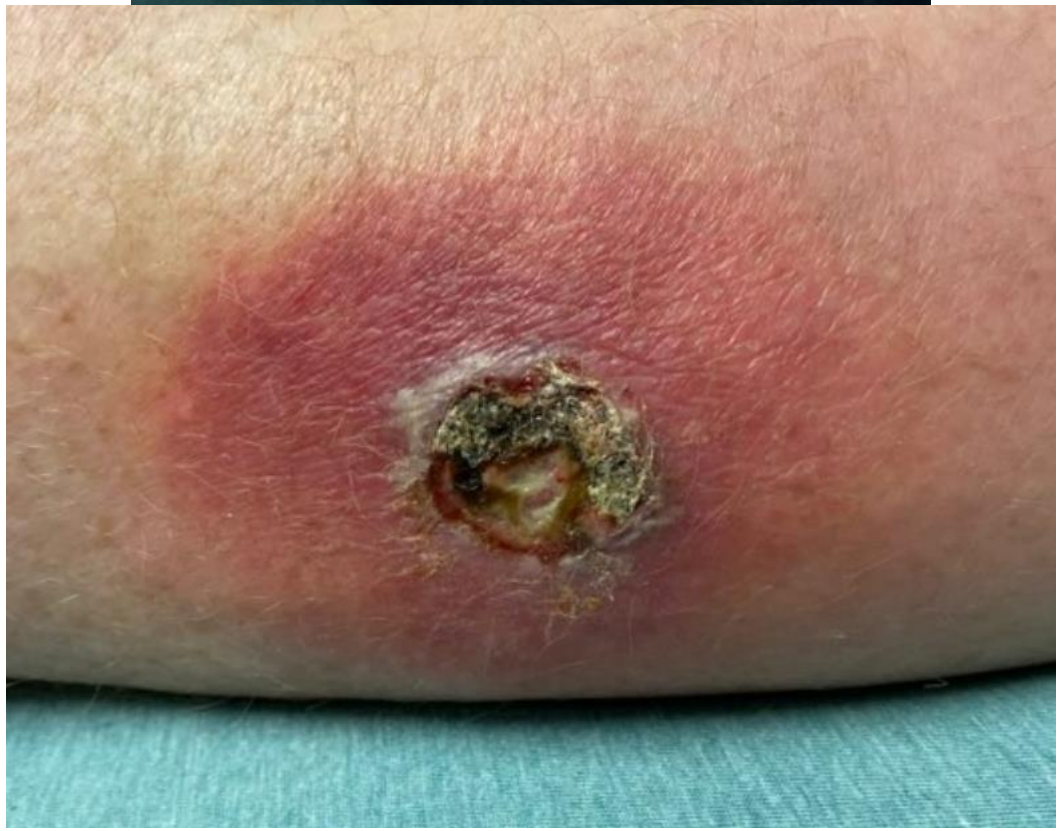


European Association of Oral Medicine https://eaom.eu/education

Bacterial Infections

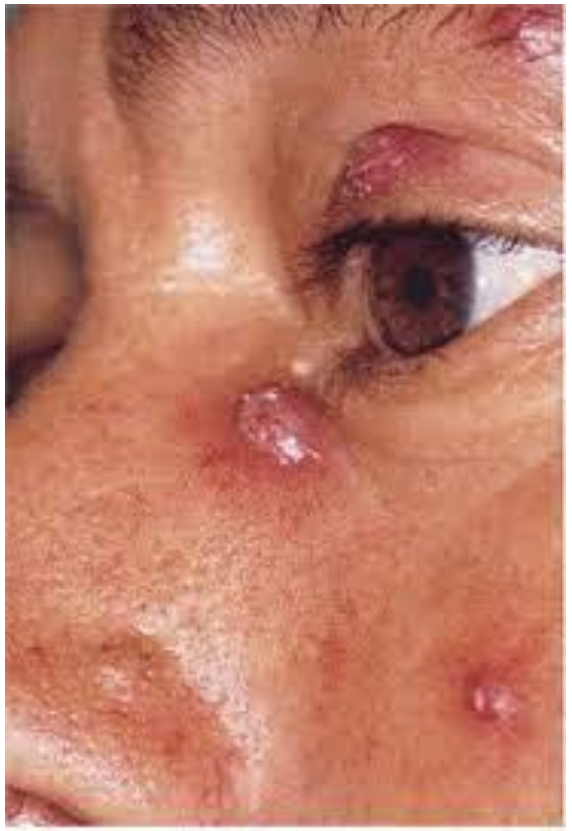
Staph Infections

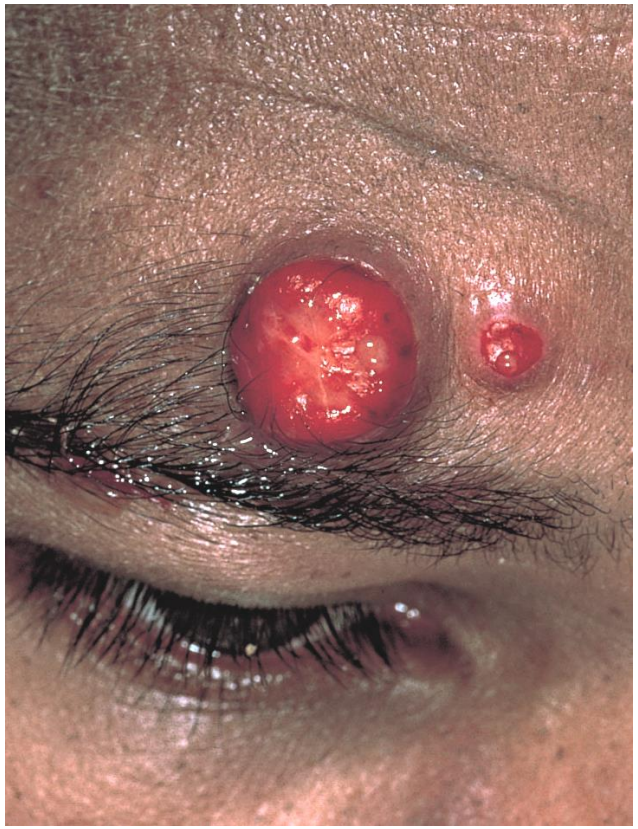




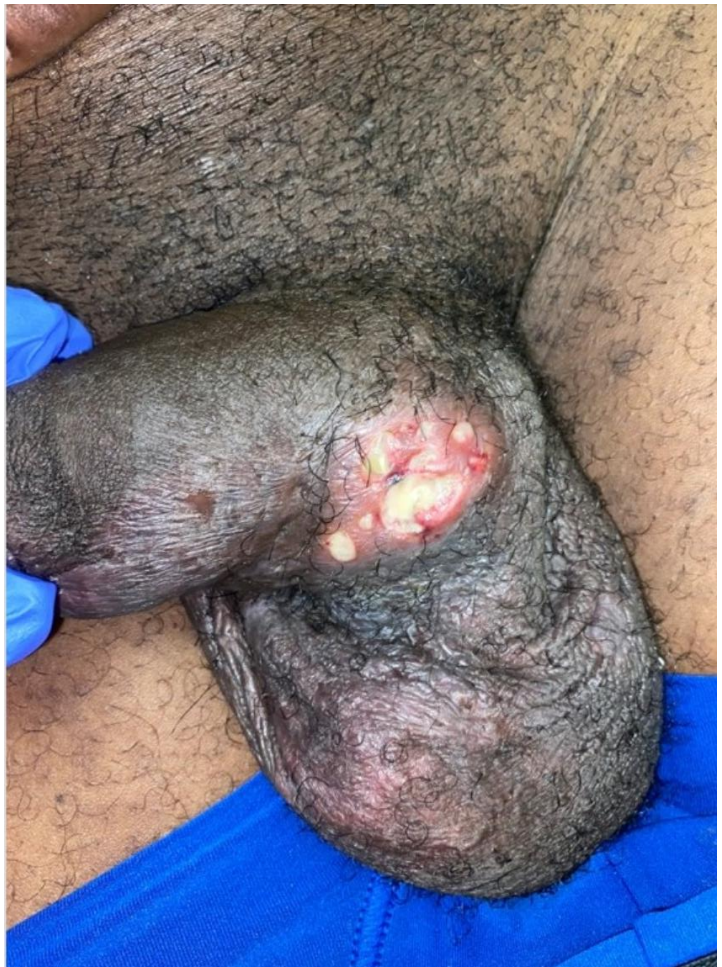
Bacillary Angiomatosis

- Bartonella henselae and Bartonella quintana
- Cutaneous lesions may herald systemic involvement in HIV
  - Multiorgan involvement: lymph nodes, brain, GI, respiratory, cardiac, bone marrow
- Clinical presentation
  - Proliferative vascular papulonodules
  - Friable, bleeding
- Treatment = prolonged abx
  - erythromycin
  - doxycycline
  - ceftriaxone
  - fluoroquinolones

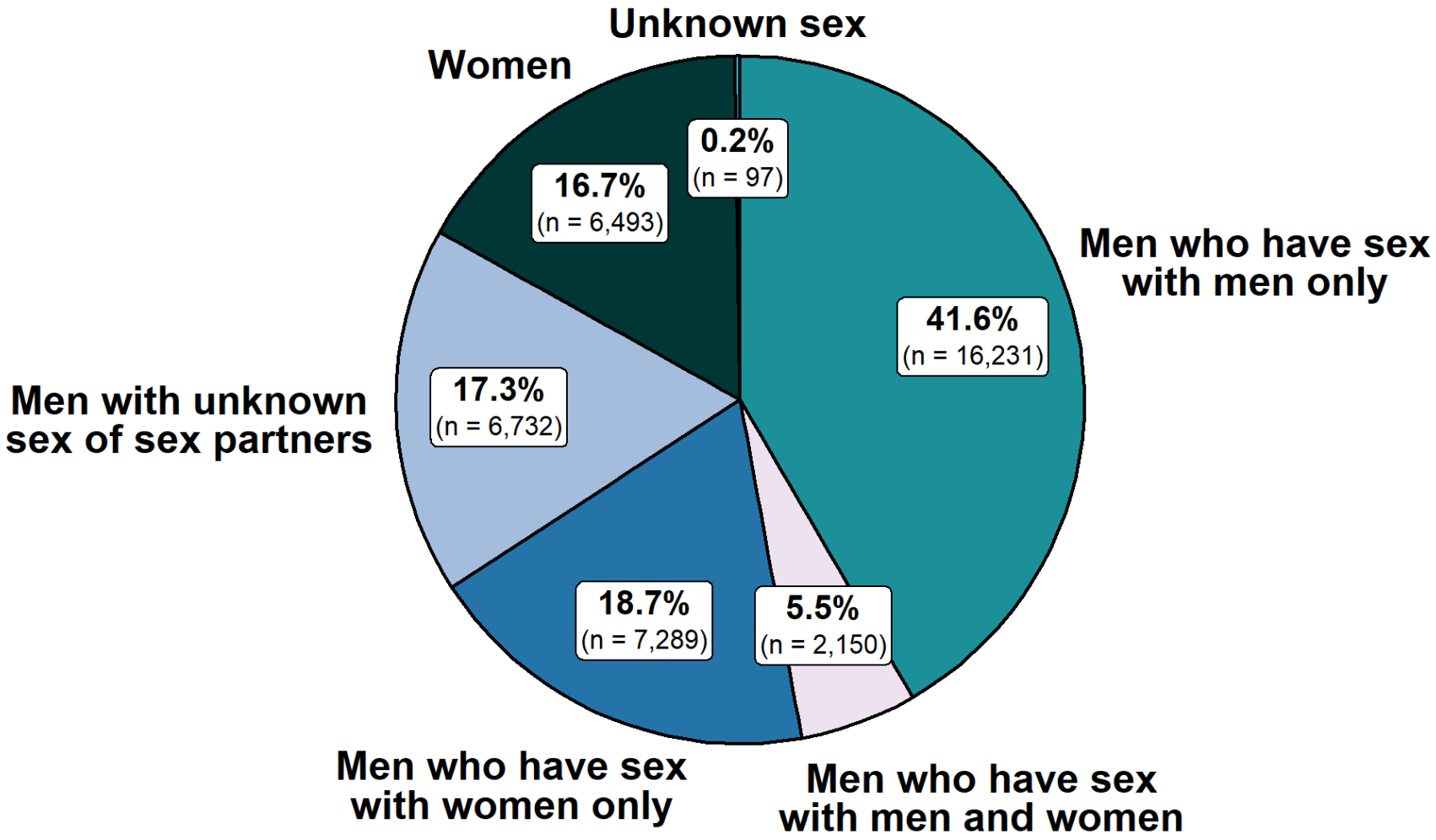




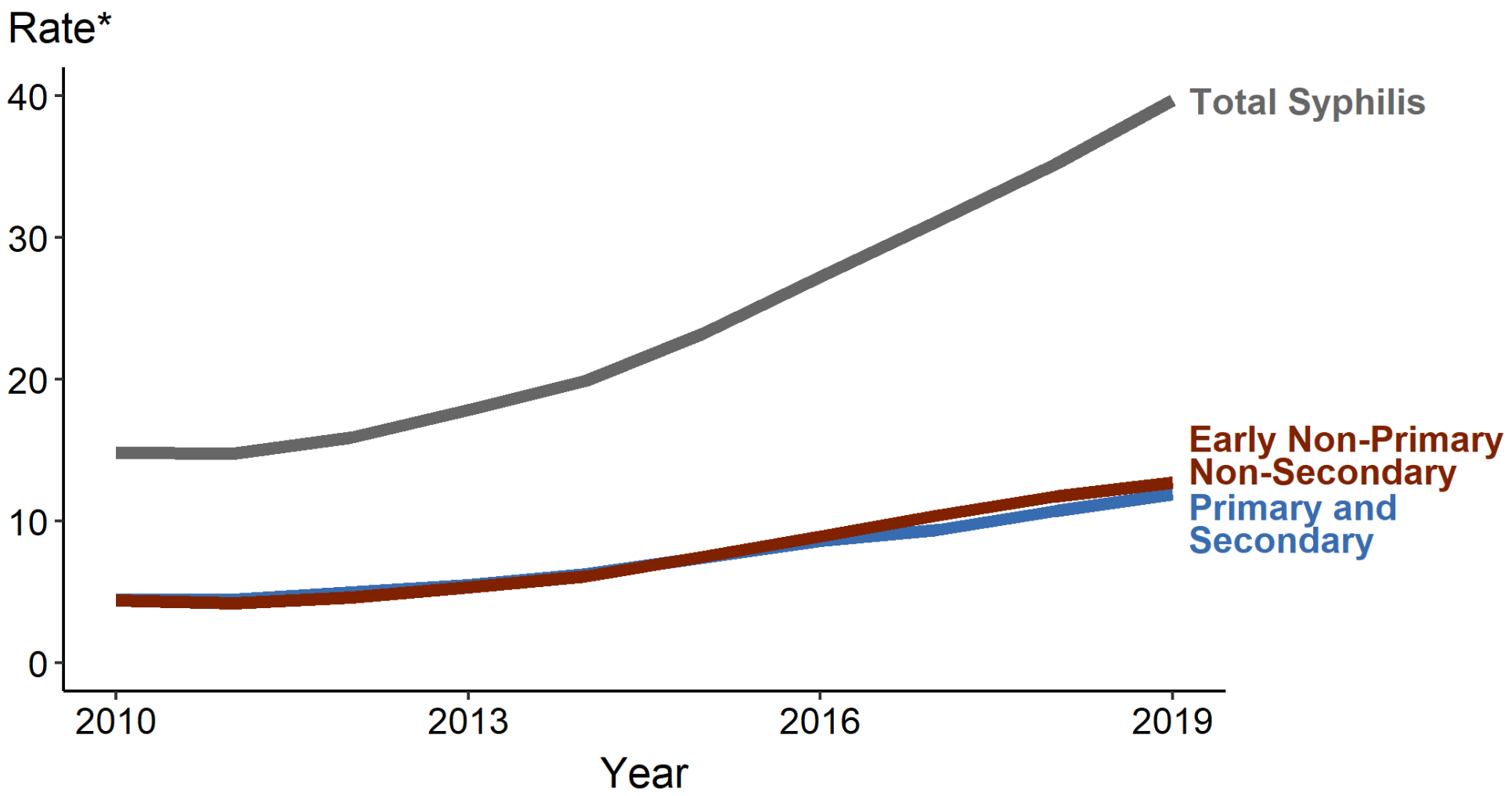
Syphilis



- Common co-infection with HIV
  - Chancres facilitate HIV transmission
  - Lower CD4 counts and slower immune recovery
- Atypical clinical features
  - Overlapping stages
    - 2° syphilis may have simultaneous genital ulcers
  - High likelihood of neurosyphilis
- MSM have 3x the rate
- Primary chancre
  - Painless, firm, oozing, +/- painless LAN
  - Multiple chancres; larger and deeper



https://www.cdc.gov/std/statistics/2019/overview.htm



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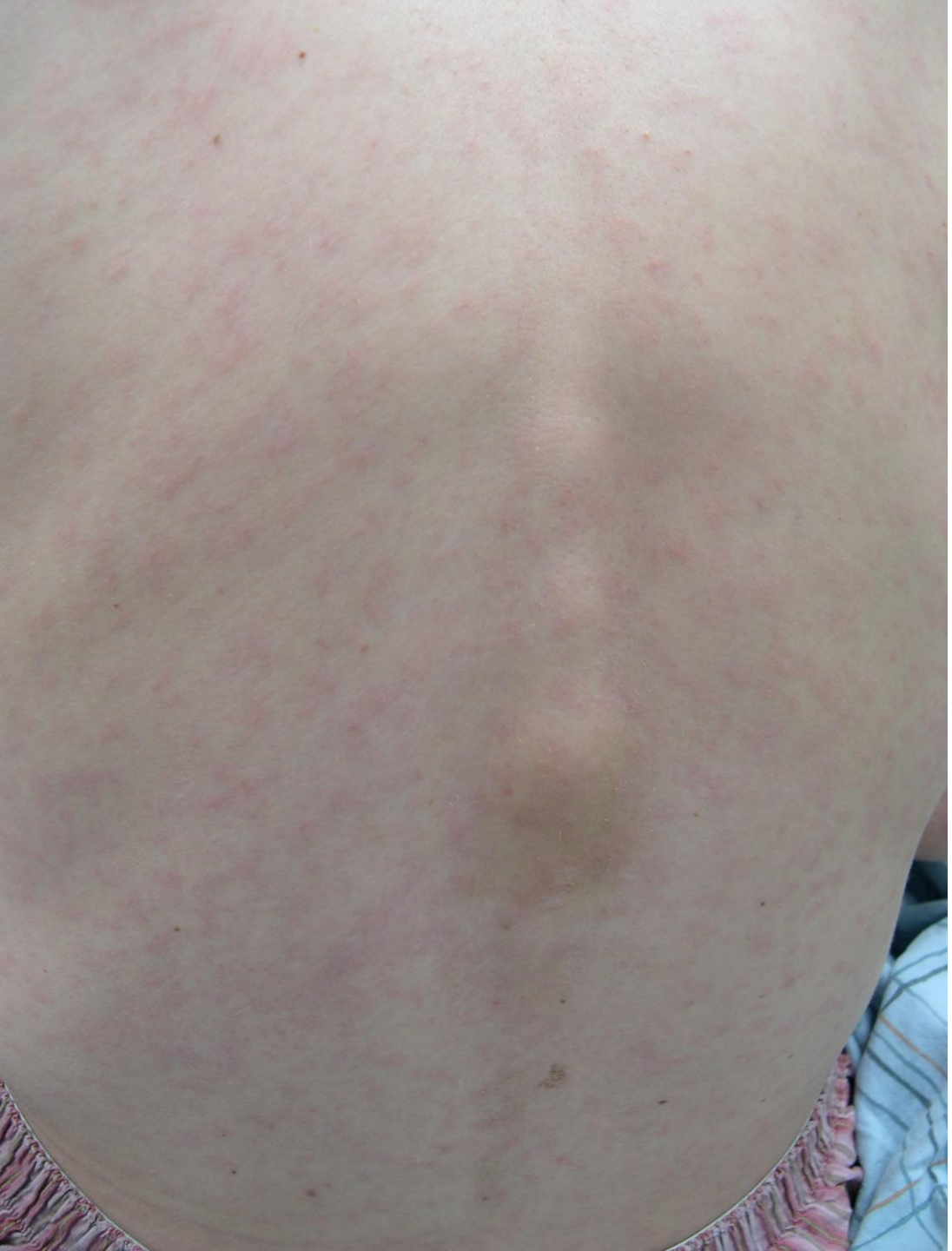
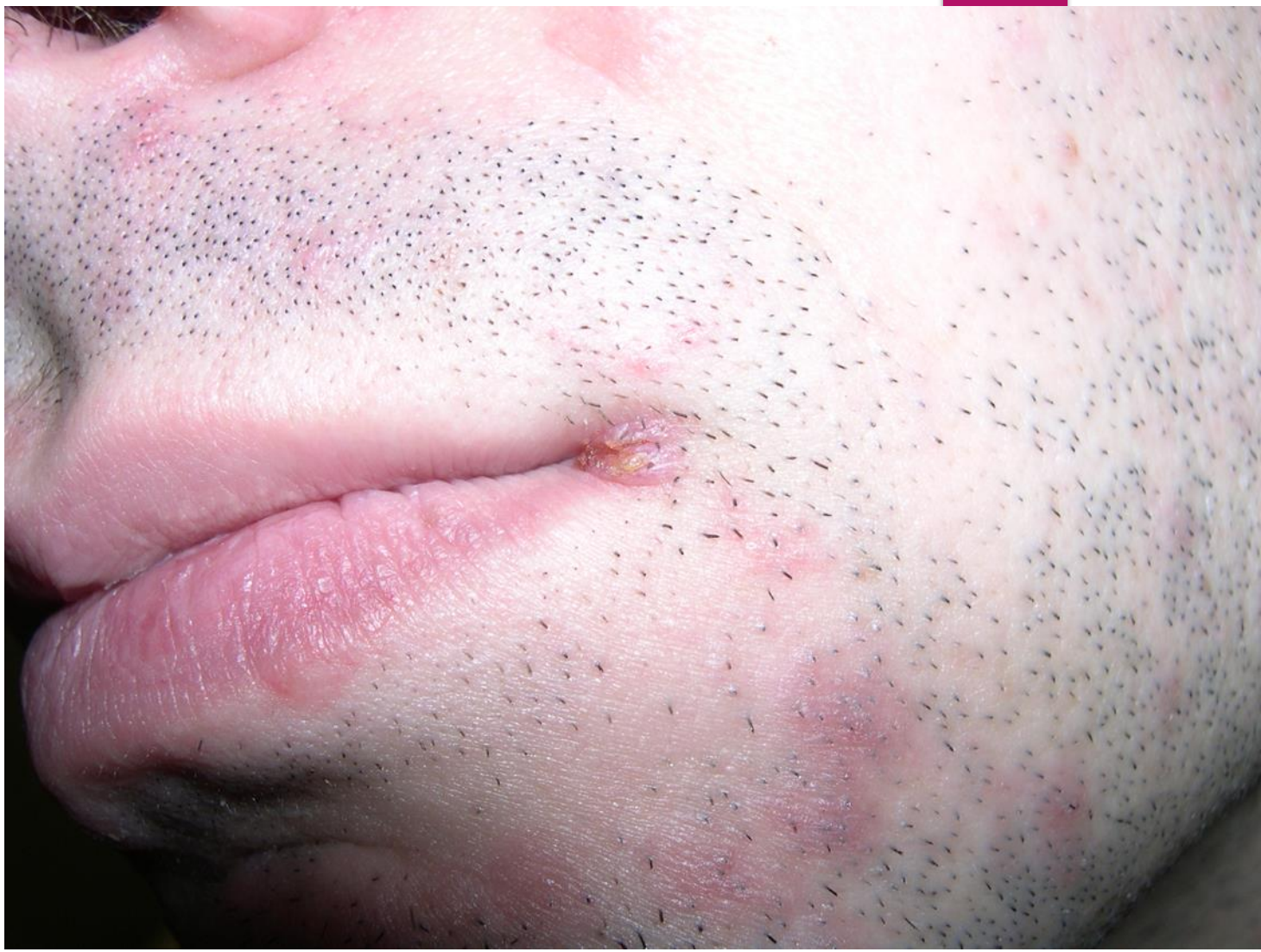
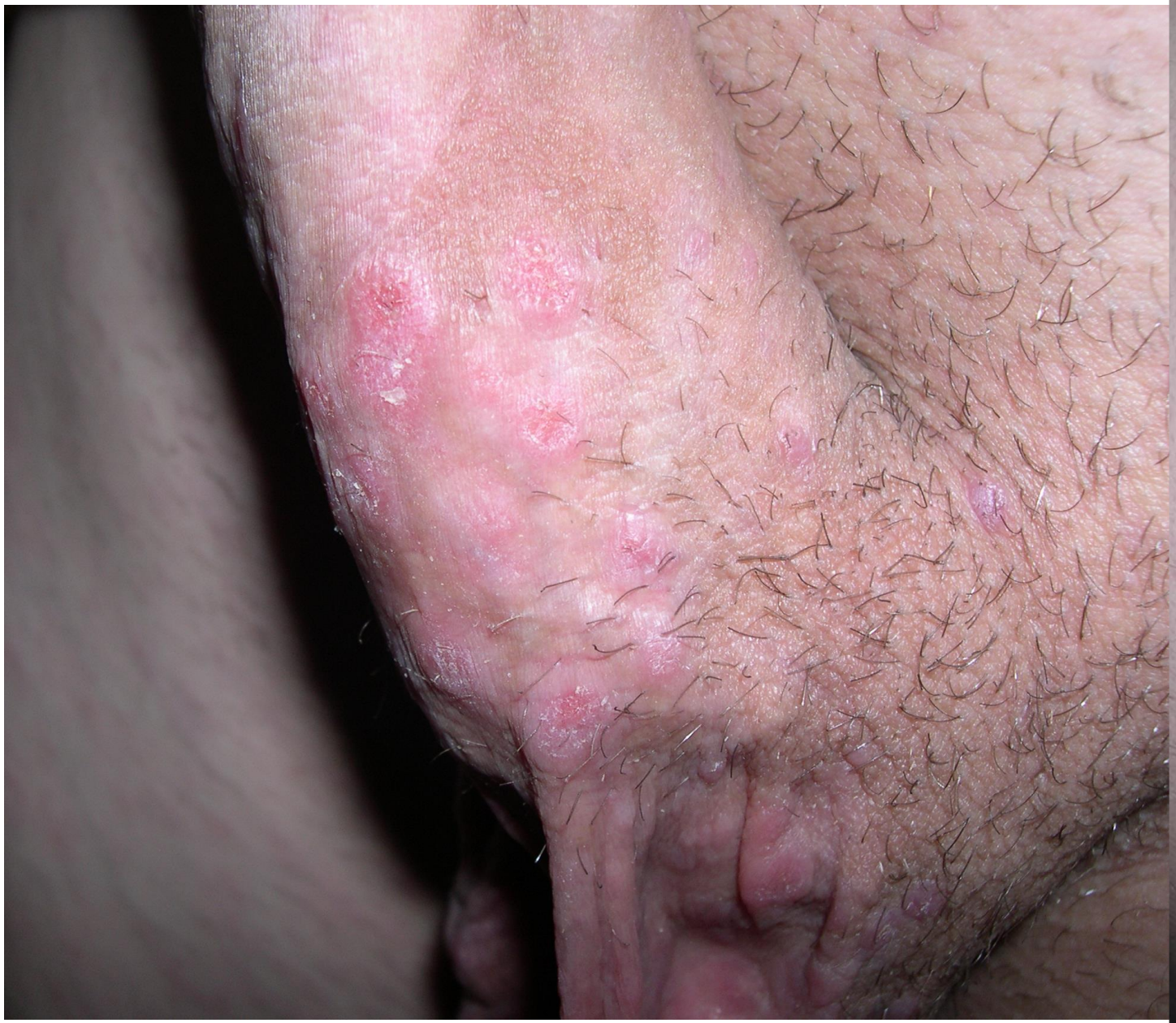
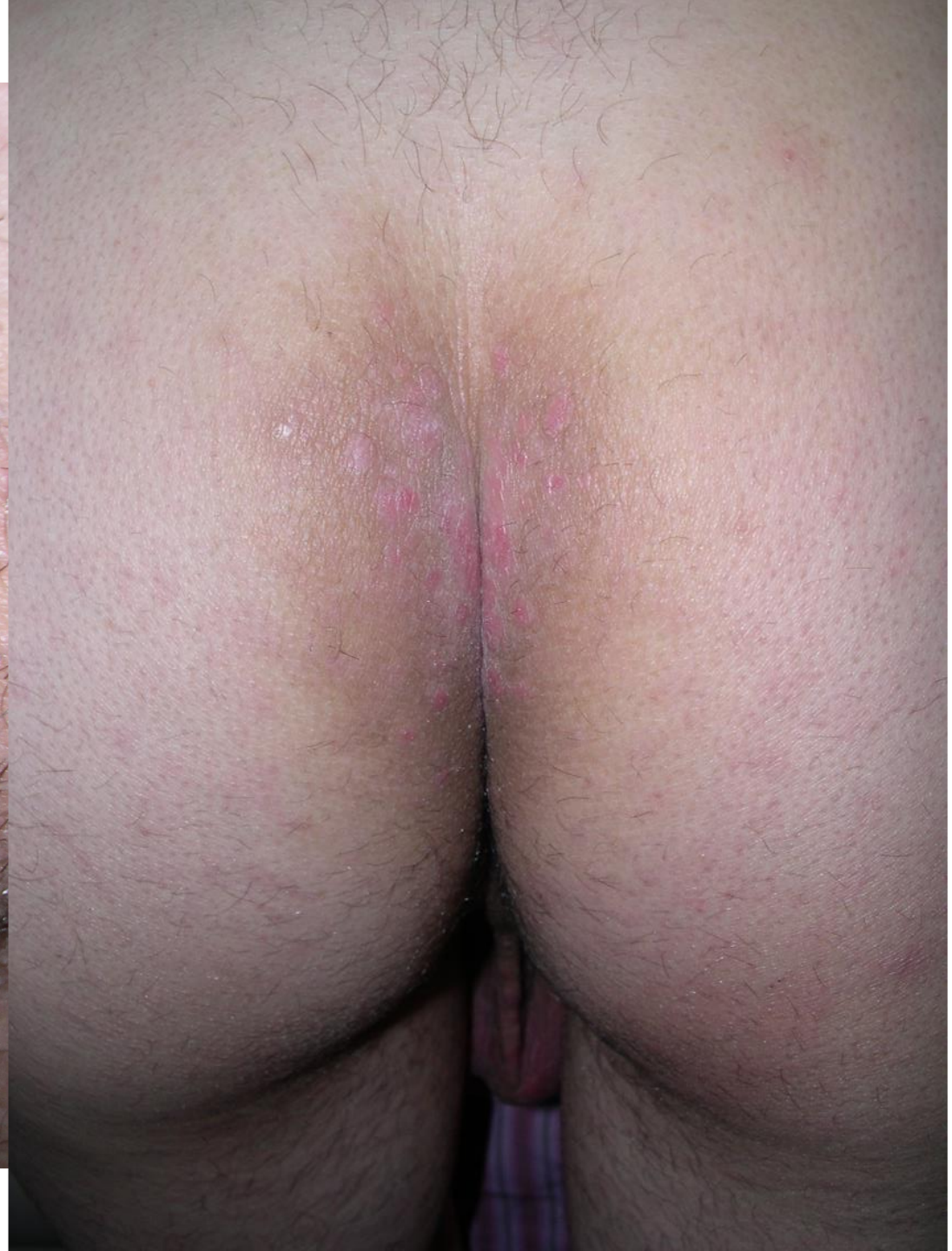
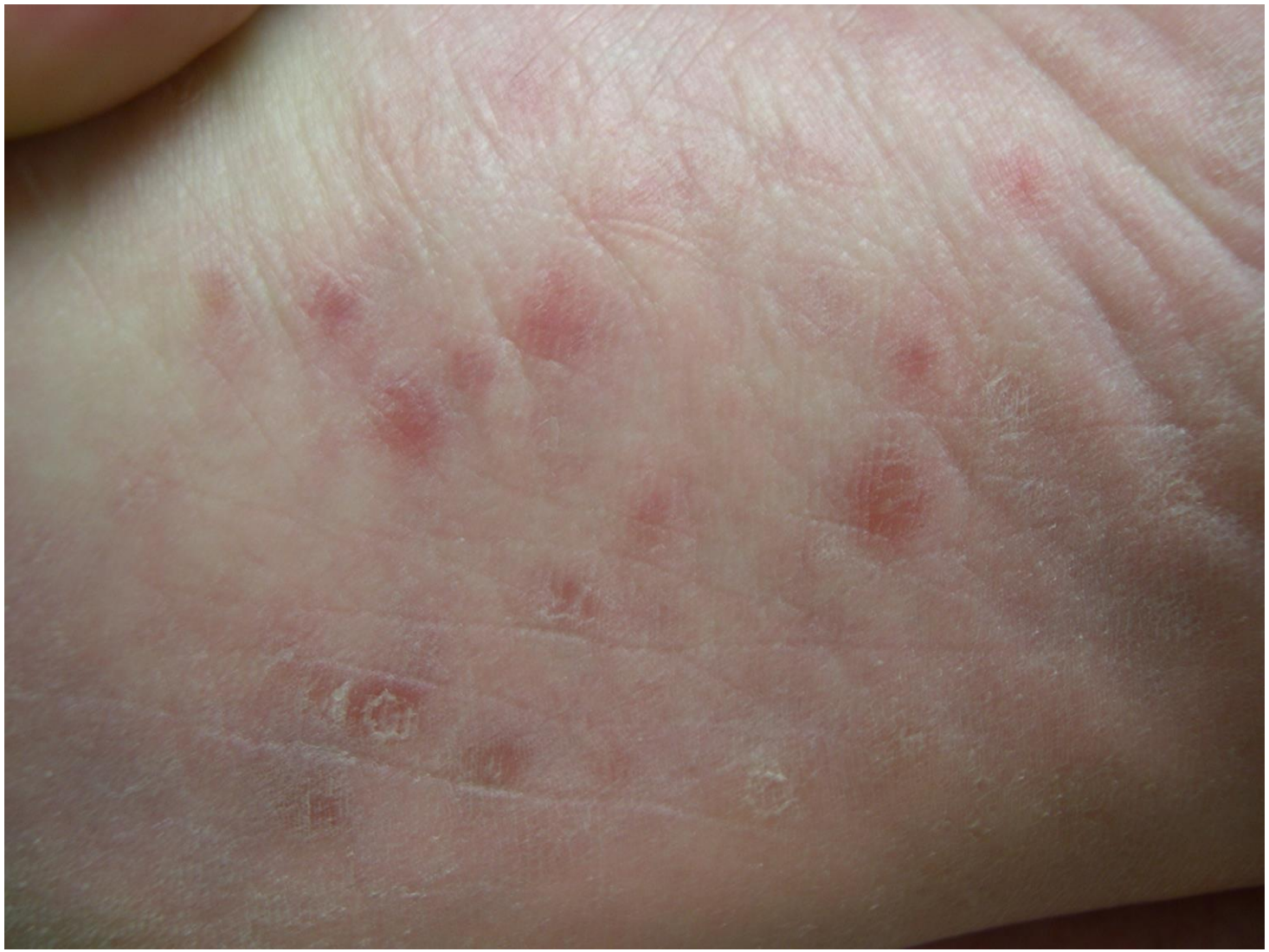
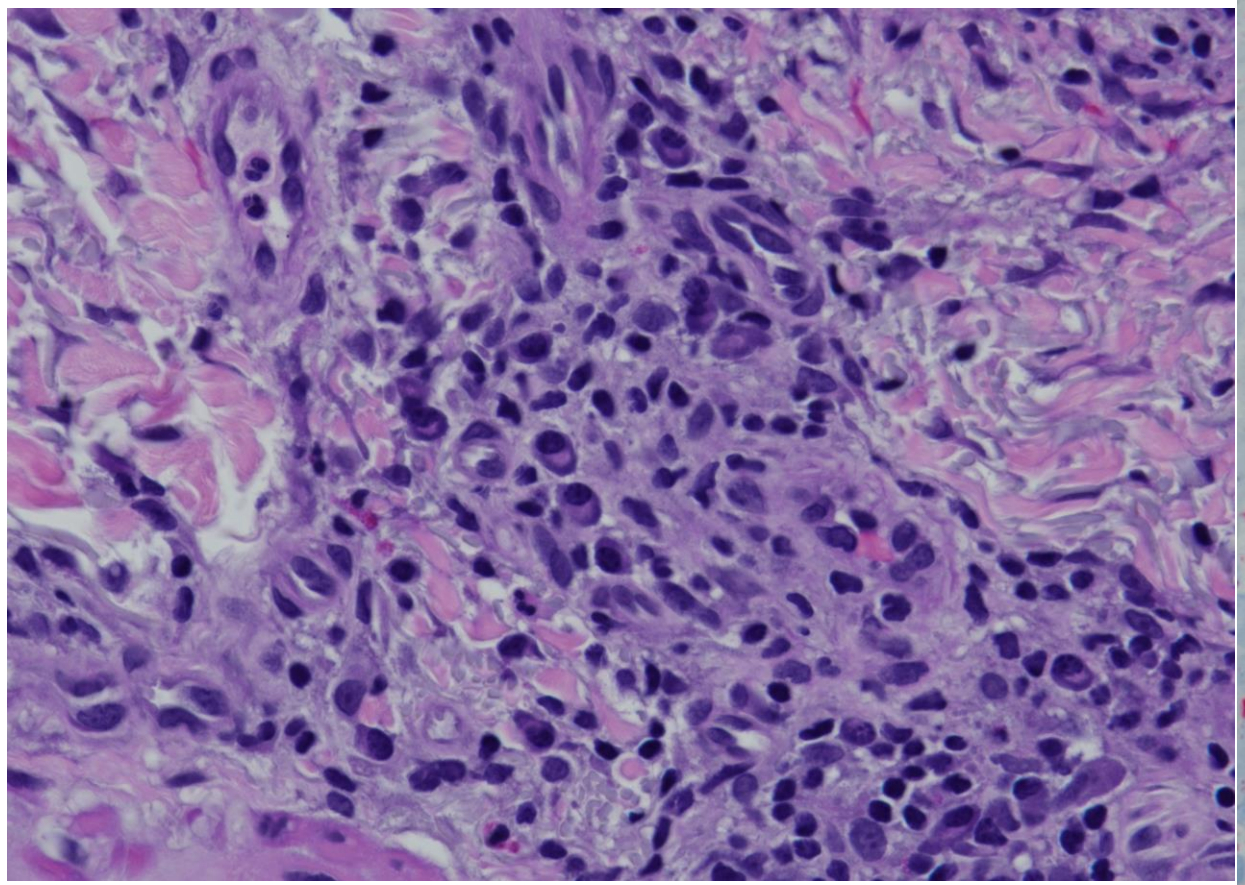


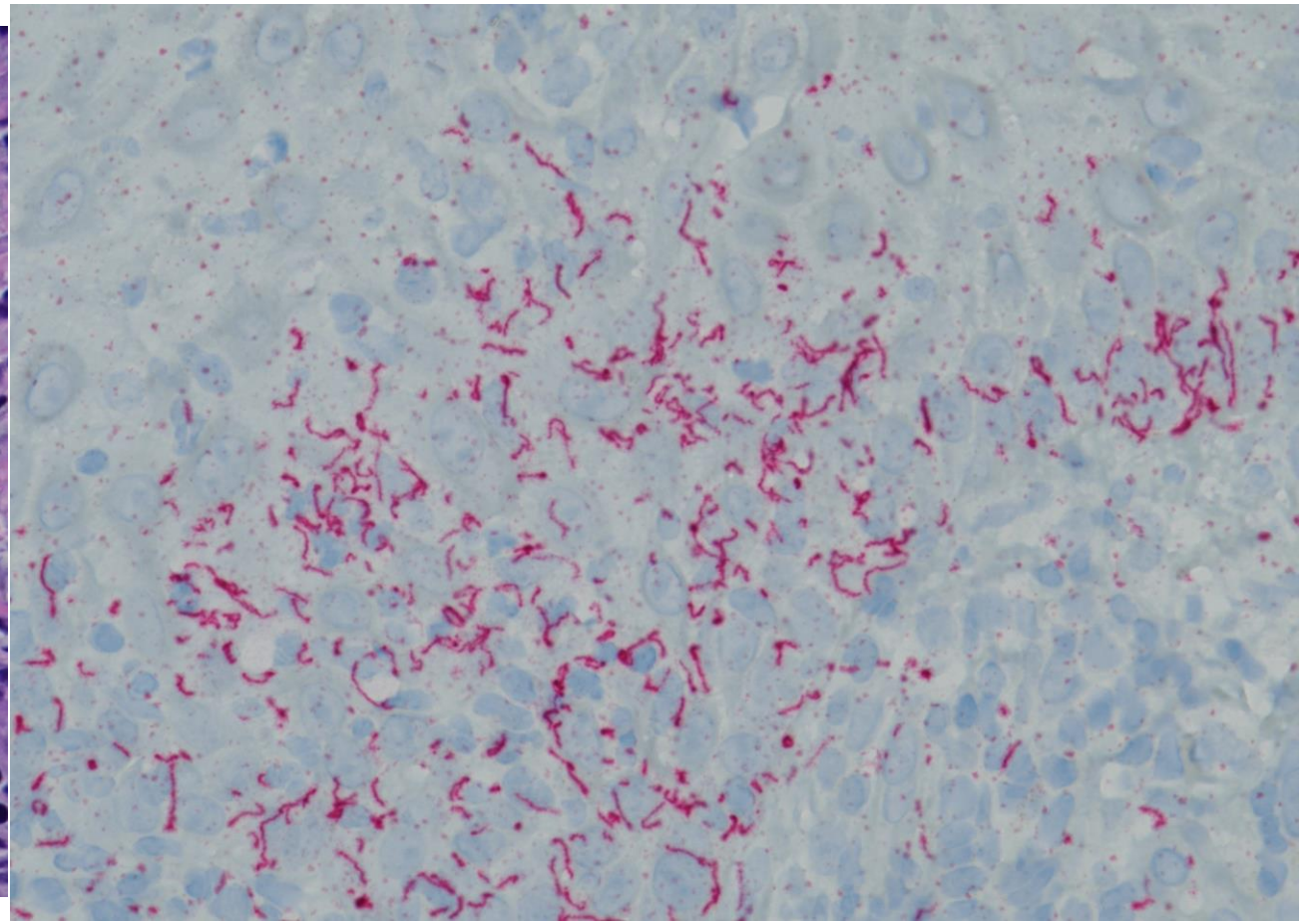












Which Patient Has Syphilis?

The Great Imitator

Mankind's most dangerous enemy is syphilis. It takes the form of many diseases, masking as rheumatism, arthritis, physical exhaustion or nervous breakdown. It may seem to be a form of skin, eye, heart, lung, throat or kidney trouble.

Most tragic of all, it often attacks the brain and spinal cord. It may result in blindness, deafness, locomotor ataxia, paralysis and insanity—a life-long tragedy. No wonder it is called "The Great Imitator."

In certain general hospitals, as high as 30% of all patients were found to be suffering directly or indirectly from this disease. Yet many of its victims had not known what was robbing them of health and strength until a medical examination, including blood and spinal fluid tests, revealed their condition.

Syphilis can usually be cured by competent physicians if detected in time and if the patient *faithfully and persistently follows the complete treatment prescribed by his doctor*. If the early stages are neglected, cures are less certain, but a great deal can still be done to relieve suffering.

It is estimated that about thirteen million persons—one out of ten—in the United States and Canada have or at some time have had syphilis. Because of fear and ignorance, millions of victims have been imposed upon by quacks, charlatans and blackmailers pretending to practice medicine.

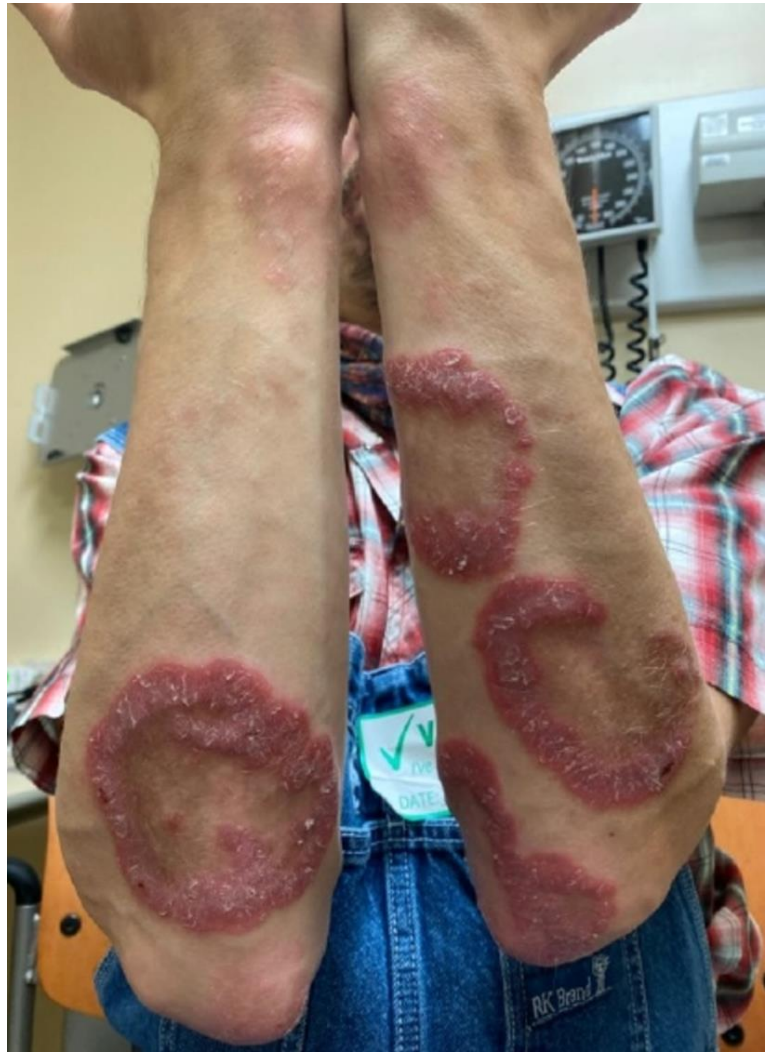
A most effective way to reduce the amount of syphilis is the pre-natal treatment of mothers suffering from this destructive disease.

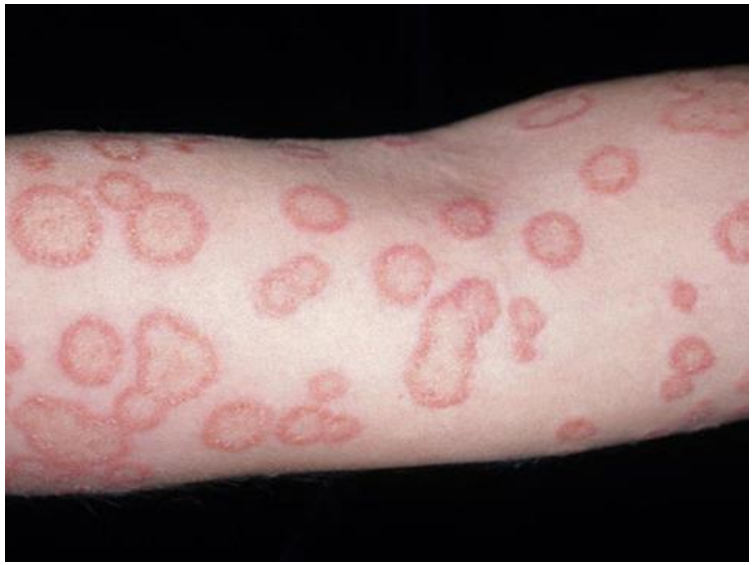
Parents and teachers owe it to those dependent on them for education and guidance to replace secrecy by knowledge, frank instruction and friendly advice. Physicians, health departments, and social hygiene societies willingly offer their aid.

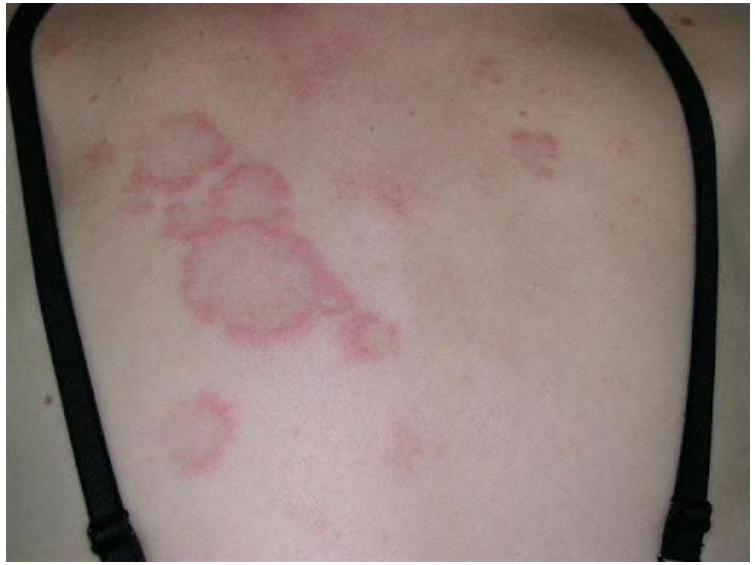
The Metropolitan Life Insurance Company will gladly mail, free, its booklet, "The Great Imitator." You are urged to send for it. Ask for Booklet 730-L.

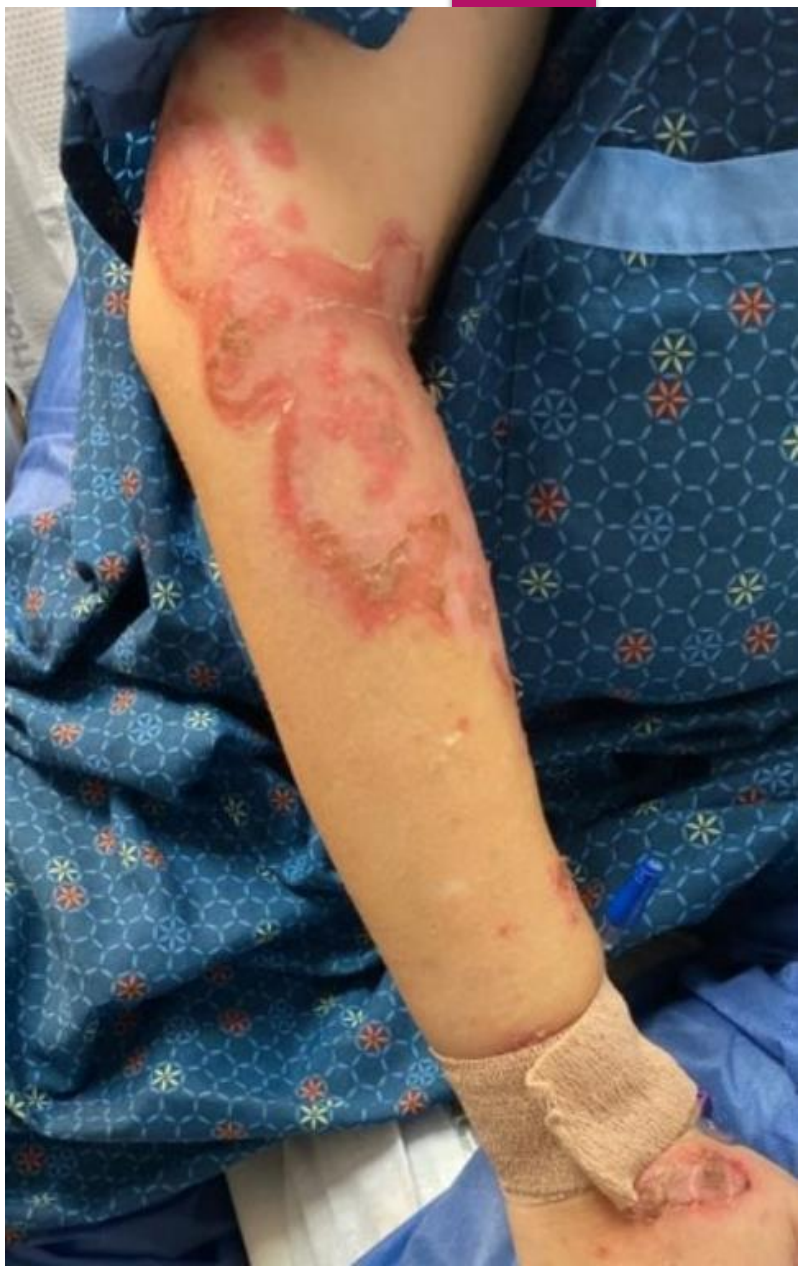
NOTE: The Metropolitan first published "The Great Imitator" in January, 1928. Since then, leaders of public health organizations and directors of big business have requested that it be republished and that booklets be provided for wide distribution. The booklets are ready.

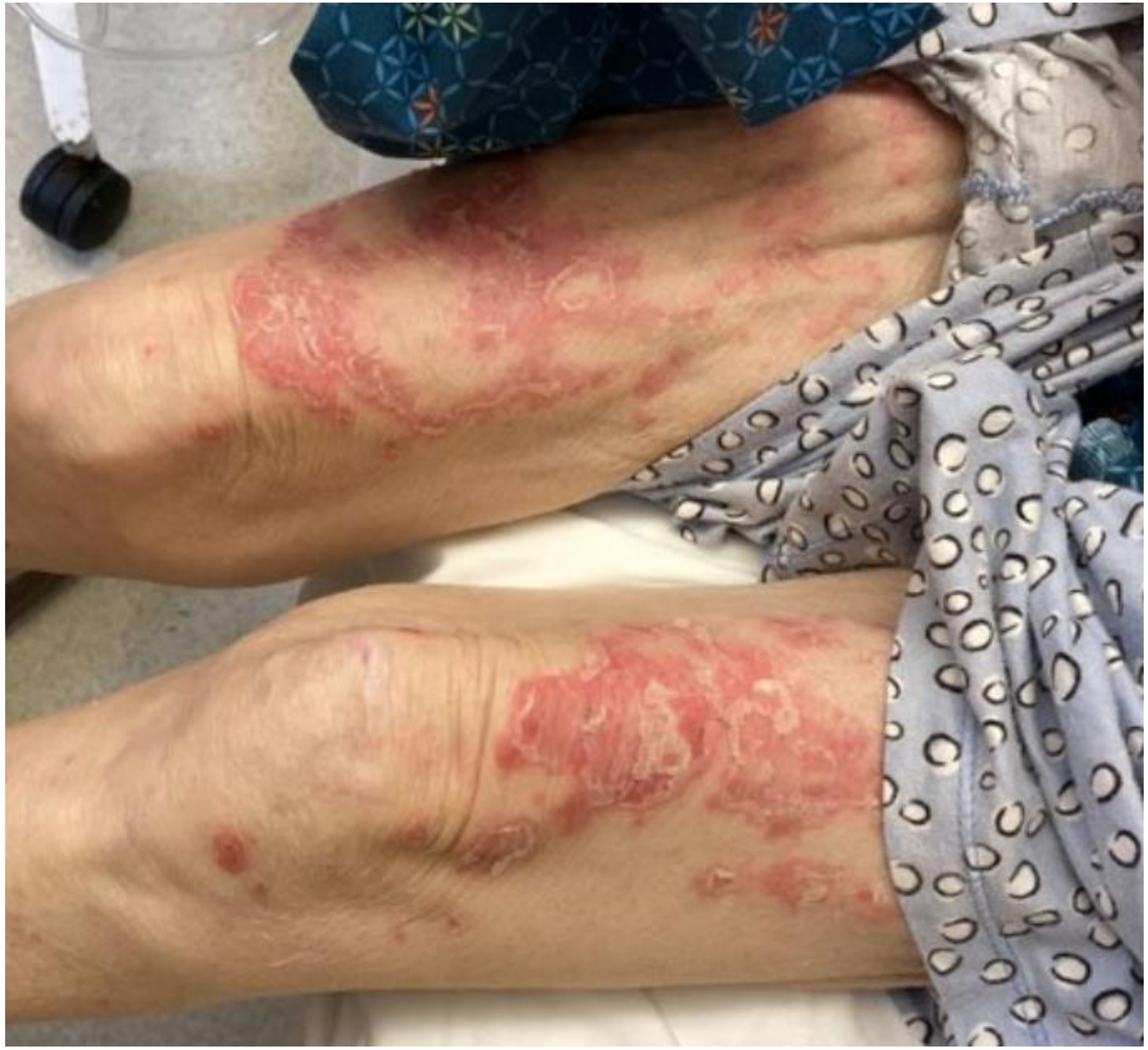
METROPOLITAN LIFE INSURANCE COMPANY
FREDERICK H. ECKER, PRESIDENT — ONE MADISON AVE., NEW YORK, N. Y.

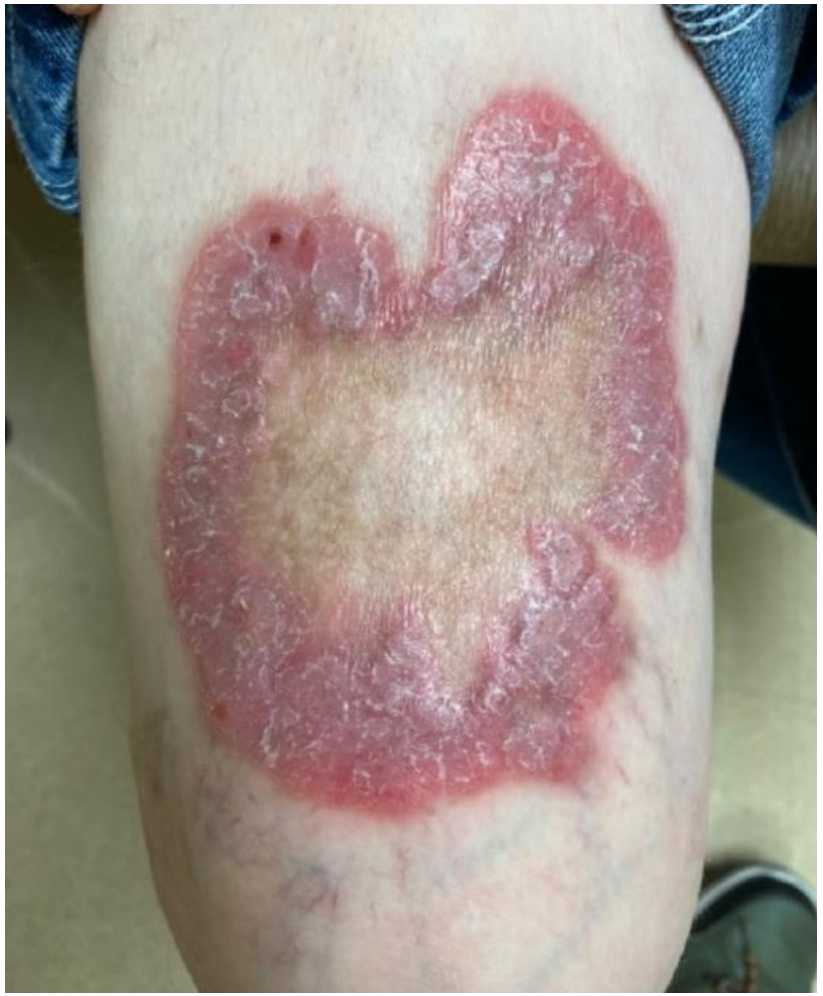


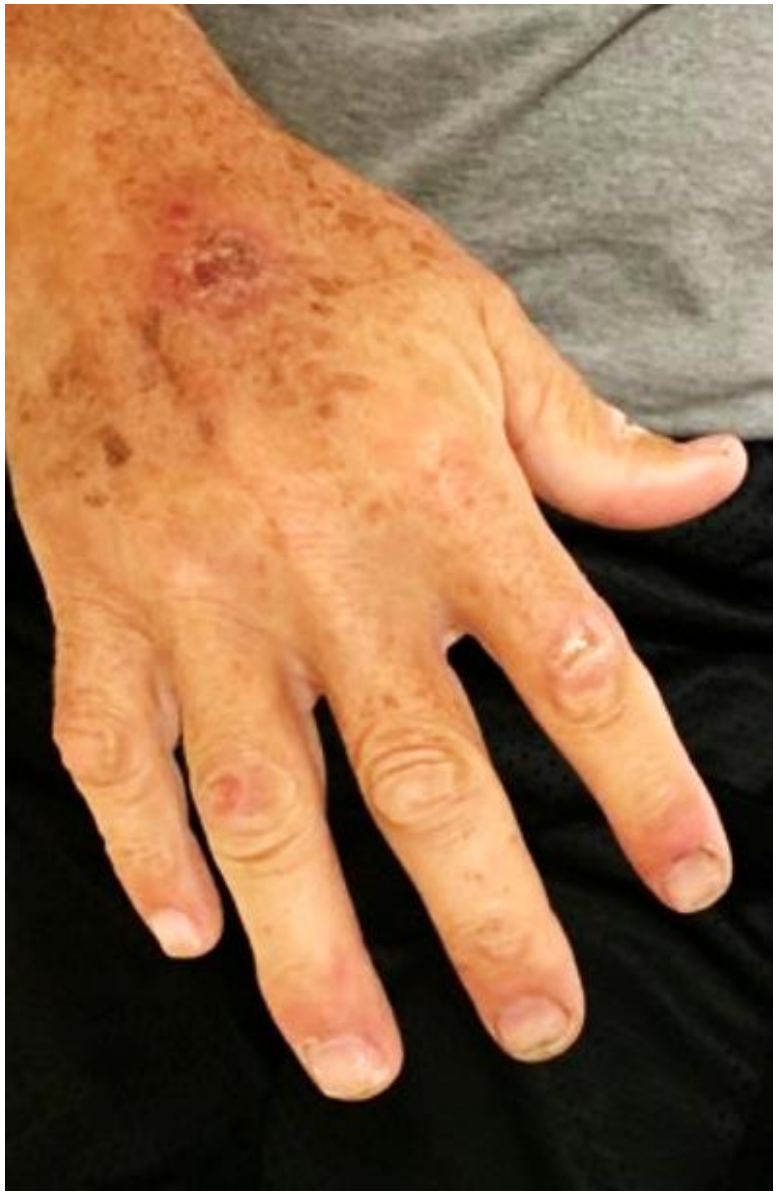


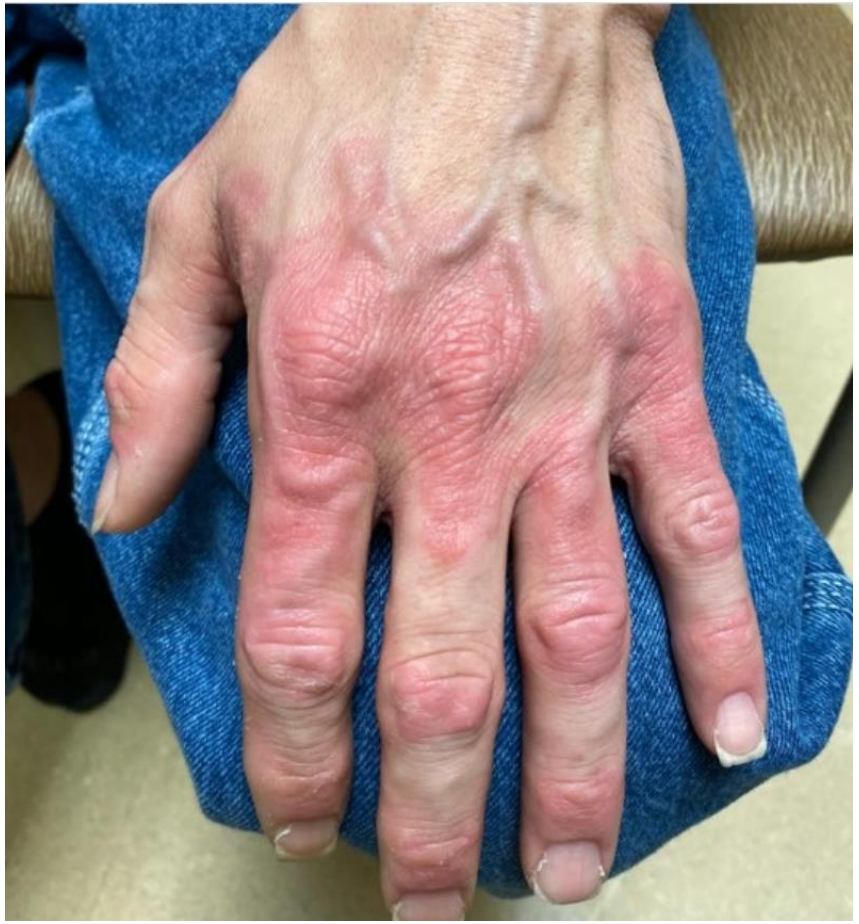


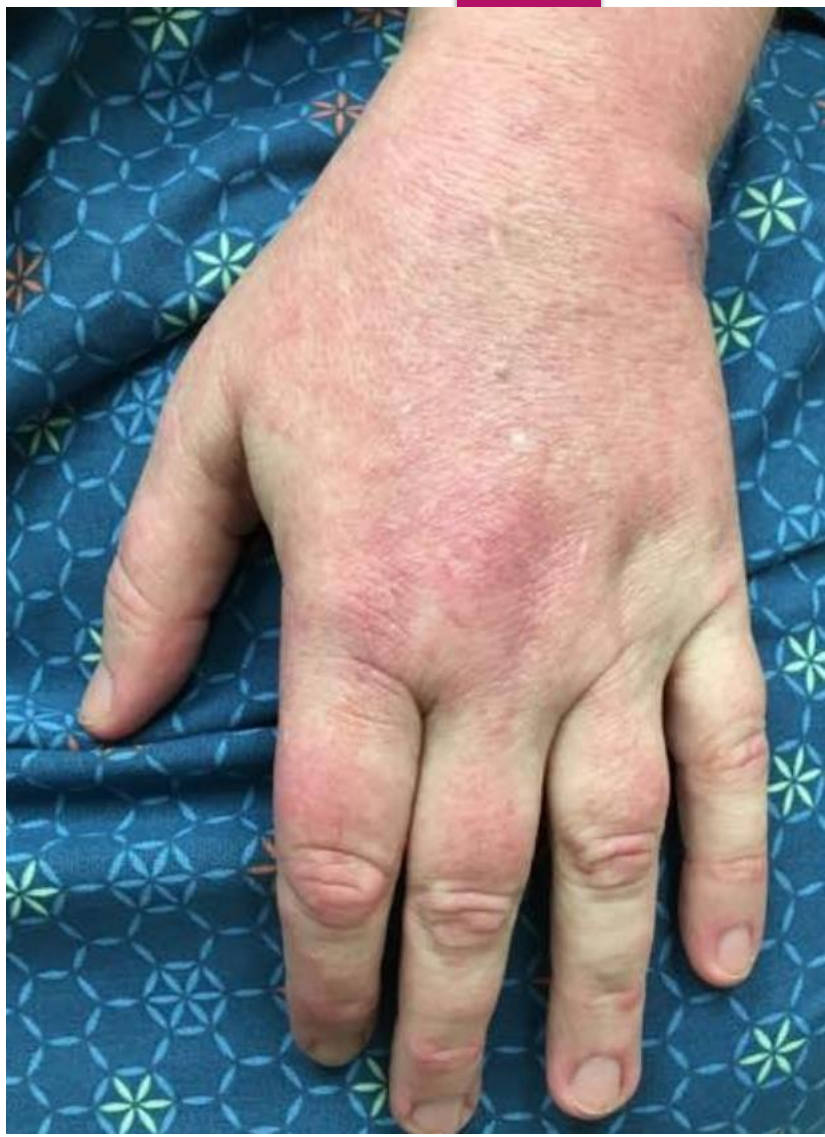


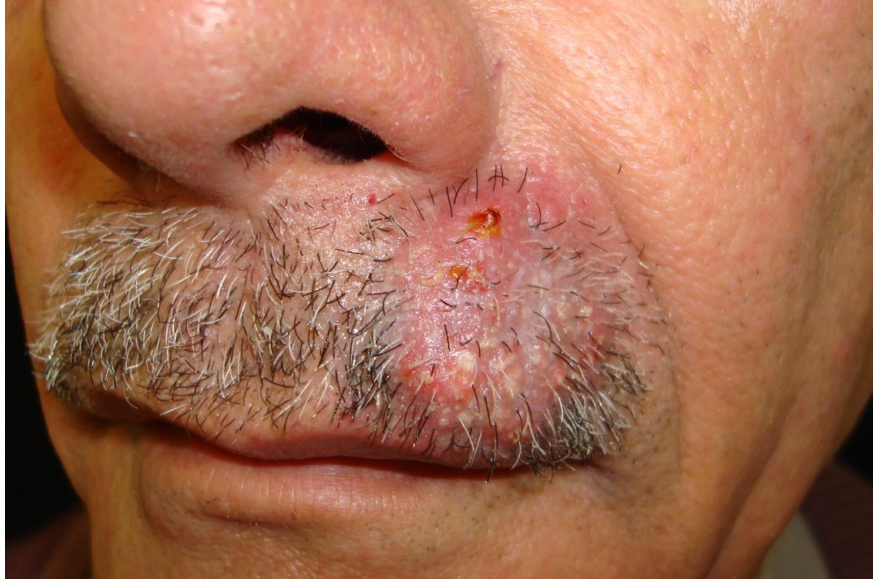


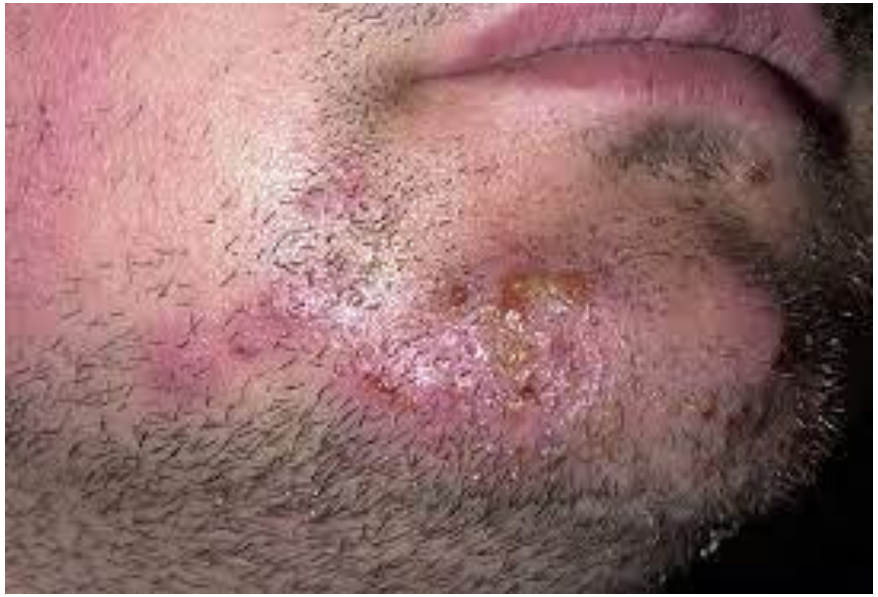


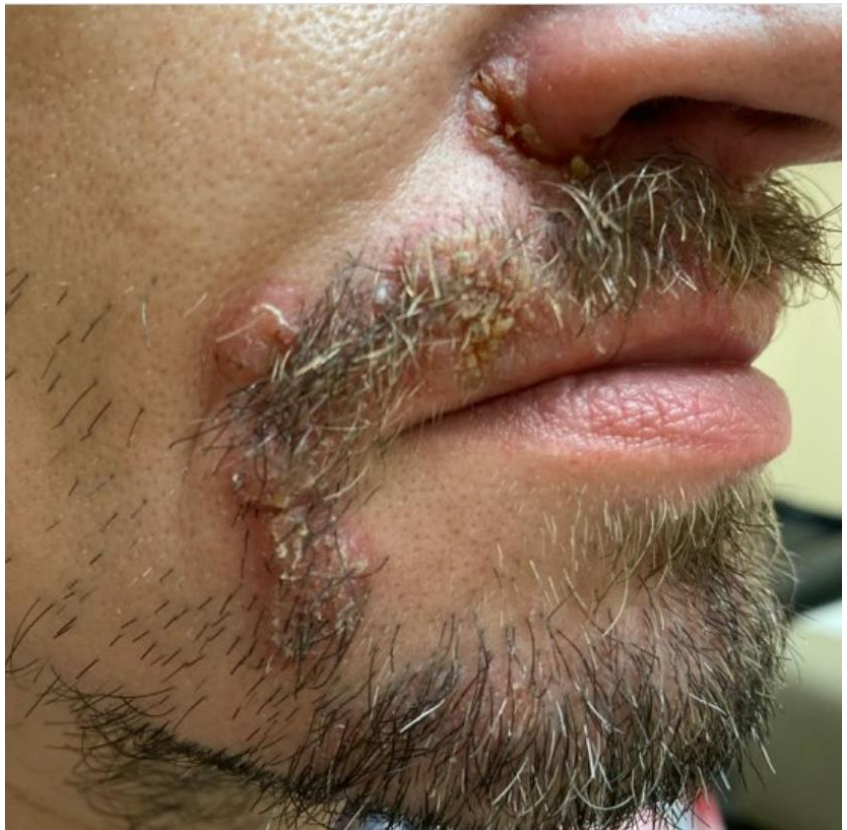


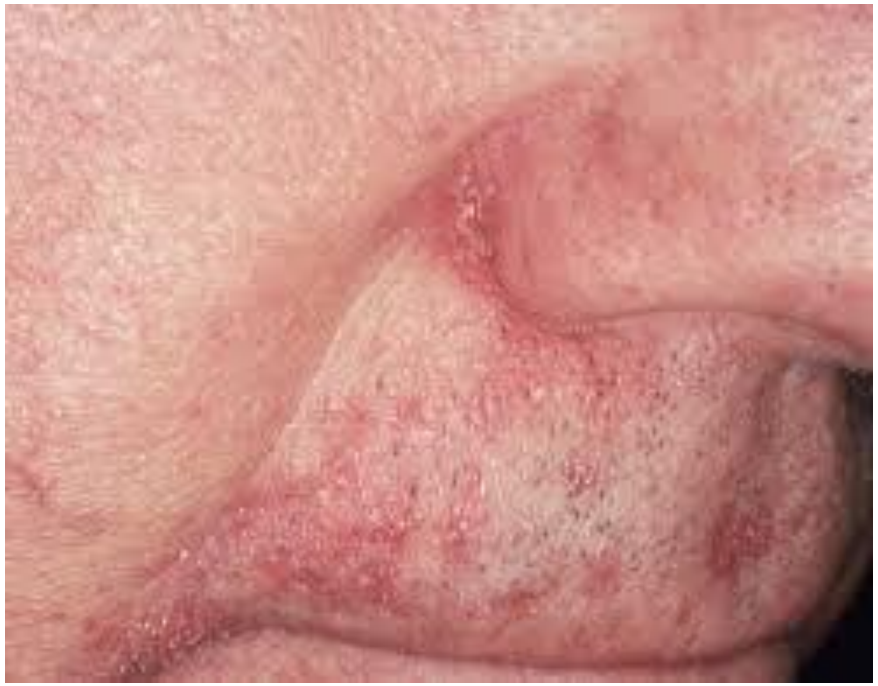








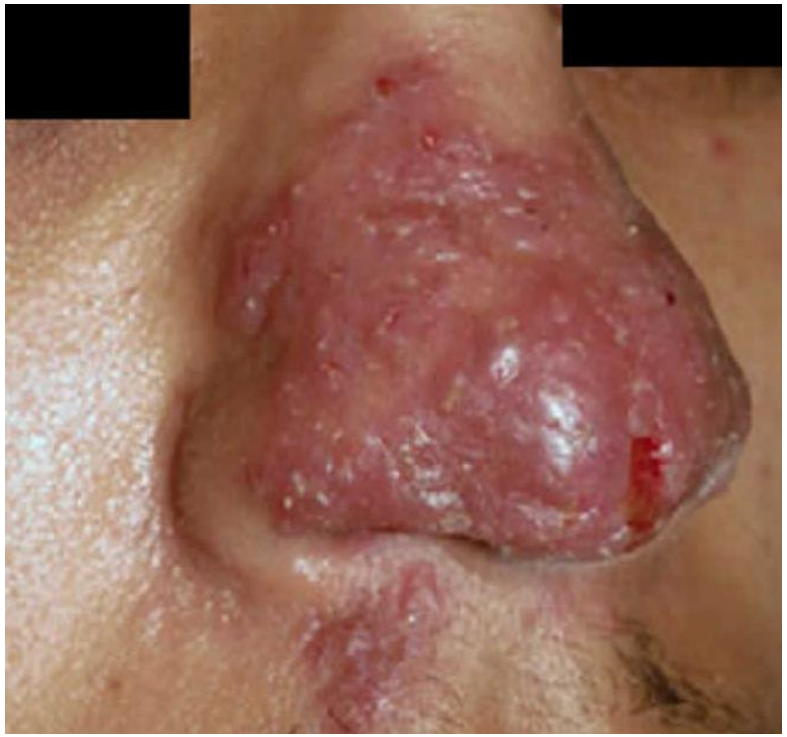


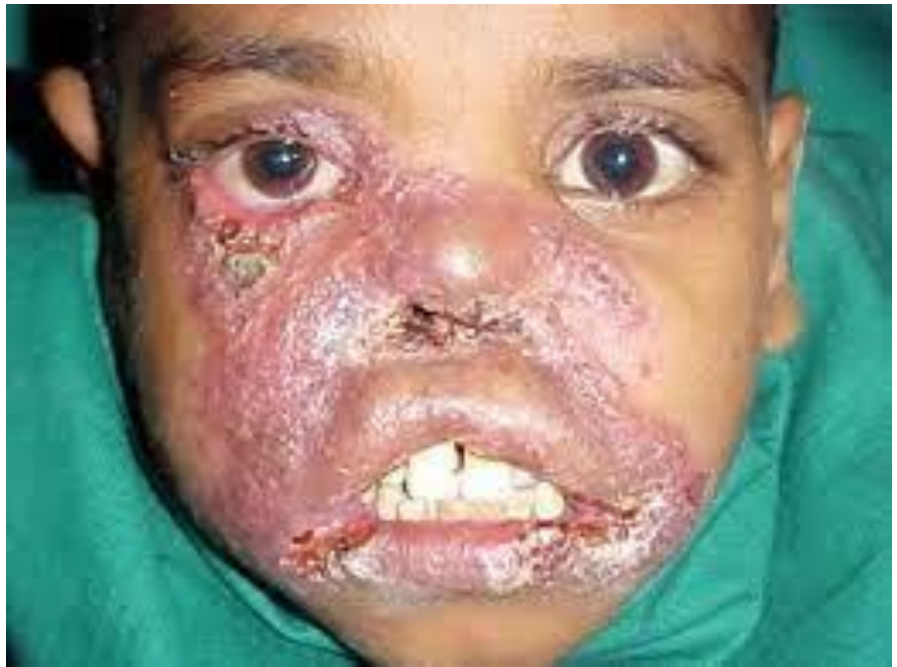


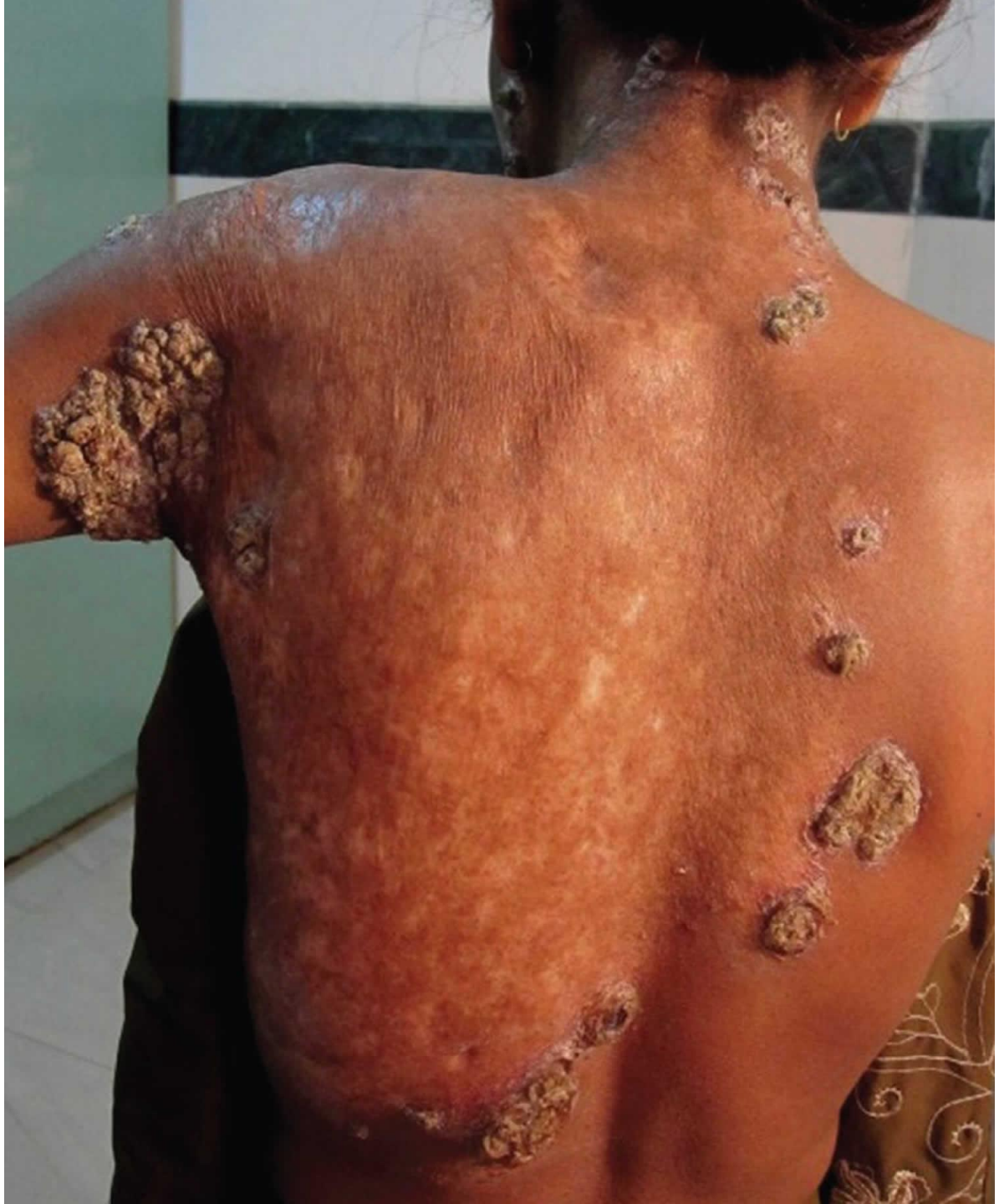
Tuberculosis

- Skin involvement with Mycobacterium tuberculosis
- Divided into 3 categories:
  - Inoculation tuberculosis = a primary infection of skin introduced by exogenous source
  - Secondary tuberculosis = contiguous or hematogenous spread to skin from a primary focus
  - Tuberculids = hypersensitivity reactions to M tuberculosis components

- Lupus vulgaris
  - most common form of cutaneous tuberculosis
  - primary infection of the skin or 2/2 to hematogenous spread
  - enlarging plaque that becomes verrucous, ulcerating, fungating, locally destructive
- Scrofuloderma
  - Direct extension into the skin from an underlying focus (lymph node or bone)
- In HIV, hematogenous dissemination to extrapulmonary sites, such as the skin, is more common,
  - tuberculosis cutis miliaris disseminata
    - papulopustular eruption
    - poor prognosis
  - Papulonecrotic tuberculid
    - symmetric eruption of necrotizing papules, appearing in crops and healing with scars
    - immunologic response to M tuberculosis components in a previously sensitized patient after hematogenous spread



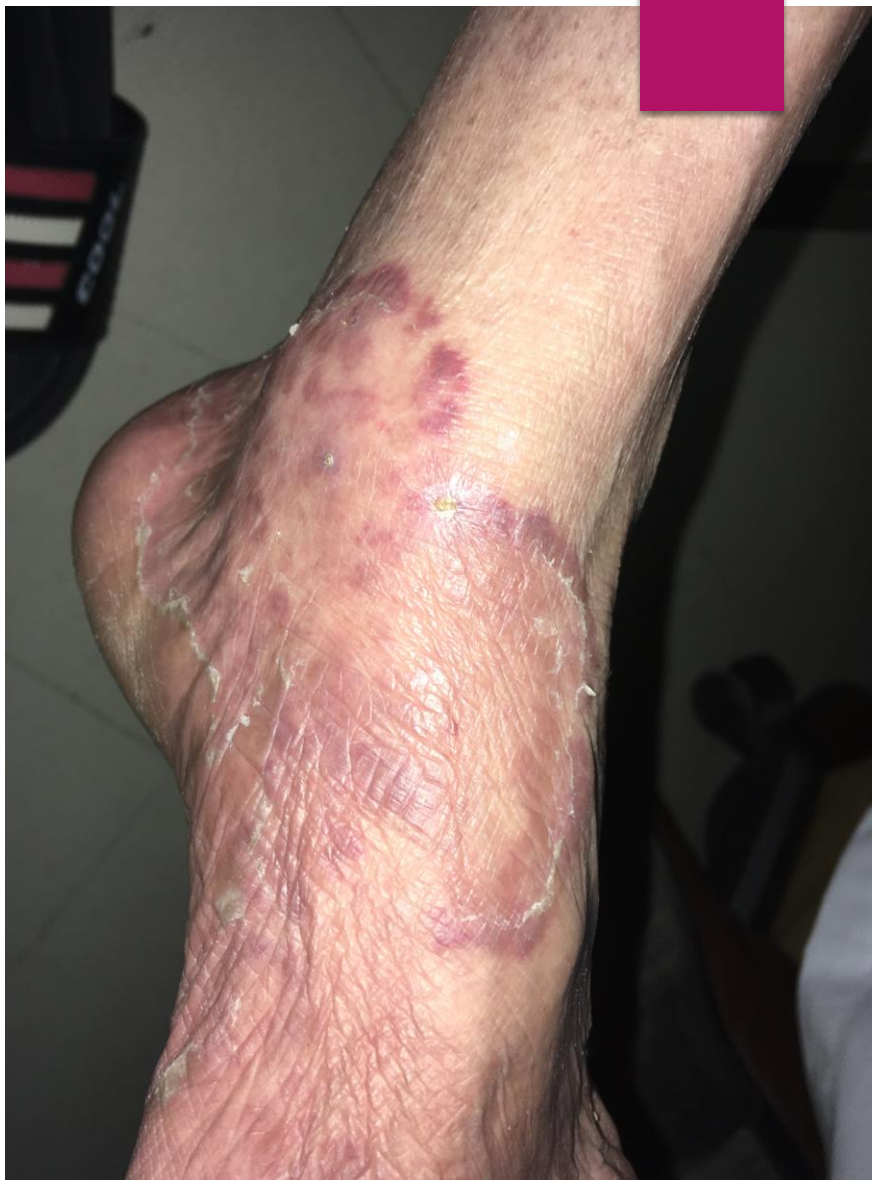


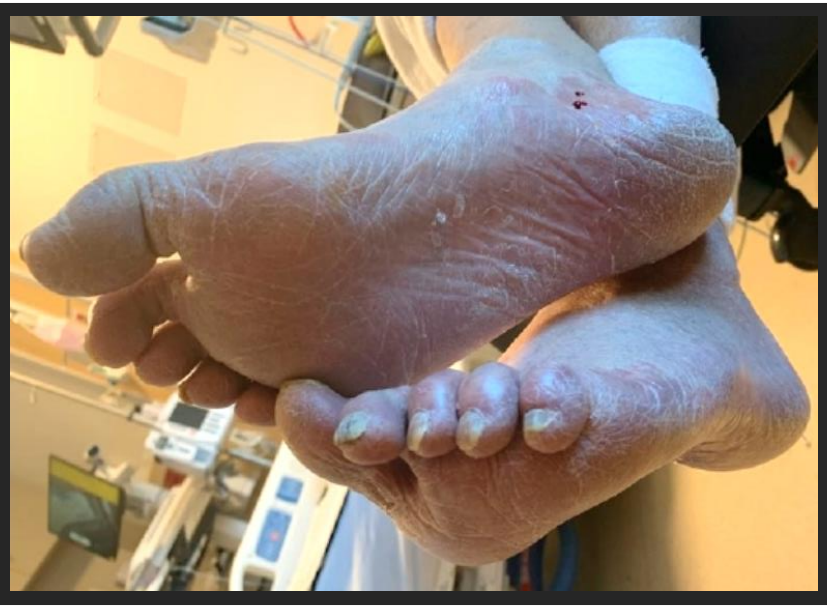


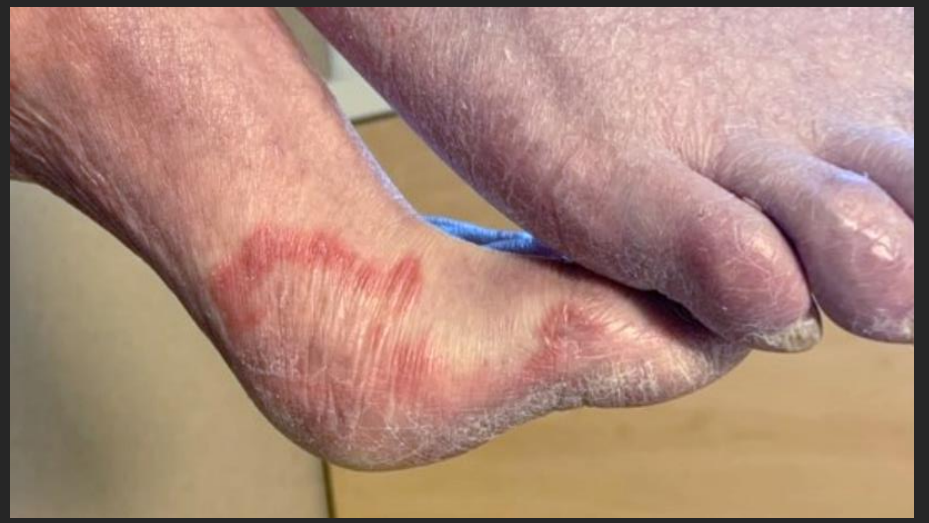
Fungal Infections

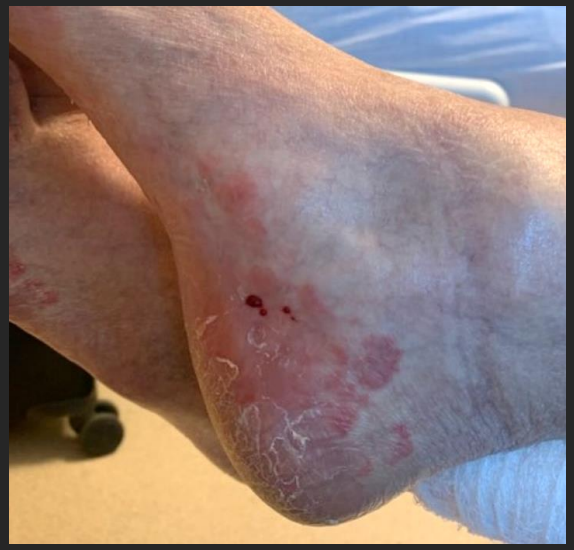
Dermatophyte Infections

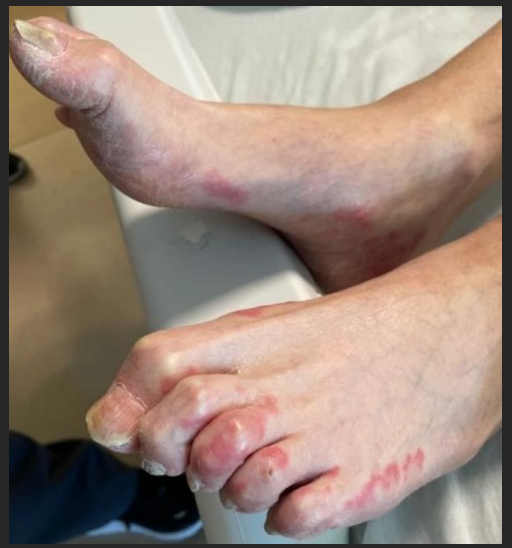
- Geophilic, zoophilic, or anthropophilic
  - Epidermophyton floccosum
  - Microsporum canis
  - Trichophyton spp
- Infect keratinized tissues
  - Epidermis, hair and nails

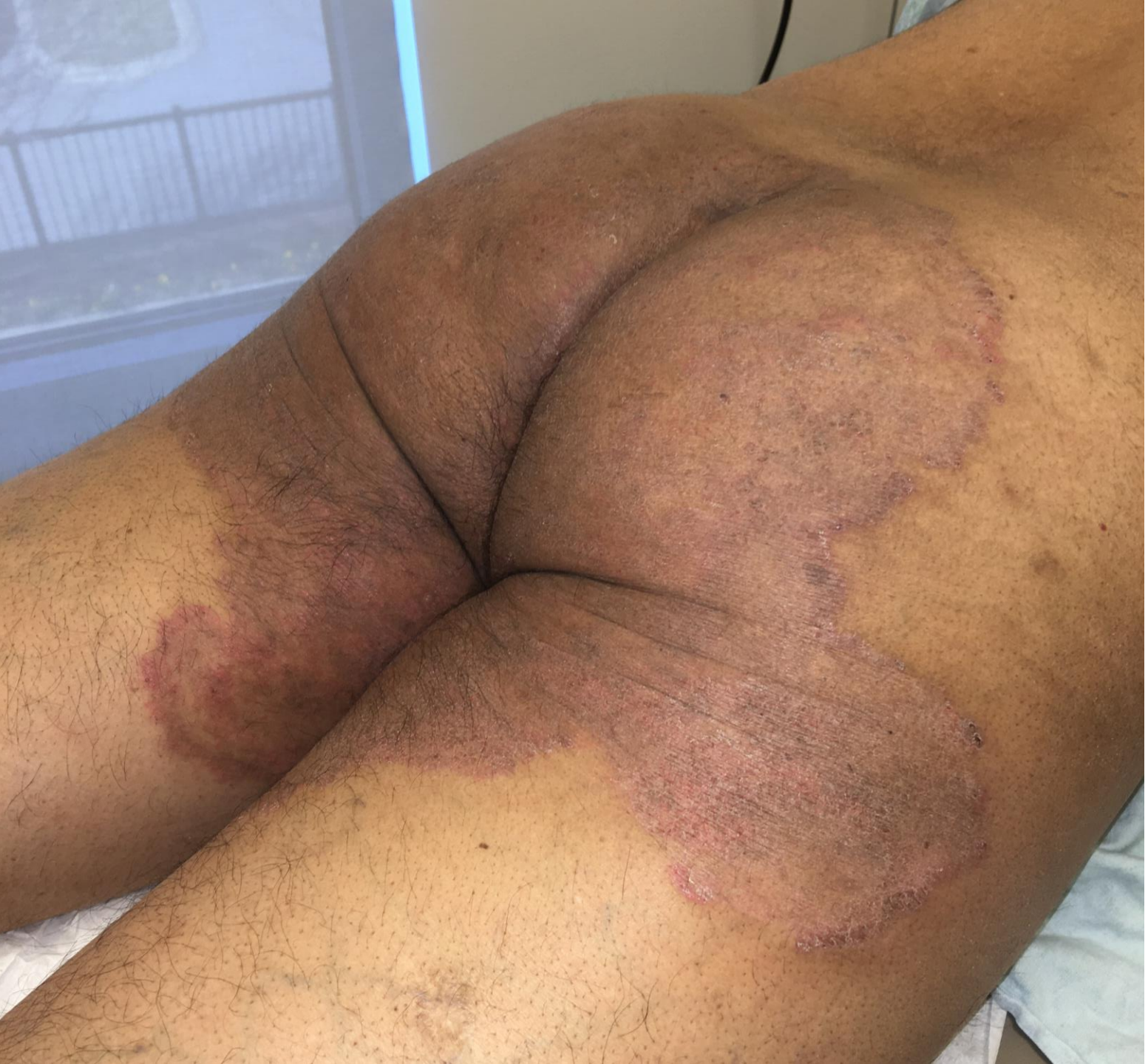


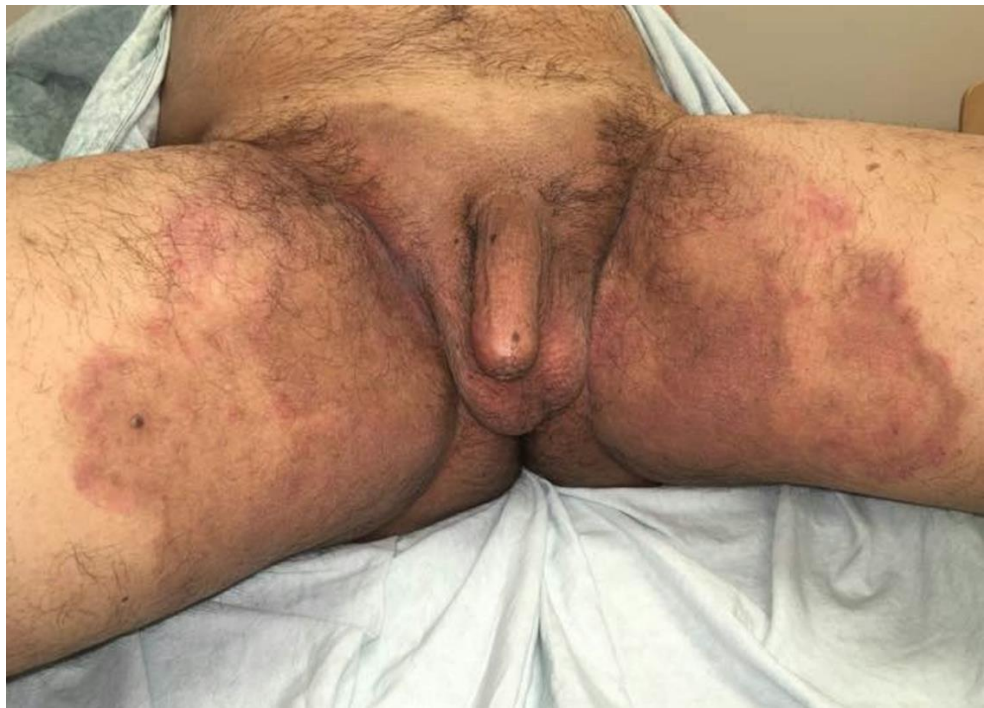


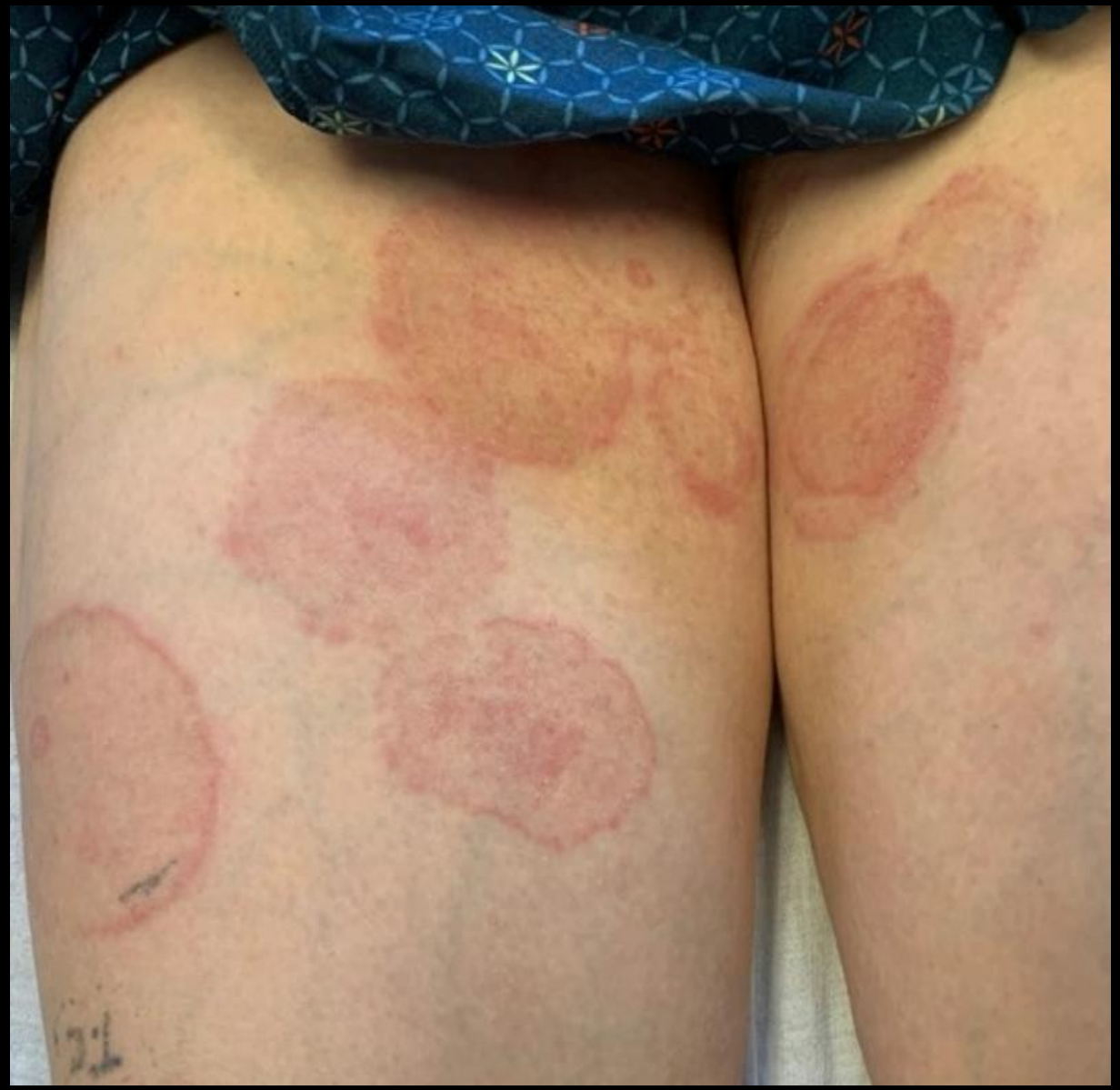


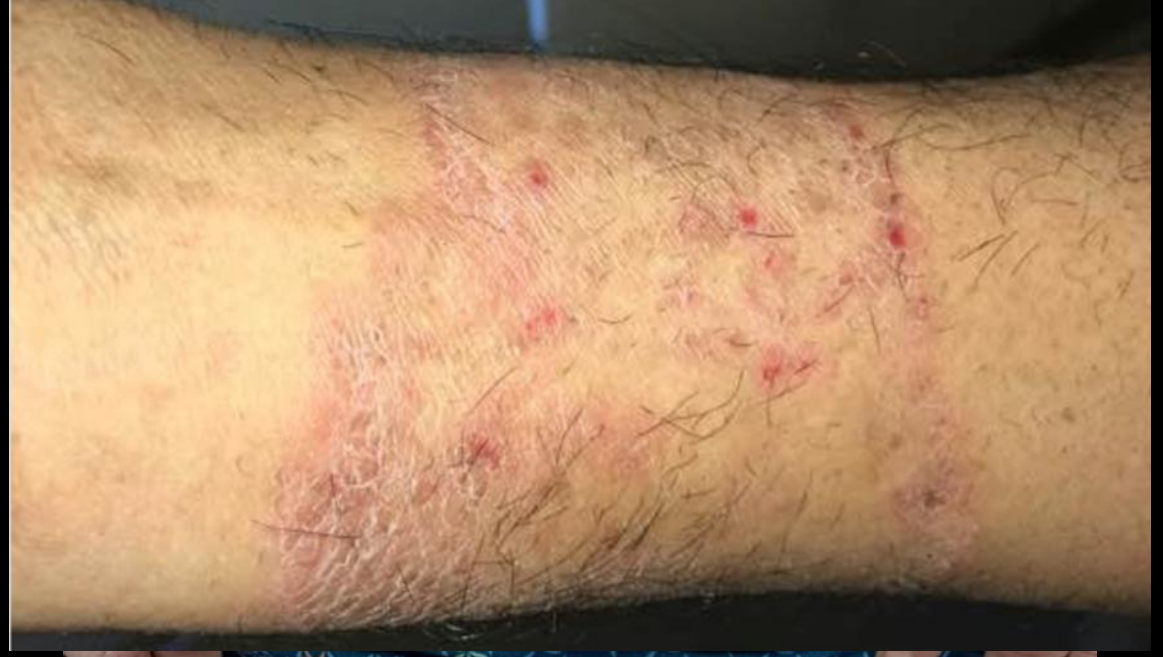


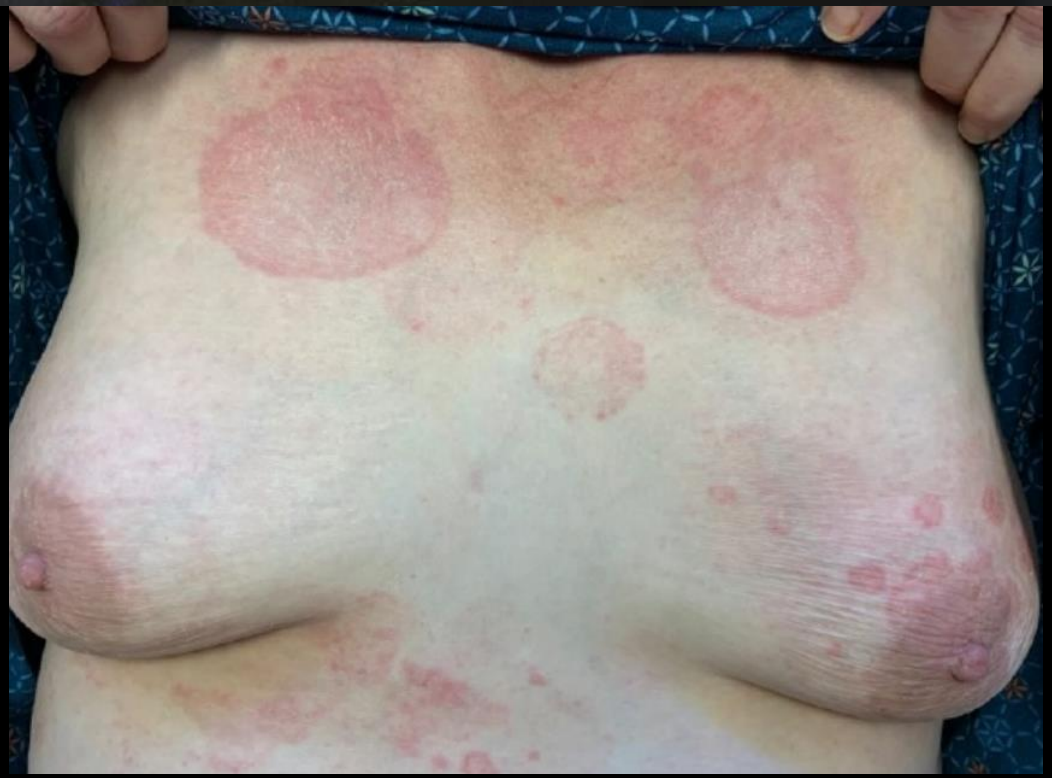


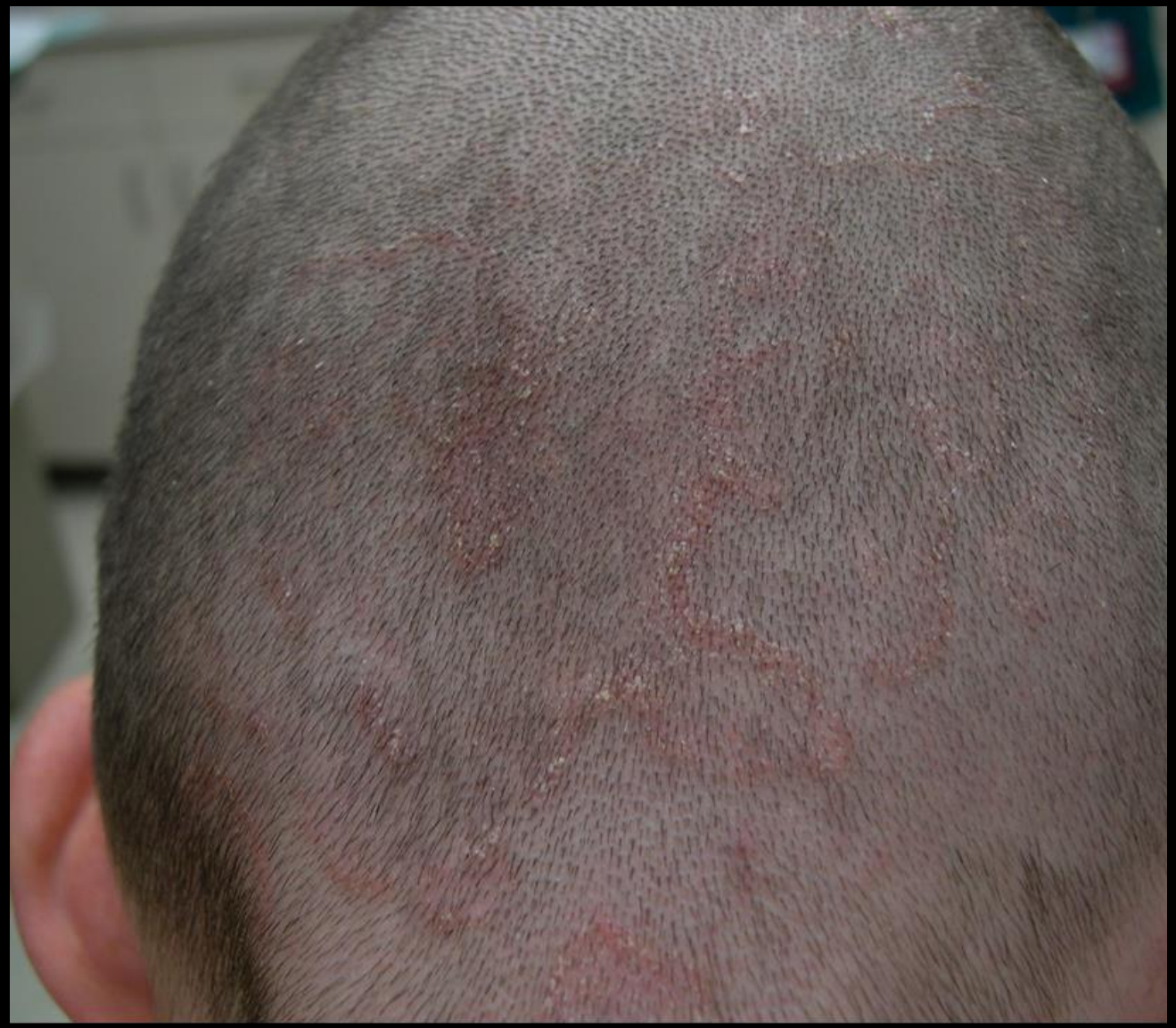


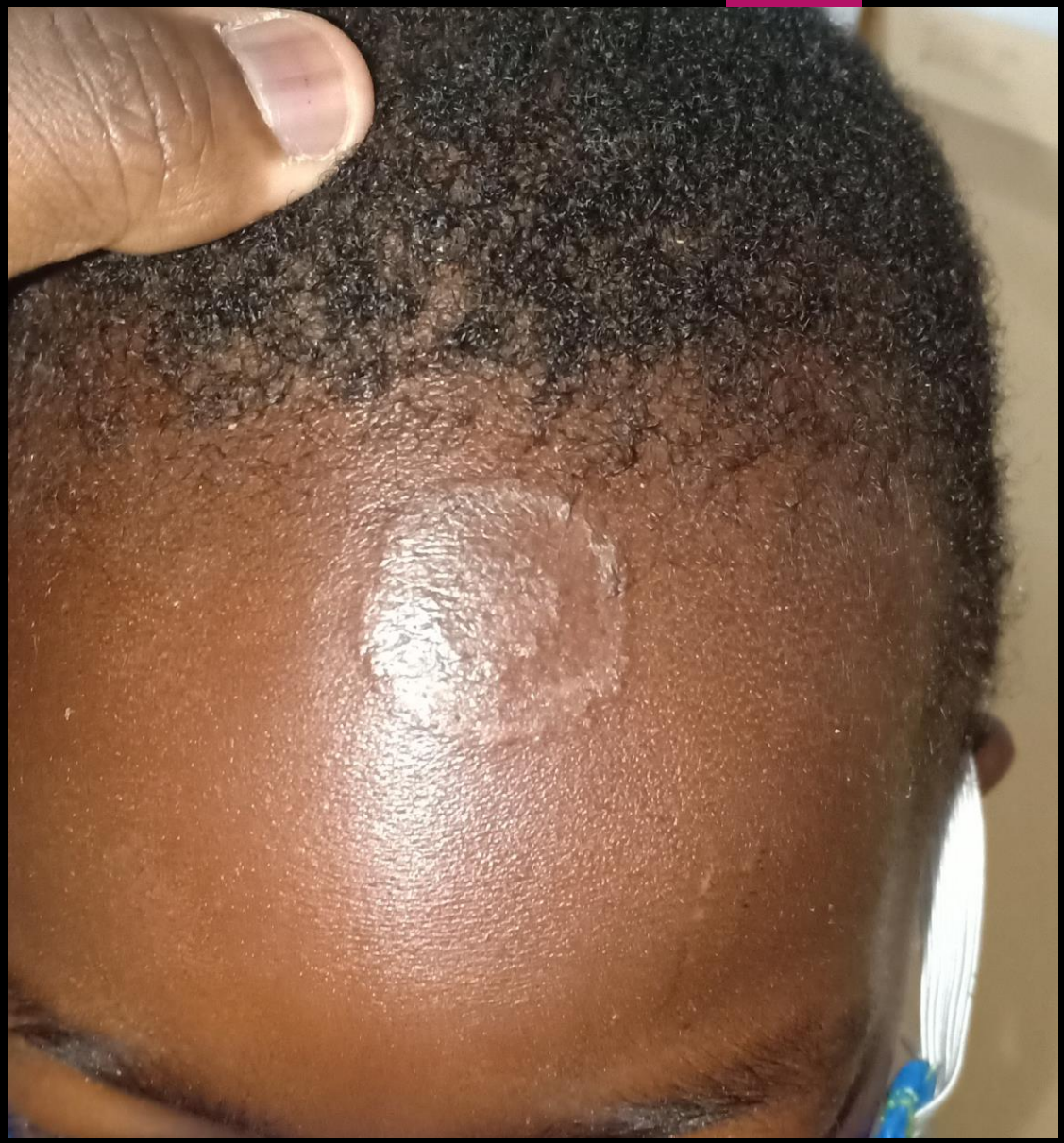


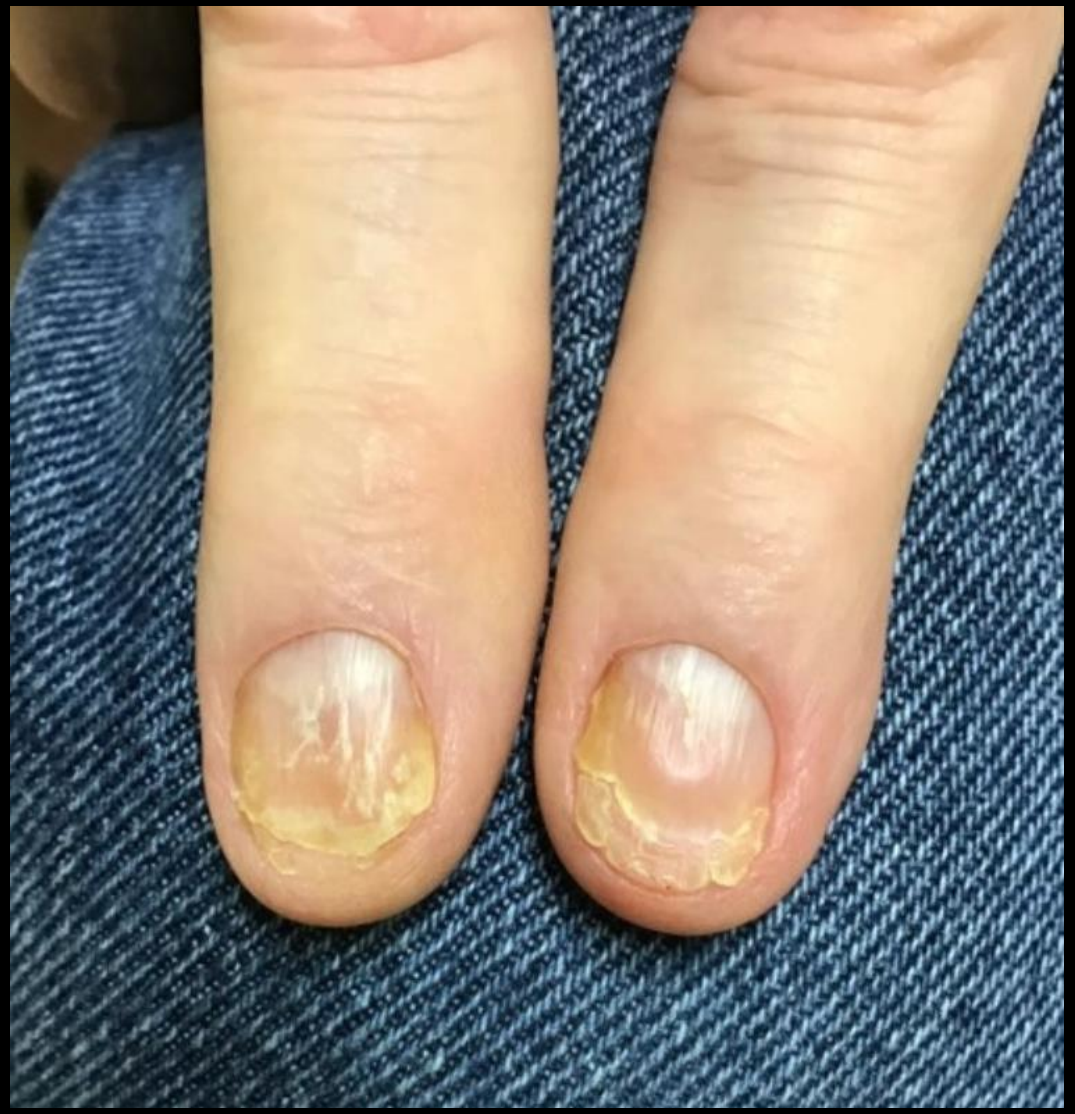


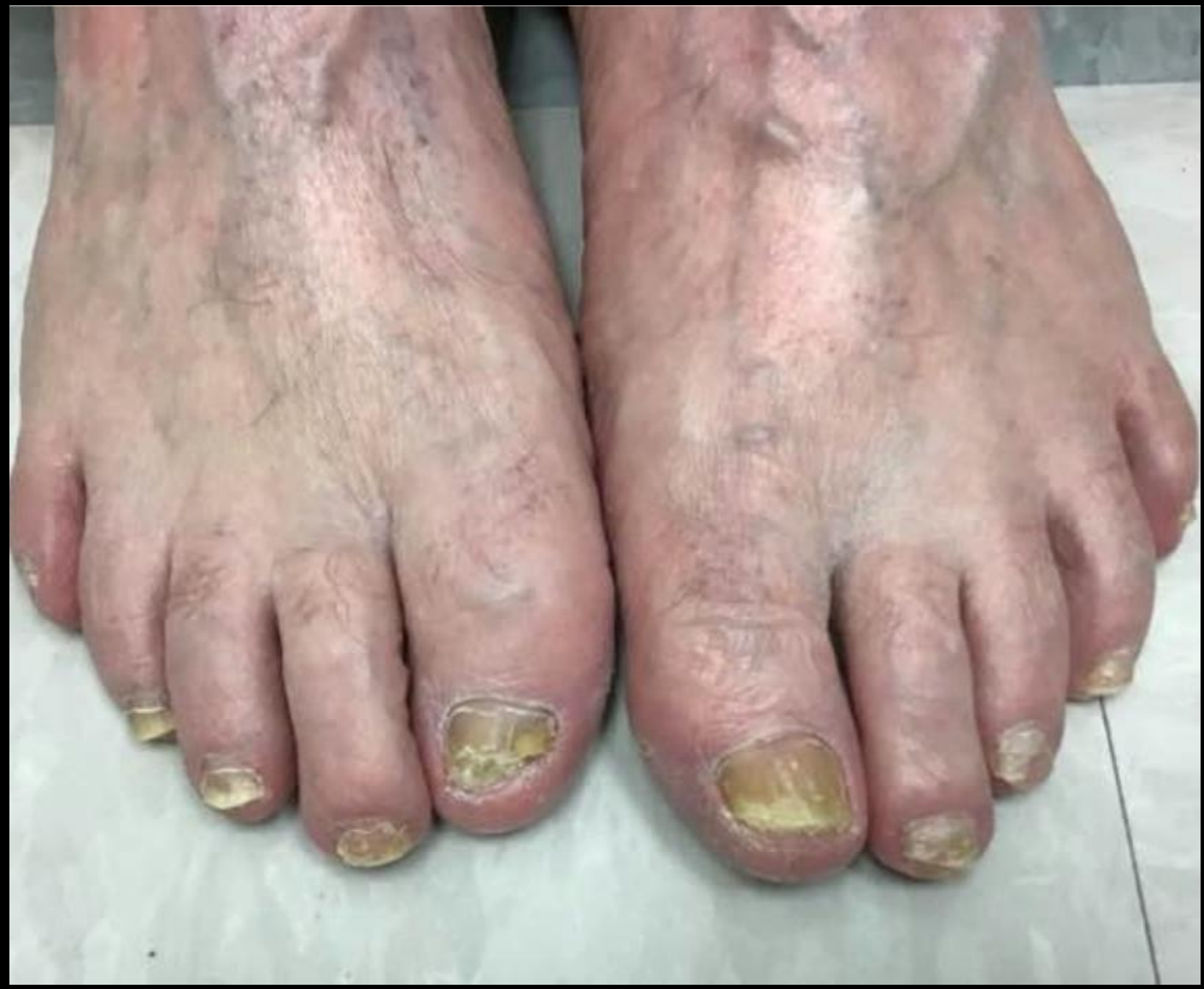


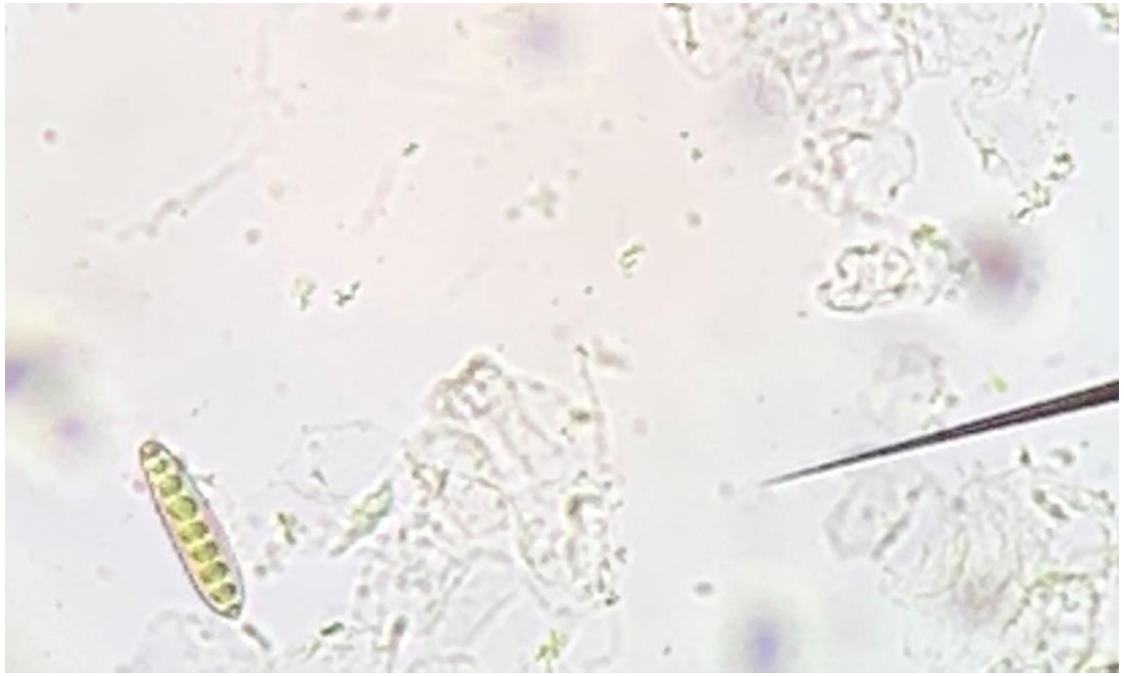


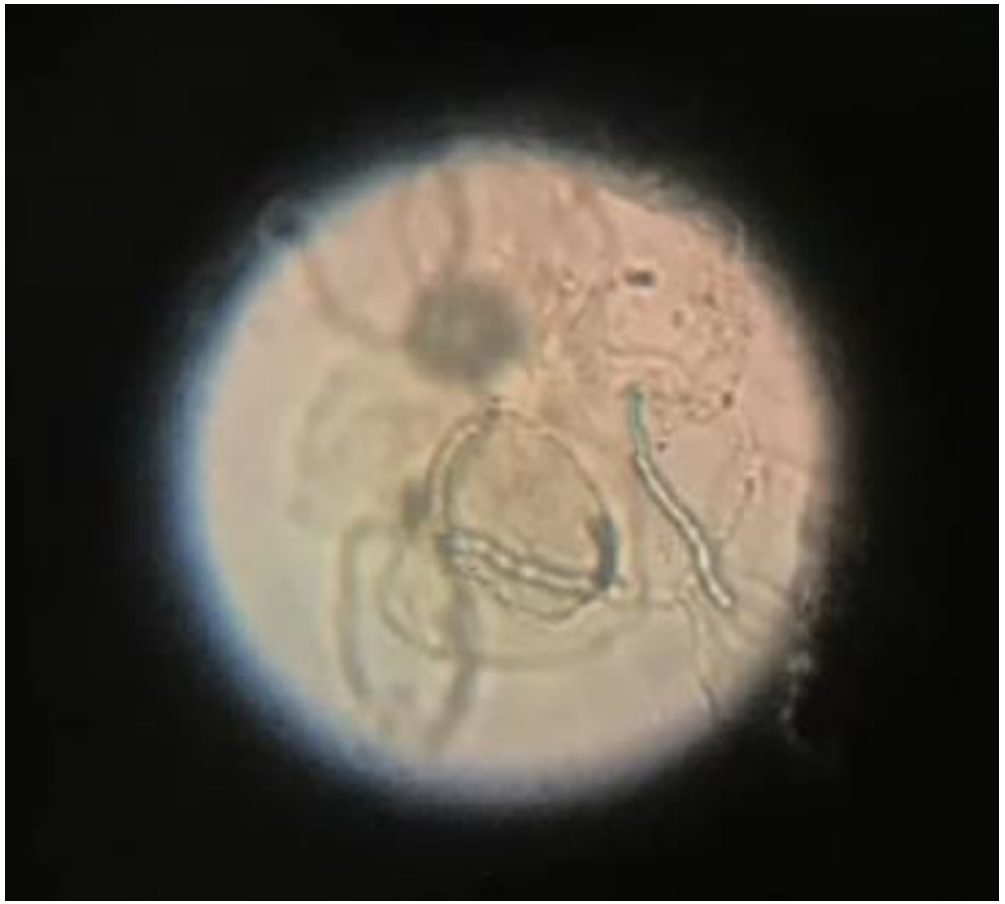




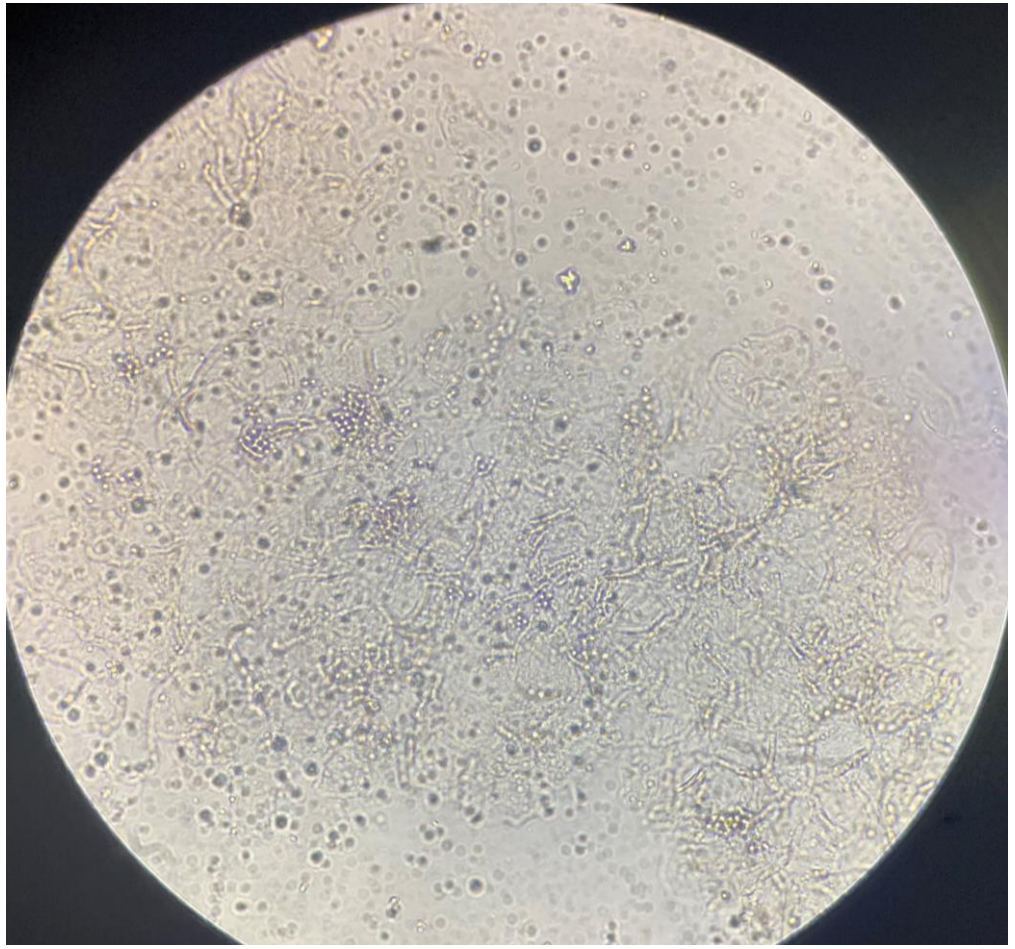


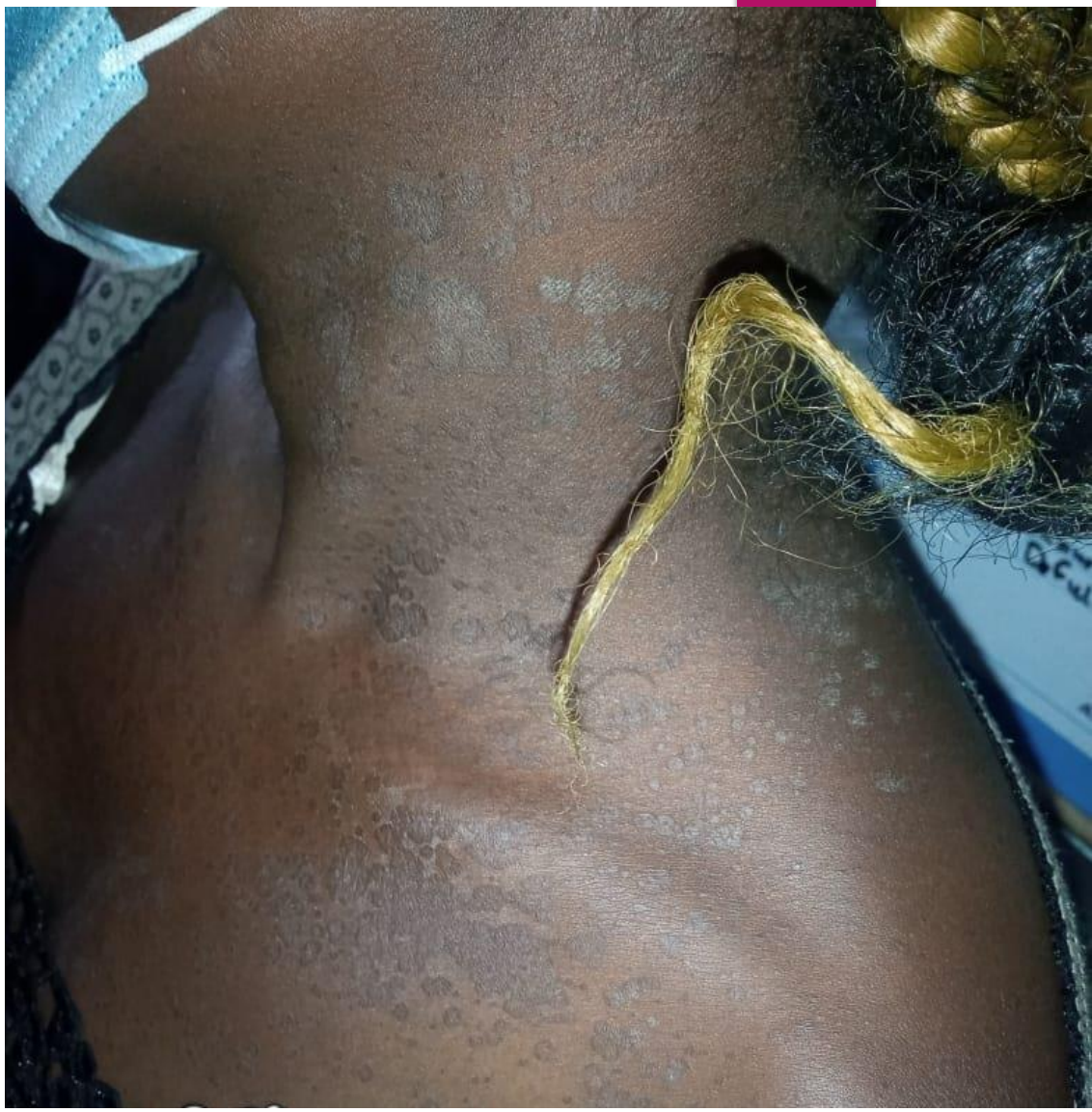


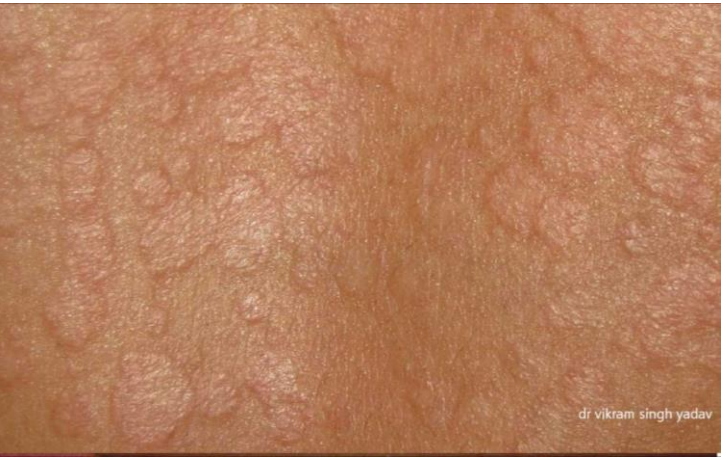


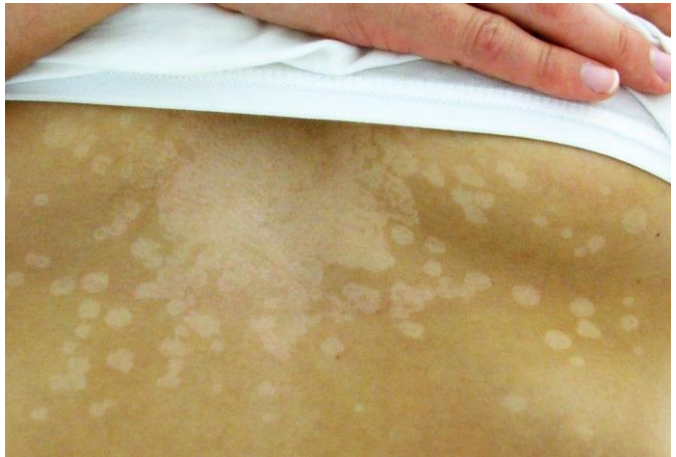


Tinea Versicolor



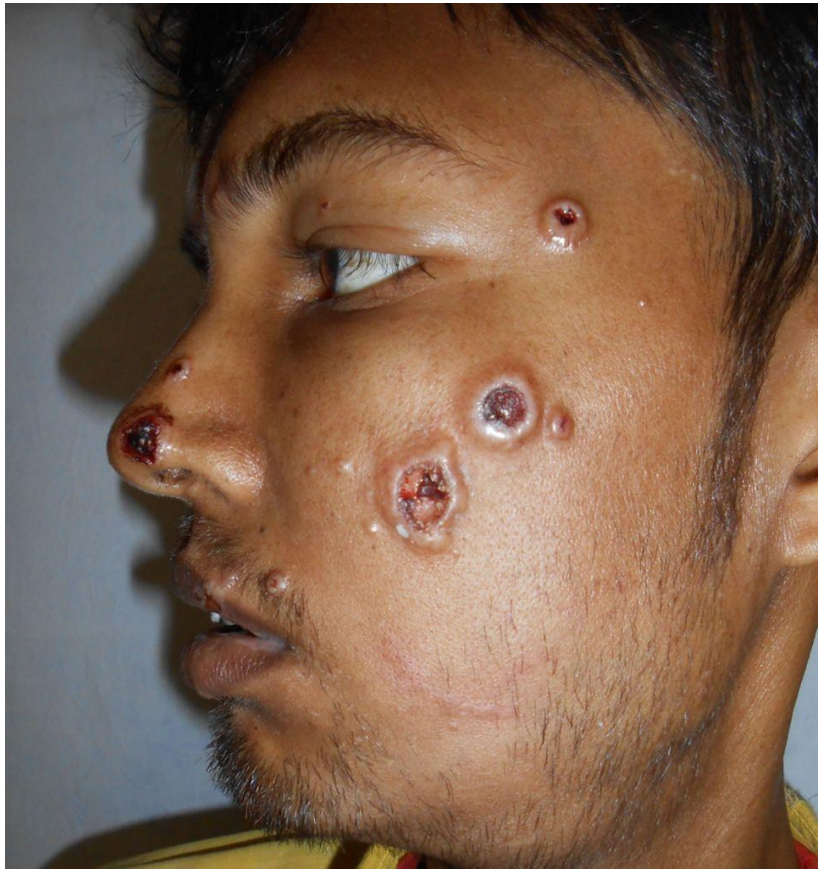






Cryptococcus

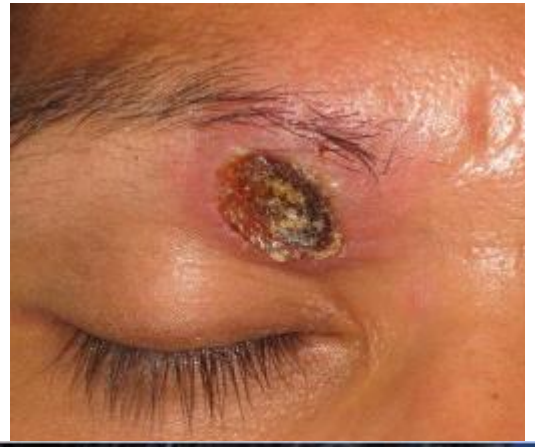
- Skin lesions occur 10% of pts with disseminated cryptococcosis
- Papules, ulcerated nodules, subcutaneous nodules, Kaposi sarcoma–like lesions, giant molluscum contagiosum–like lesions
- Multiorgan involvement
- CNS involvement in 75% of HIV pts with cryptococcus

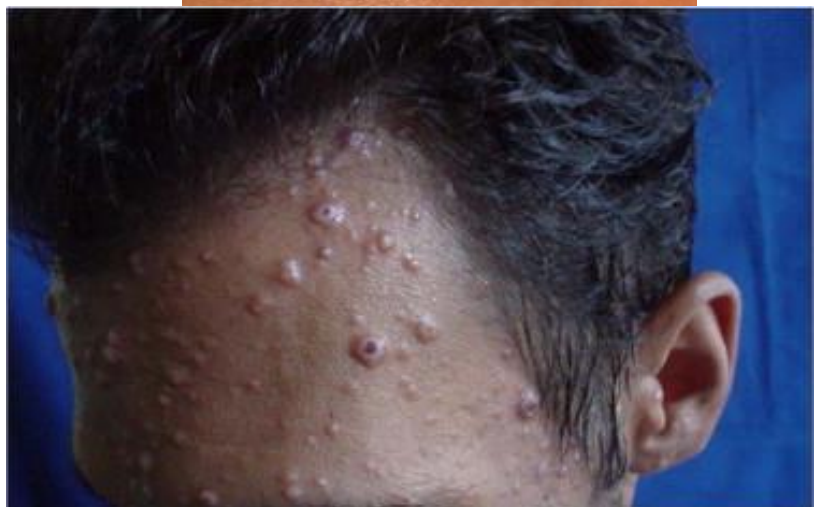


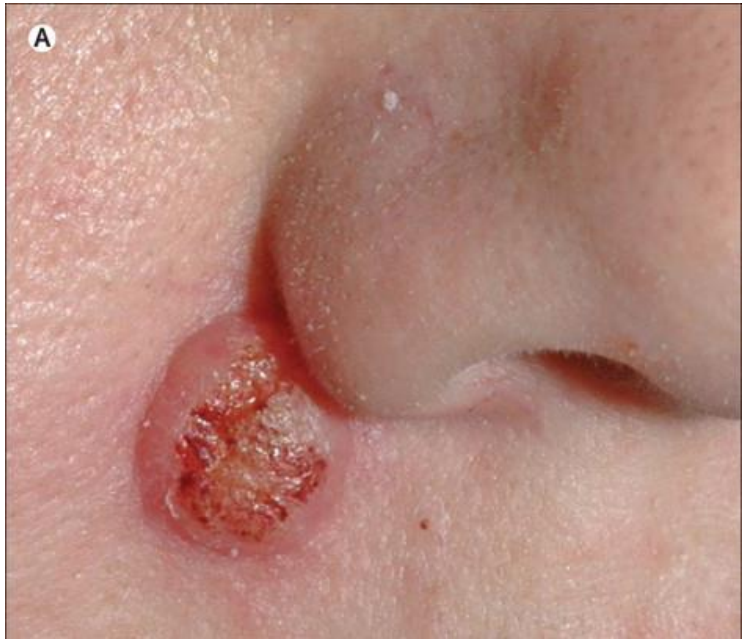
https://casereports.bmj.com/content/2015/bcr-2015-210898

Histoplasmosis

- Histoplasma capsulatum = dimorphic fungus
  - intracellular yeast in host vs. mold in vitro.
- Cutaneous involvement occurs in ~10% of patients
  - Hematogenous dissemination from lungs
  - Primary inoculation
  - Skin lesions are nonspecific
    - Papules, patches, nodules, abscesses, plaques, pustules, and ulcers







The Lancet. https://doi.org/10.1016/S1473-3099(08)70259-7
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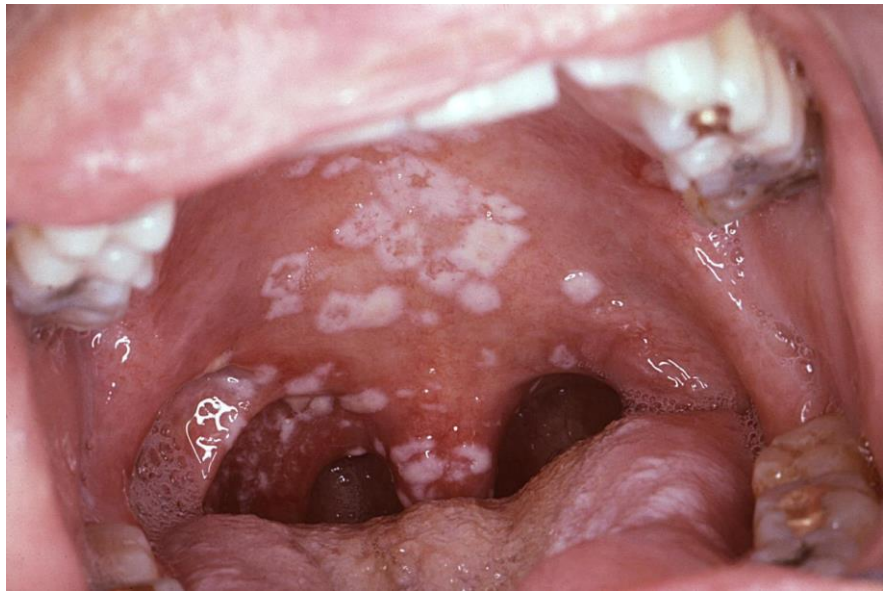
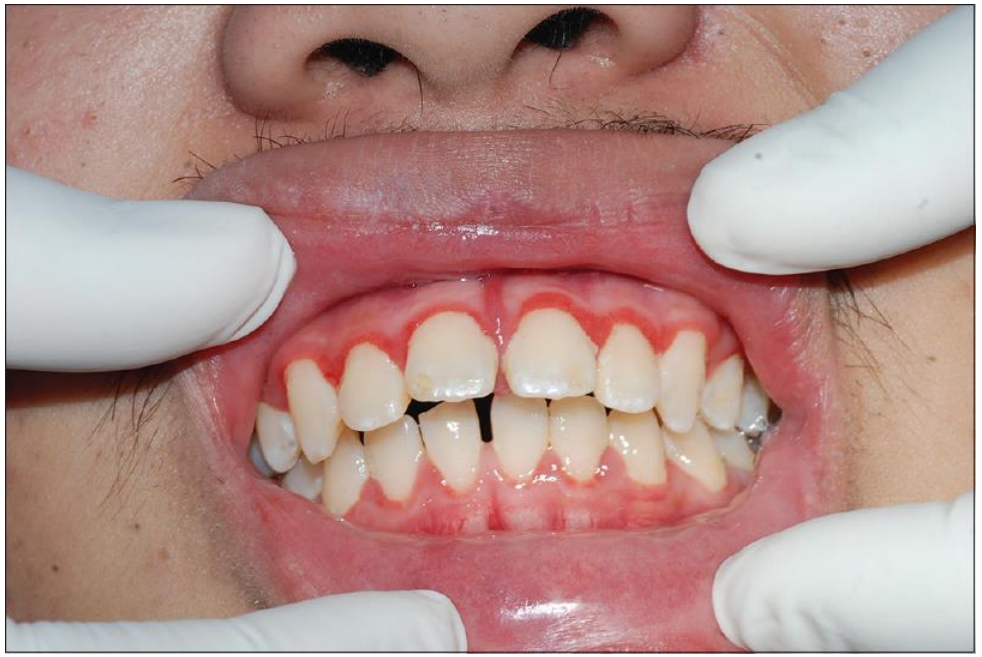
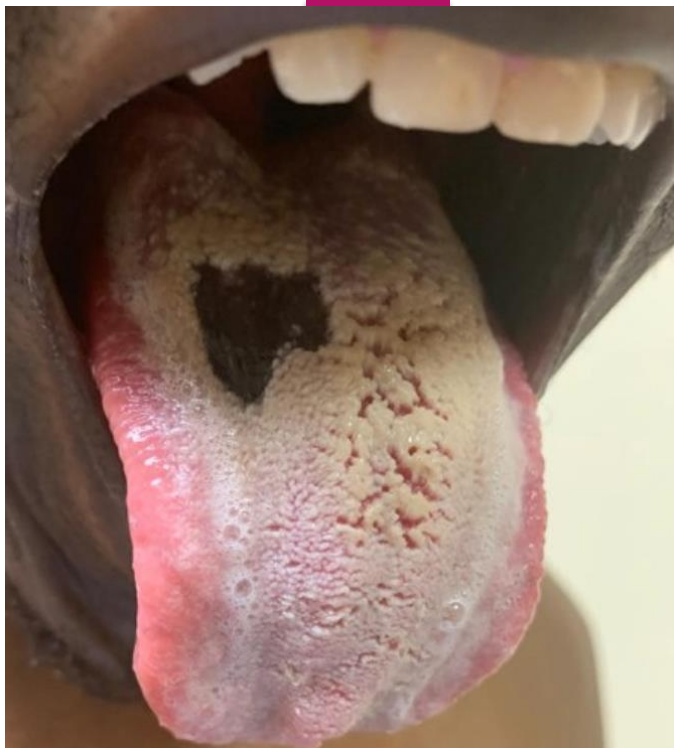
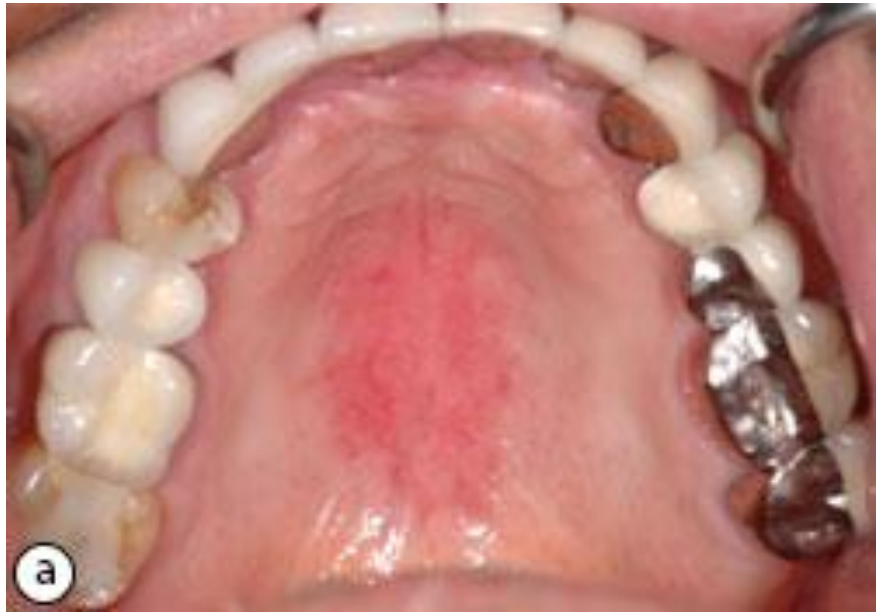
Clinics in Dermatology. https://doi.org/10.1016/j.clindermatol.2012.01.004

Oral Candidiasis





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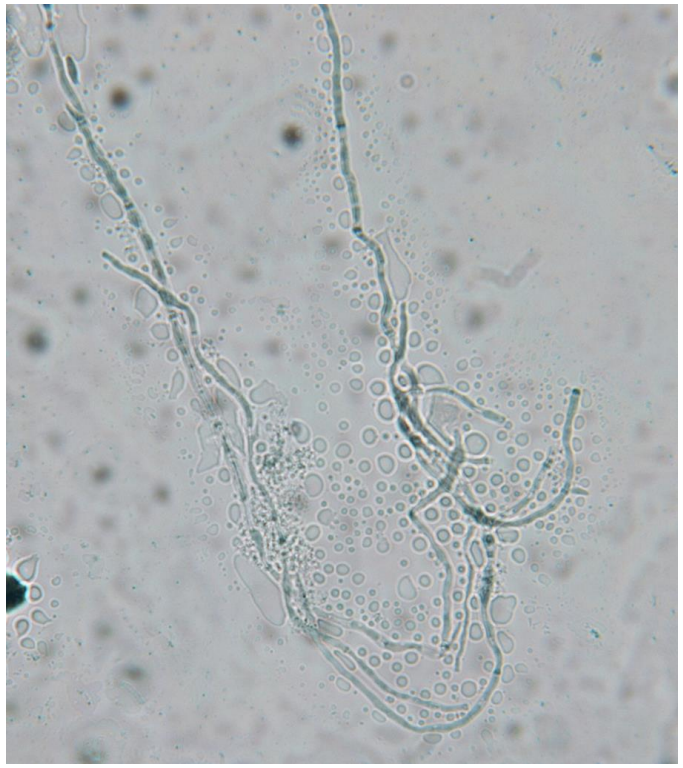
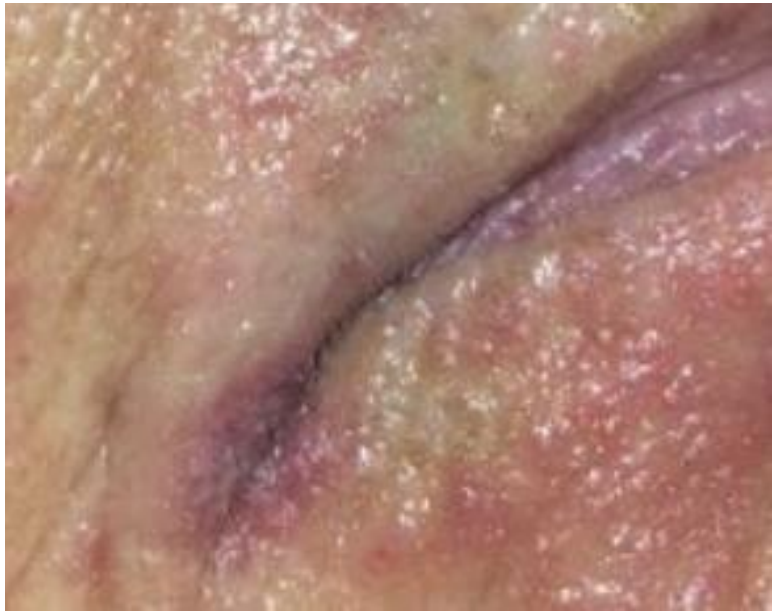
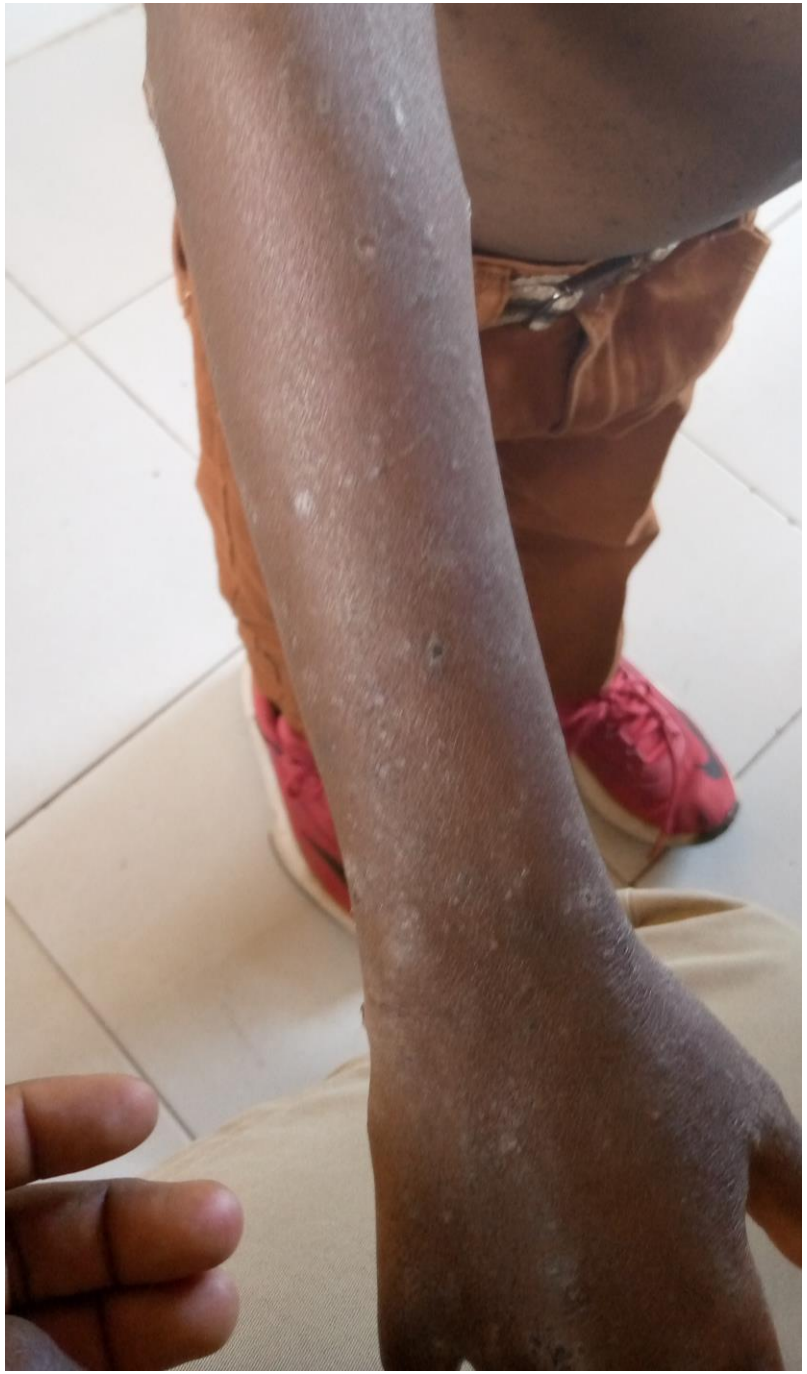
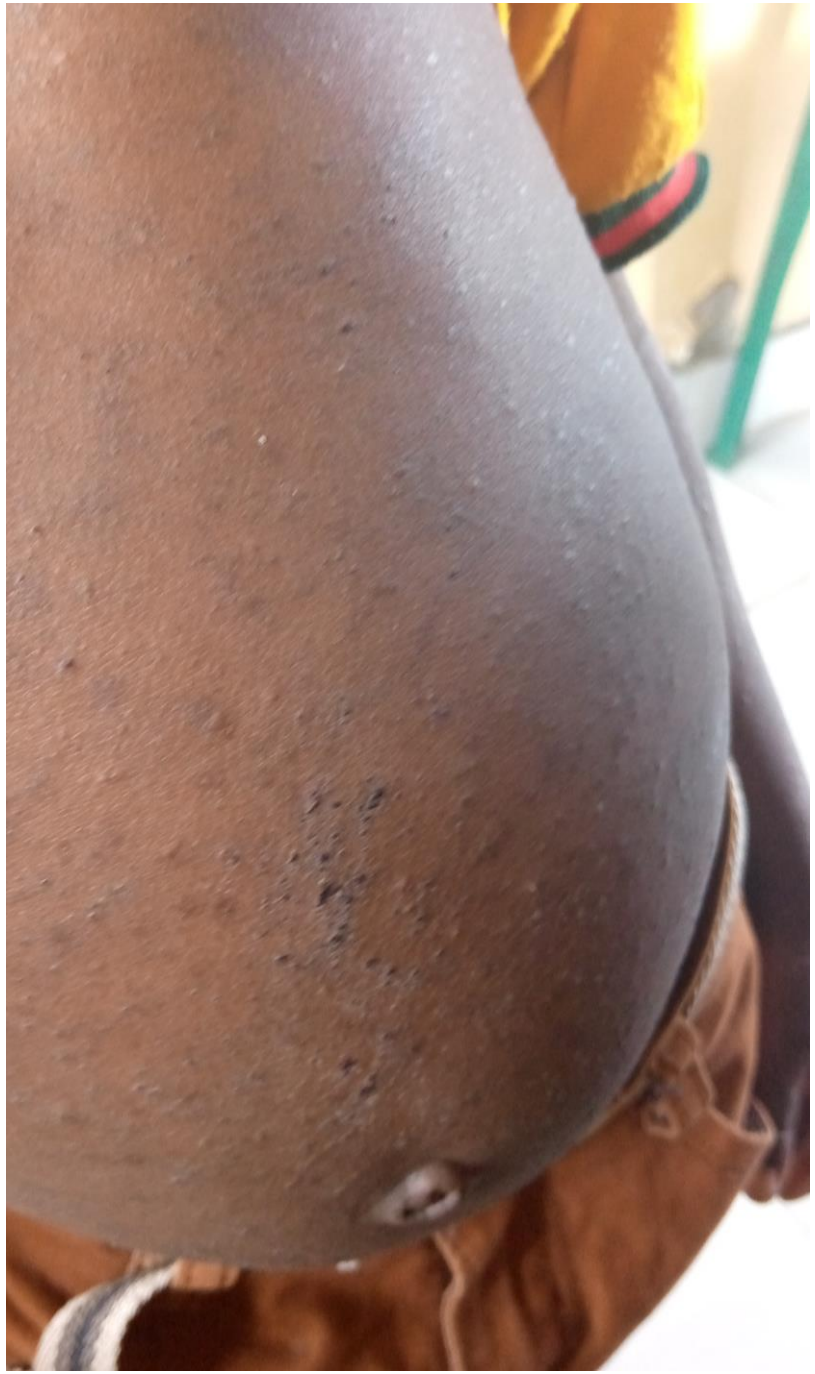
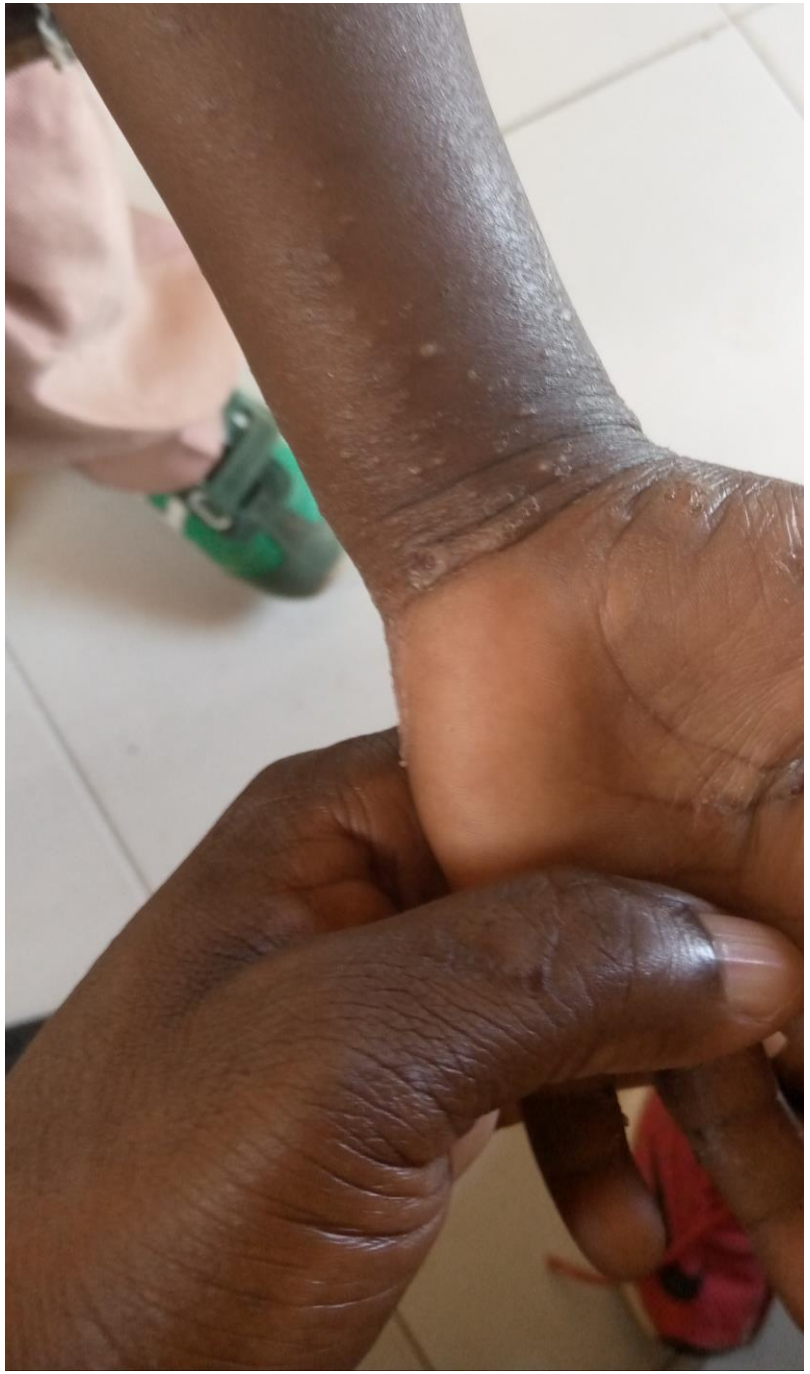
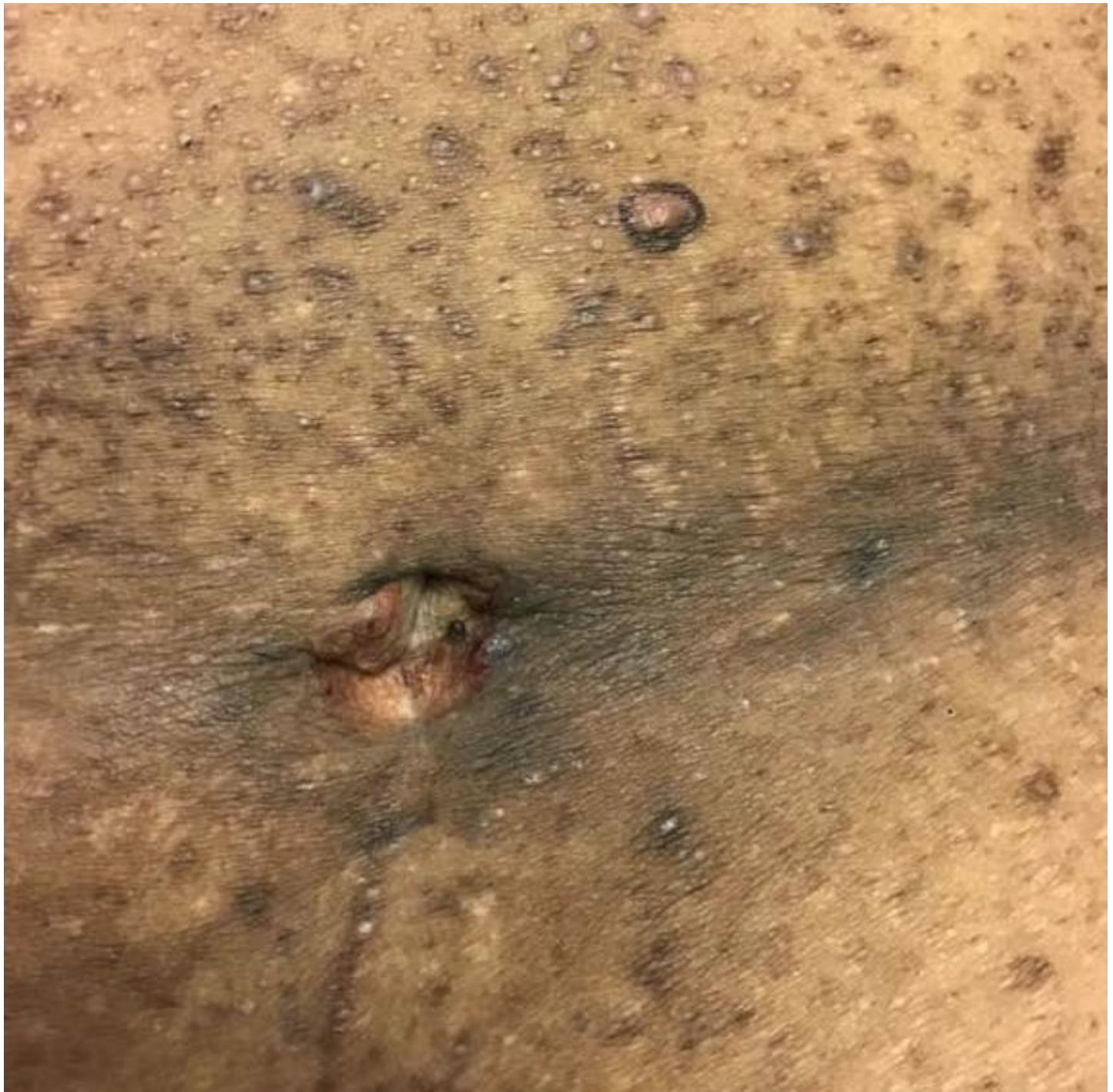
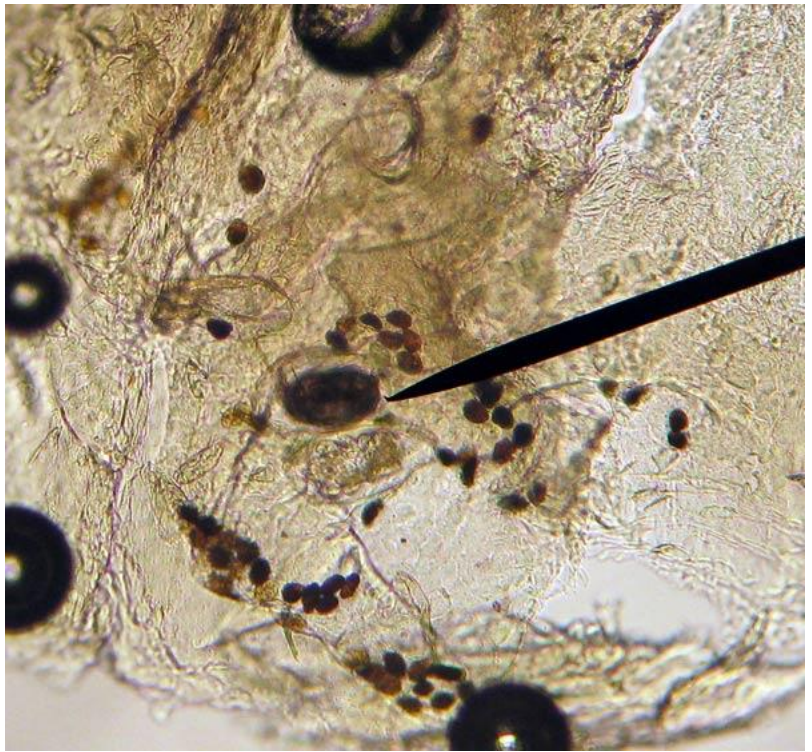




Scabies Infestations

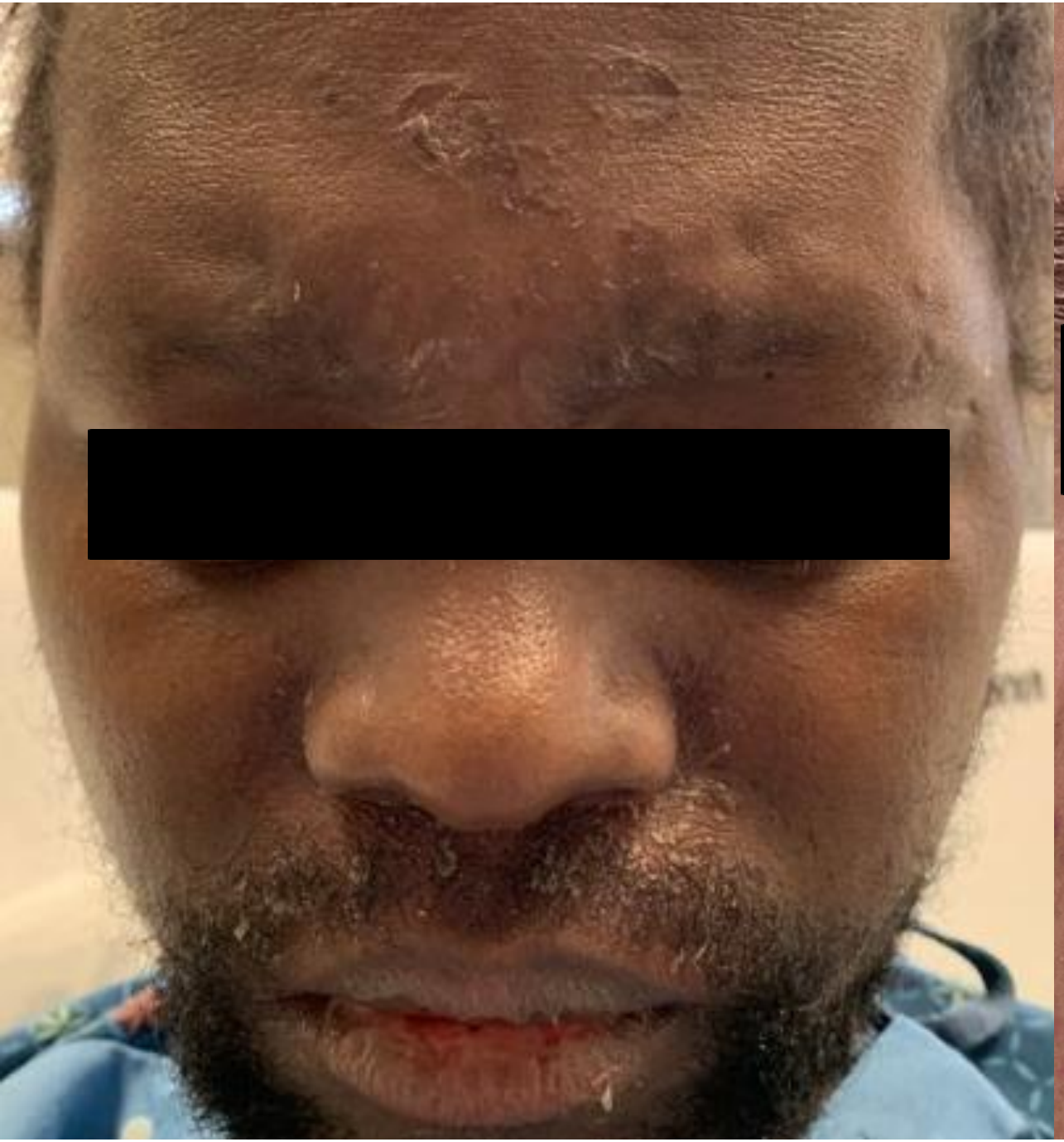


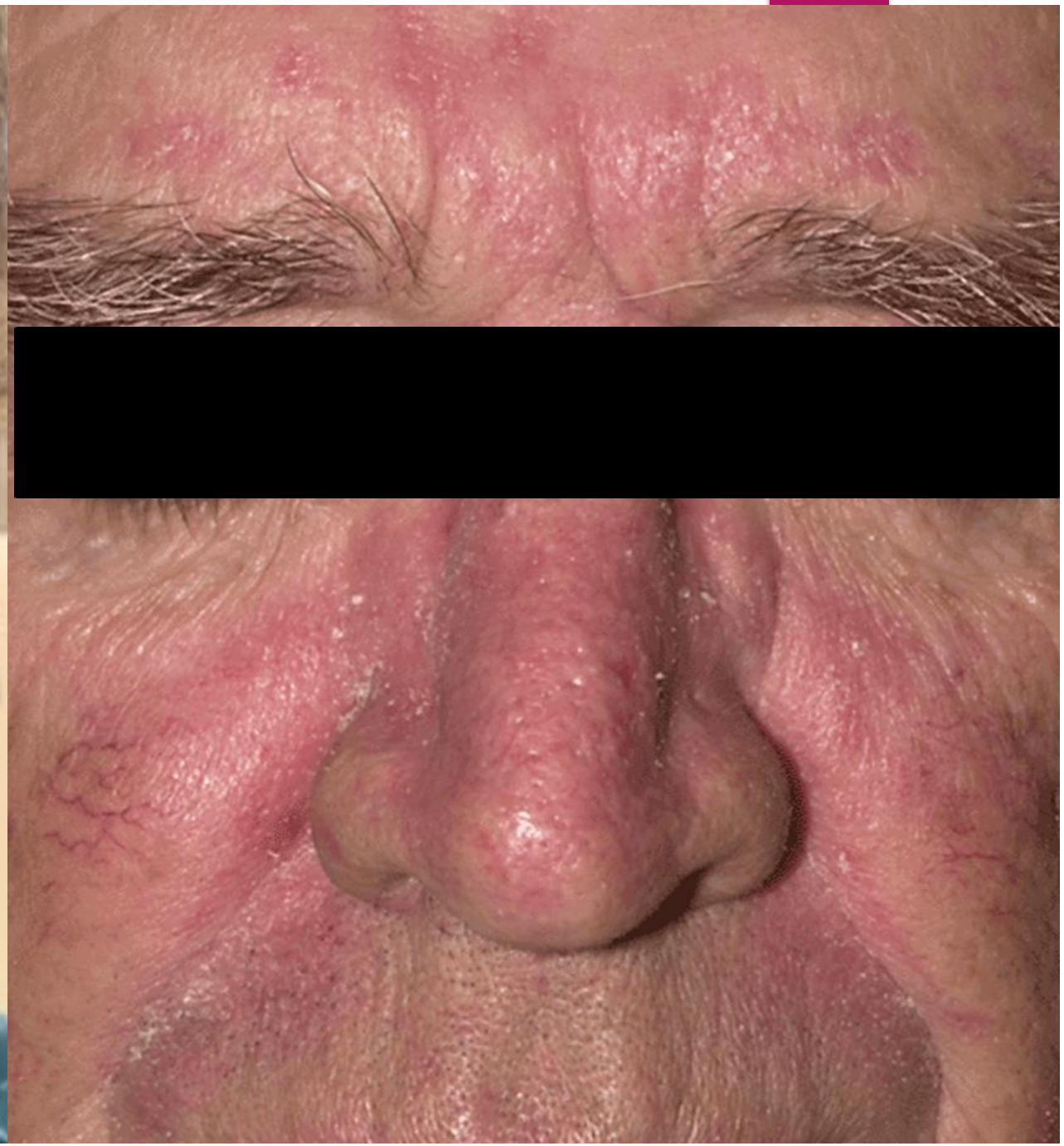


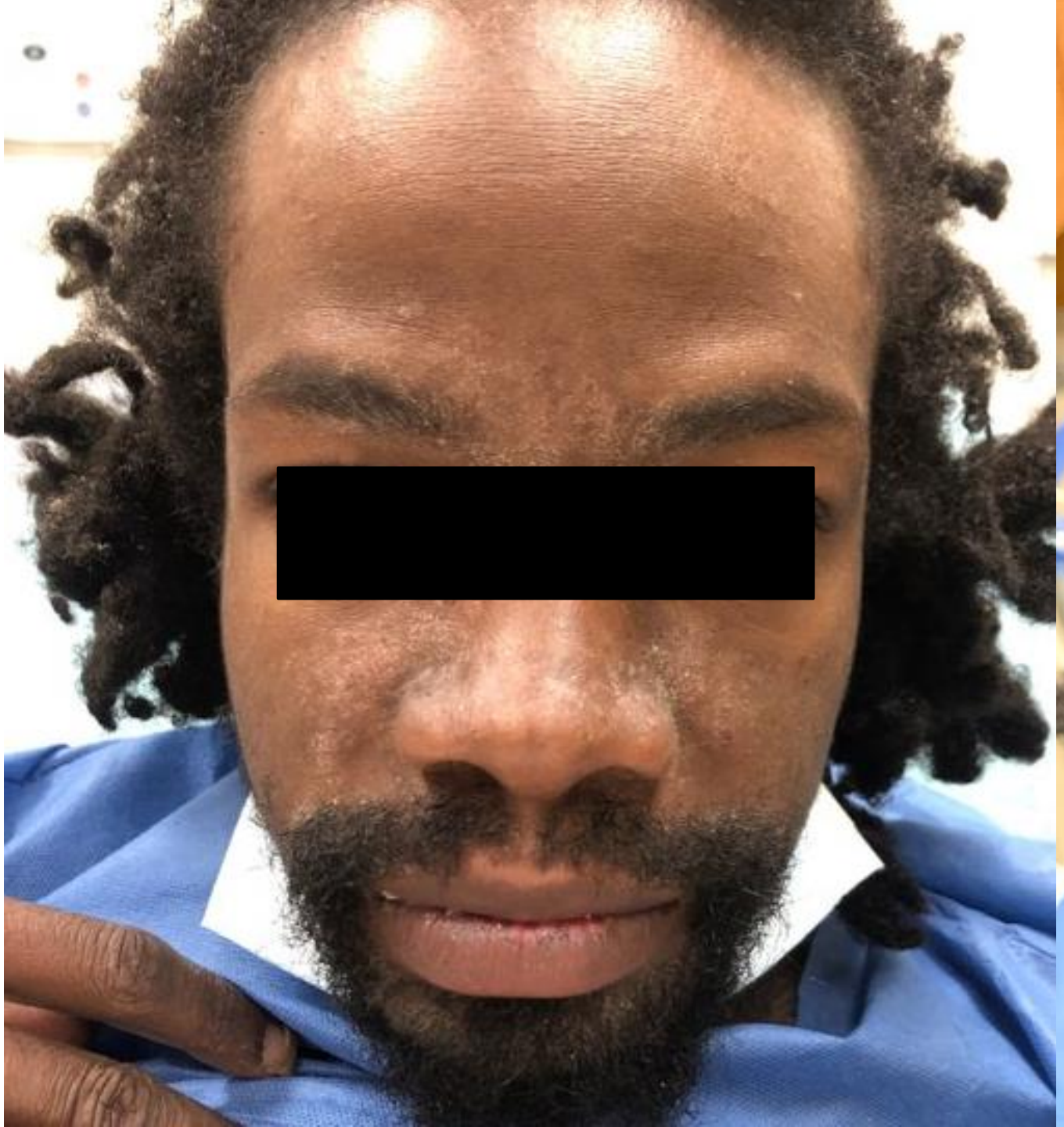
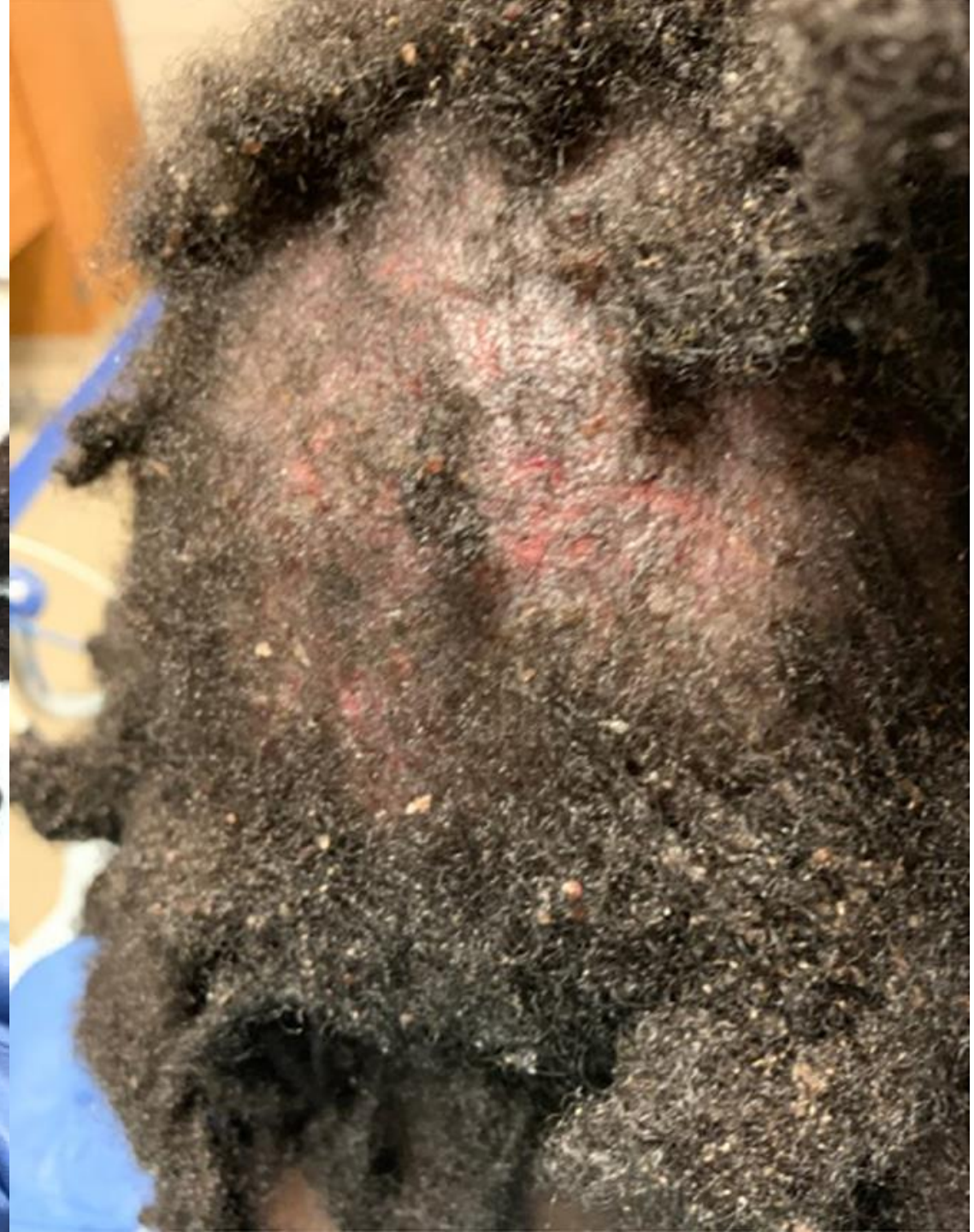
Inflammatory Skin Disease

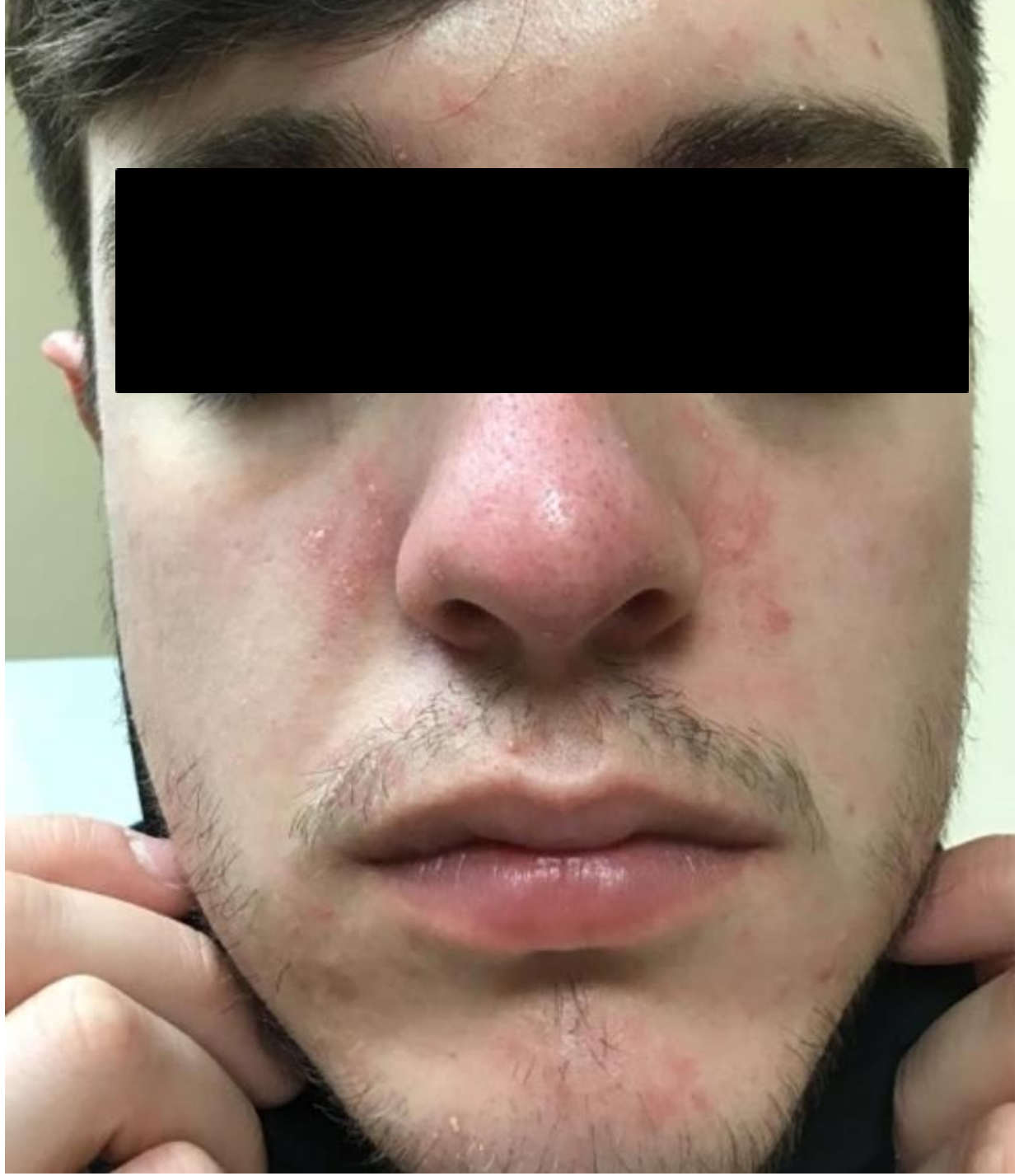
Seborrheic Dermatitis

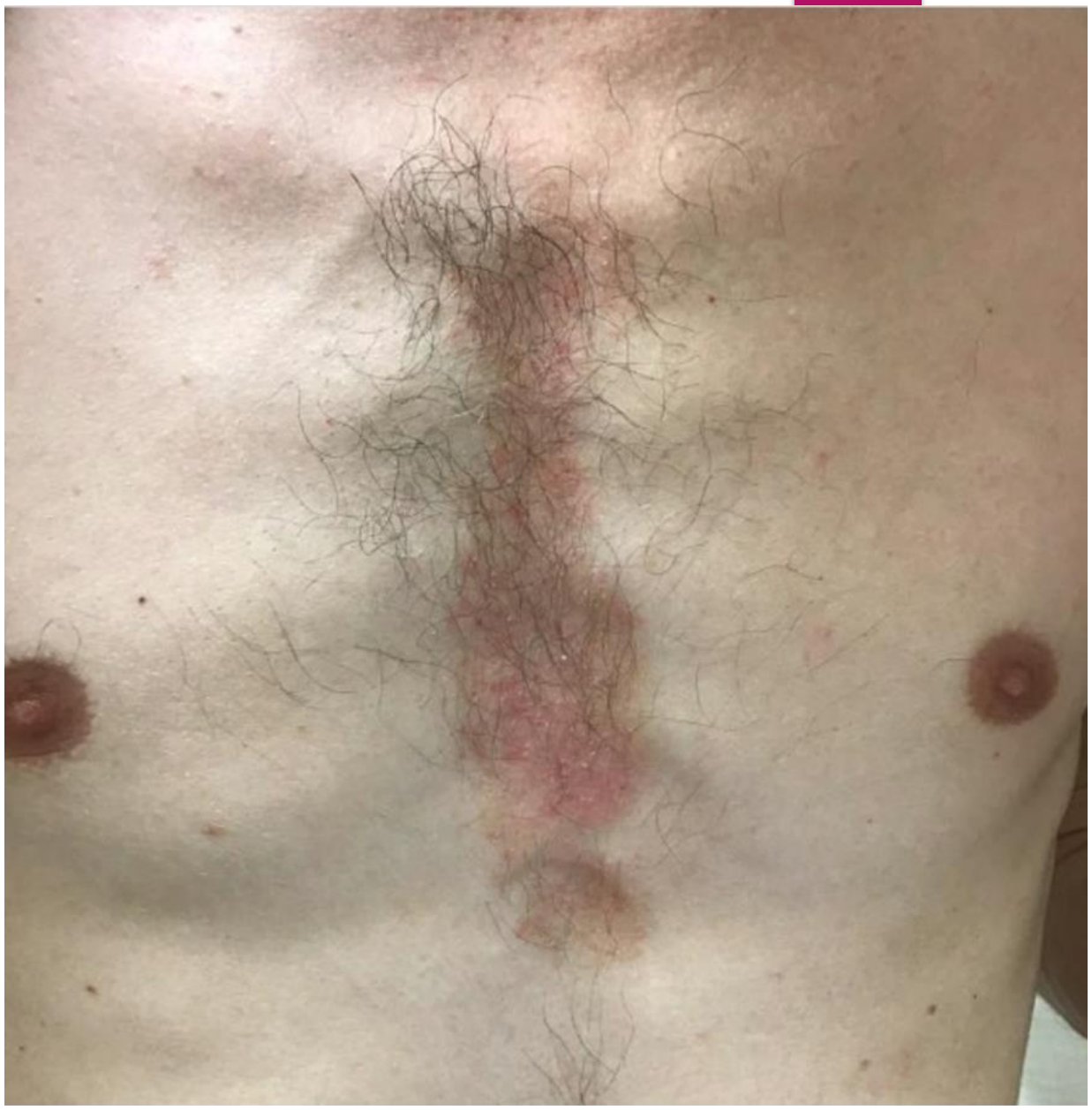
- Malassezia species implicated in triggering inflammatory reaction
- Incidence
  - In general population: 2-11.3%
- In HIV disease: 30% to 80%
- Usually atypical and more severe
- Topical antifungals and anti-inflammatories are mainstay





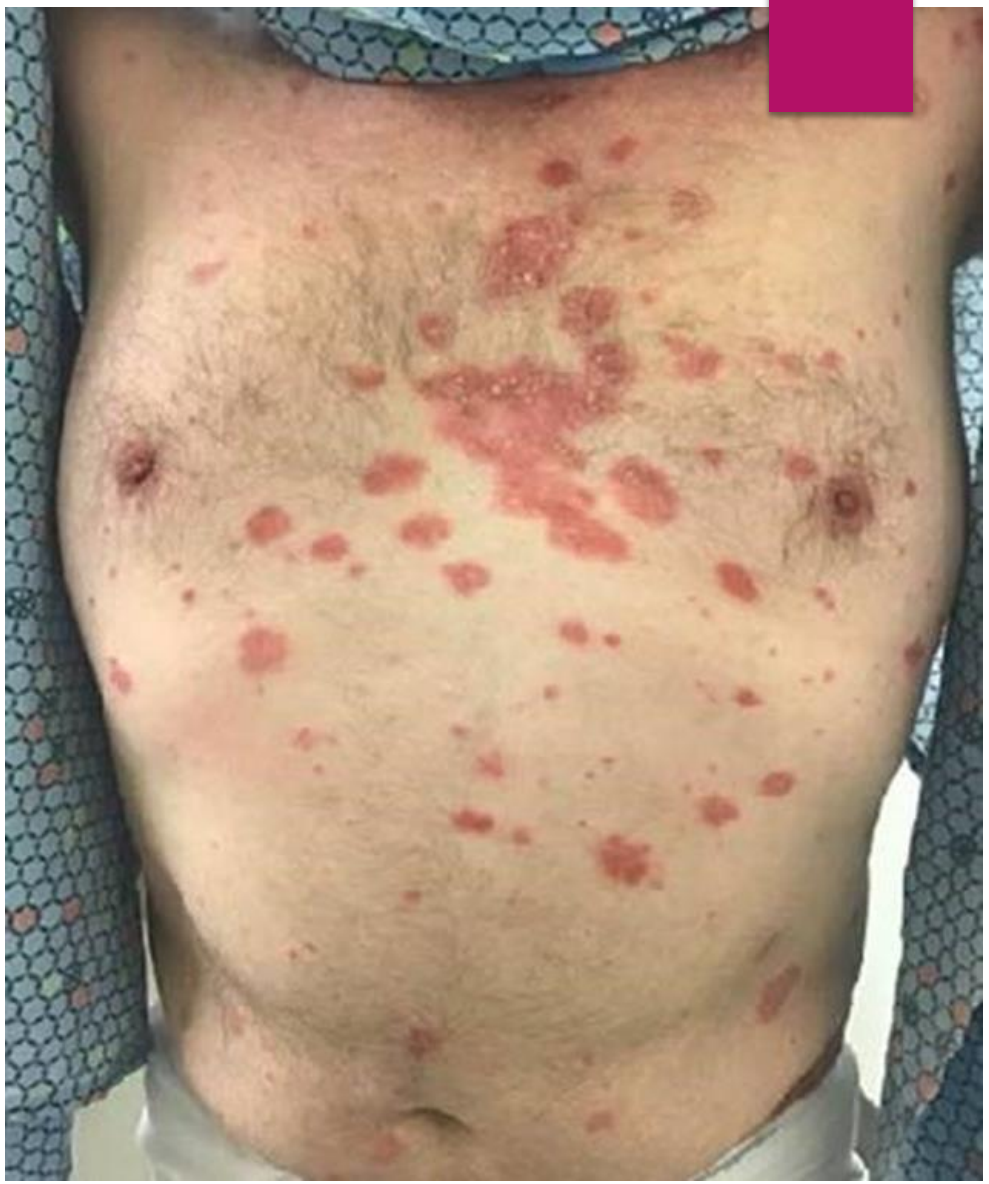



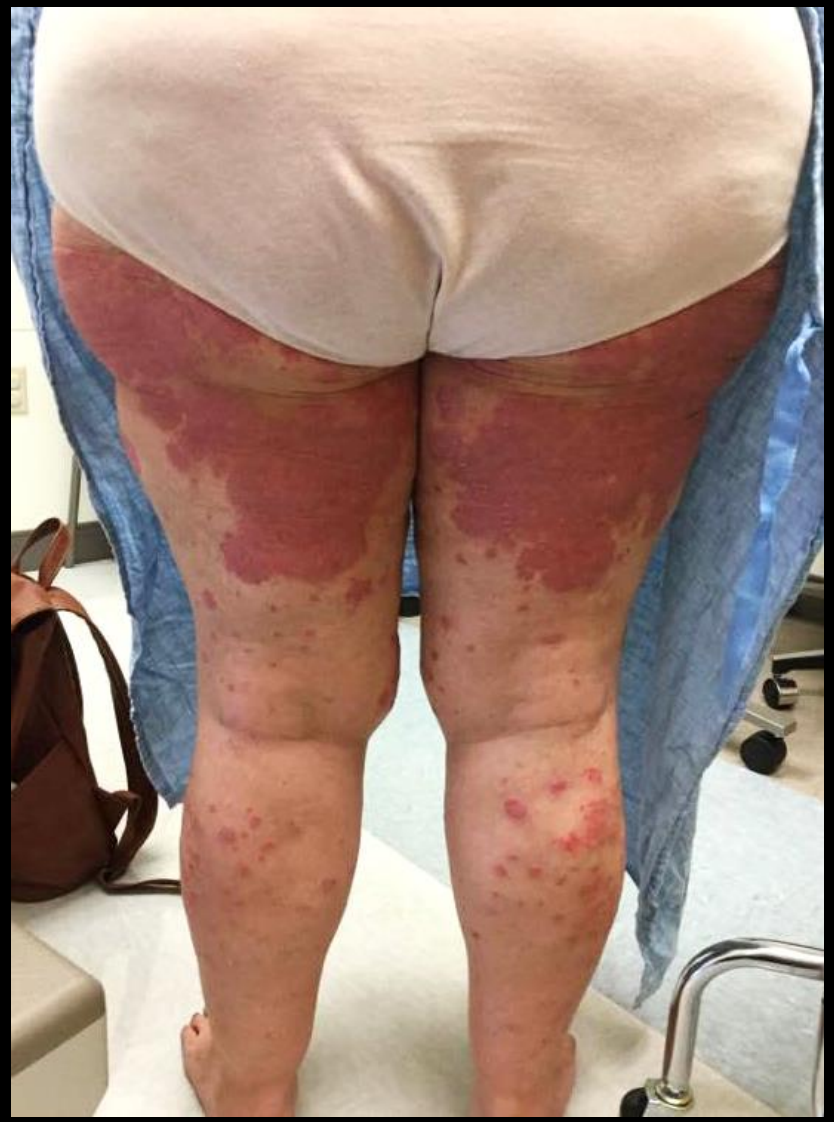


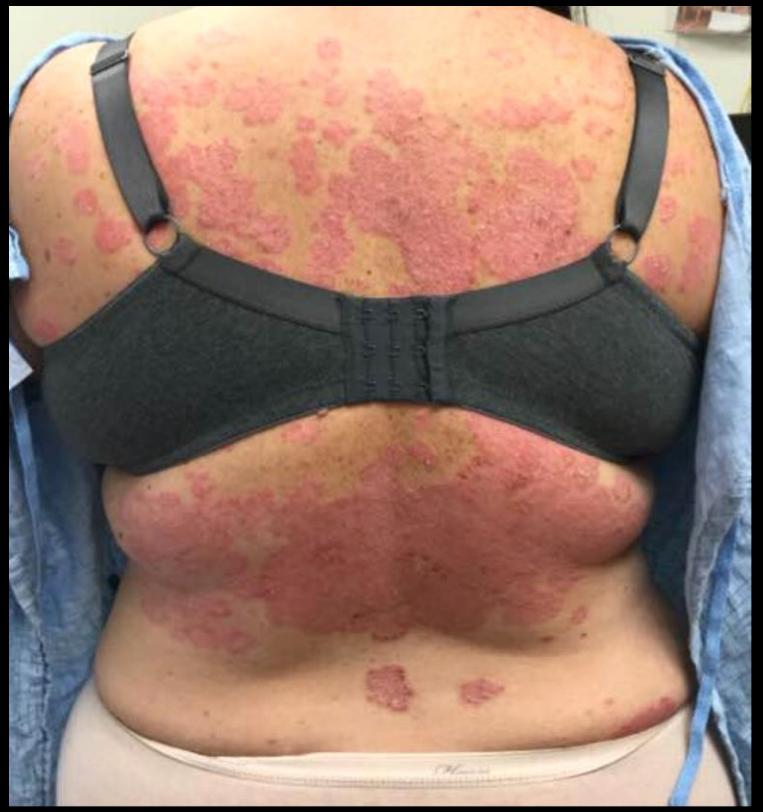


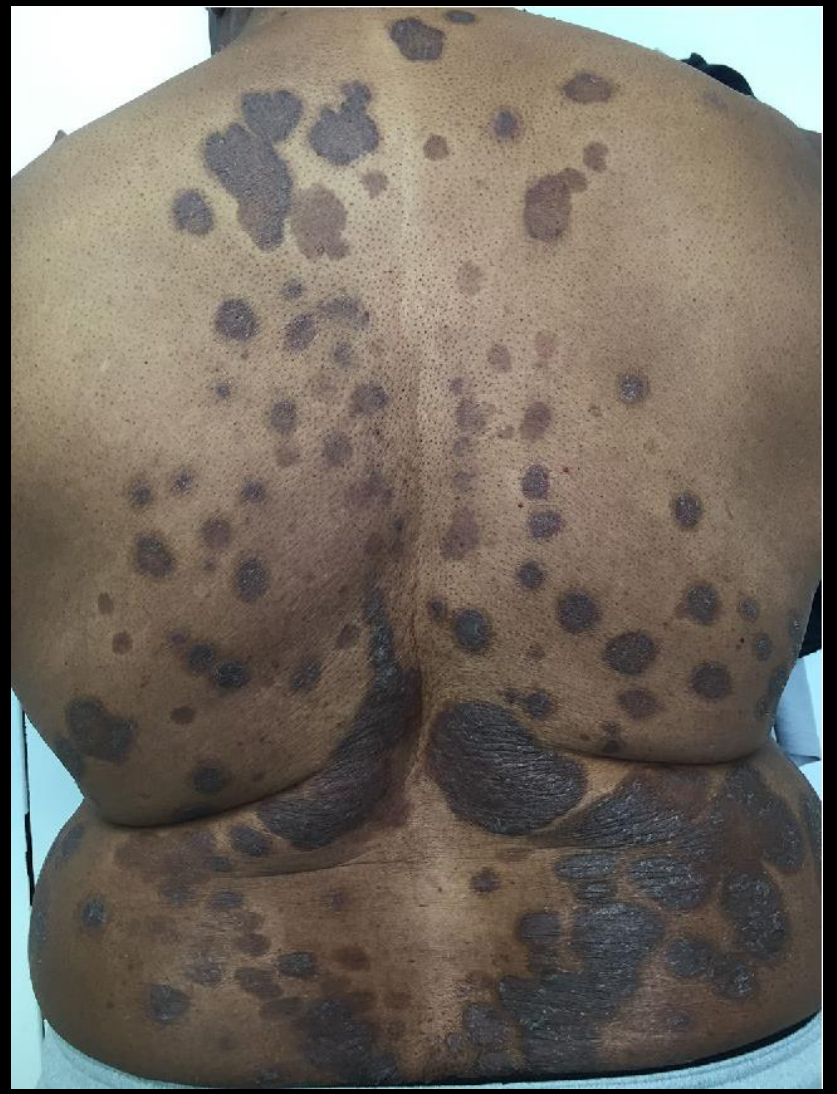
Psoriasis

- In the setting of HIV, psoriasis and PsA more severe
  - Severity correlates with the degree of immunosuppression
  - Higher incidence of PsA
- Therapeutic challenge
  - Cost
  - Comorbidities
  - Immune suppression
  - Topicals, NB-UVB, orals, biologics









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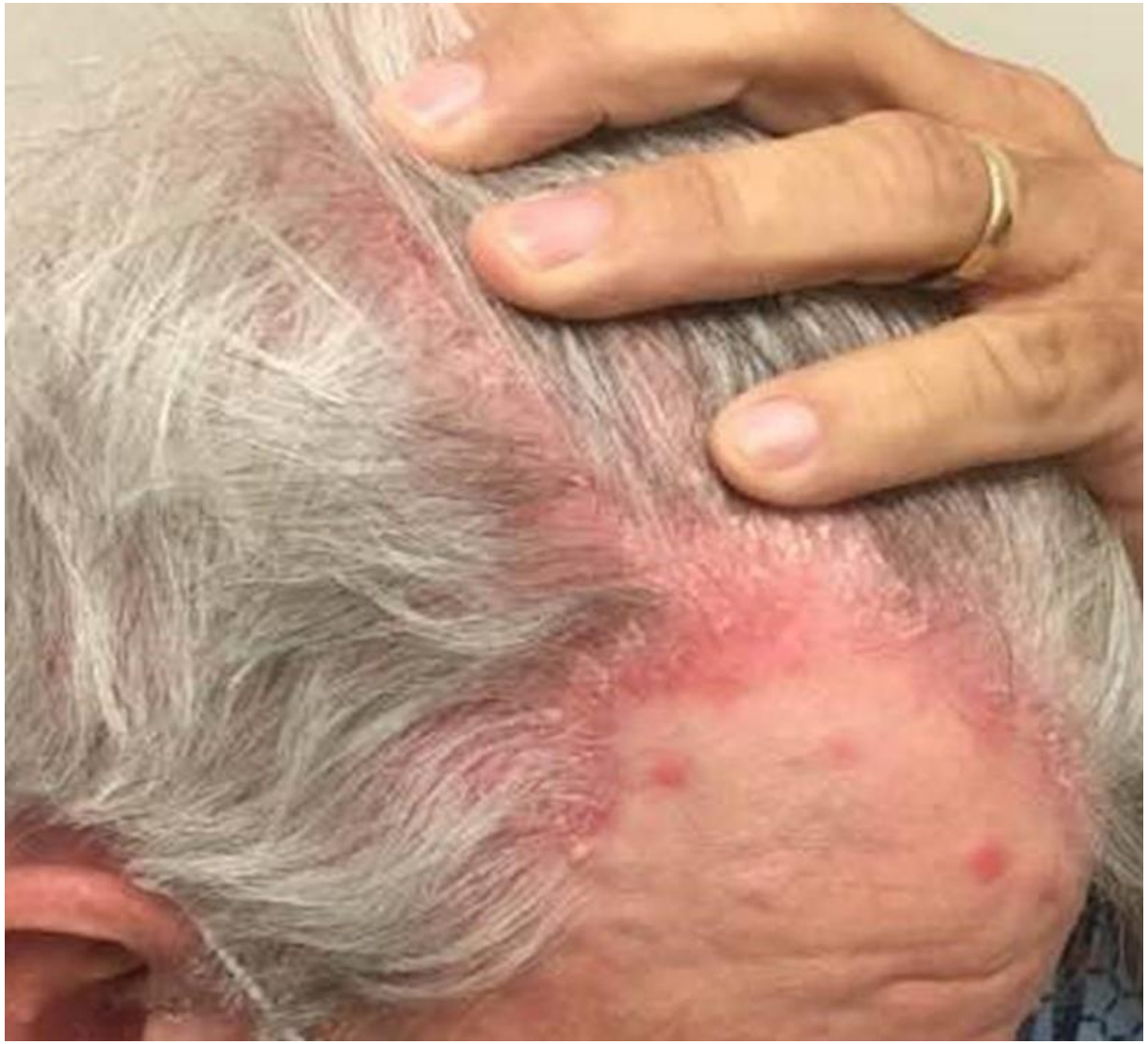
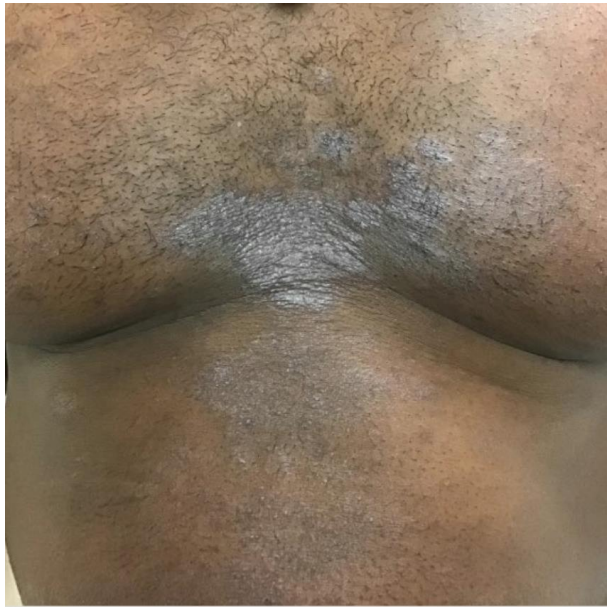
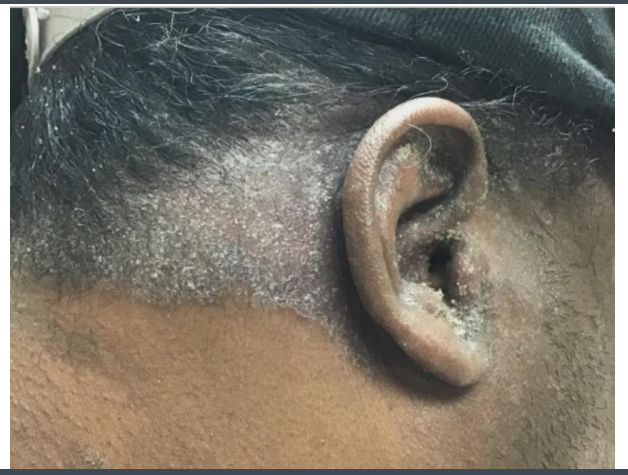
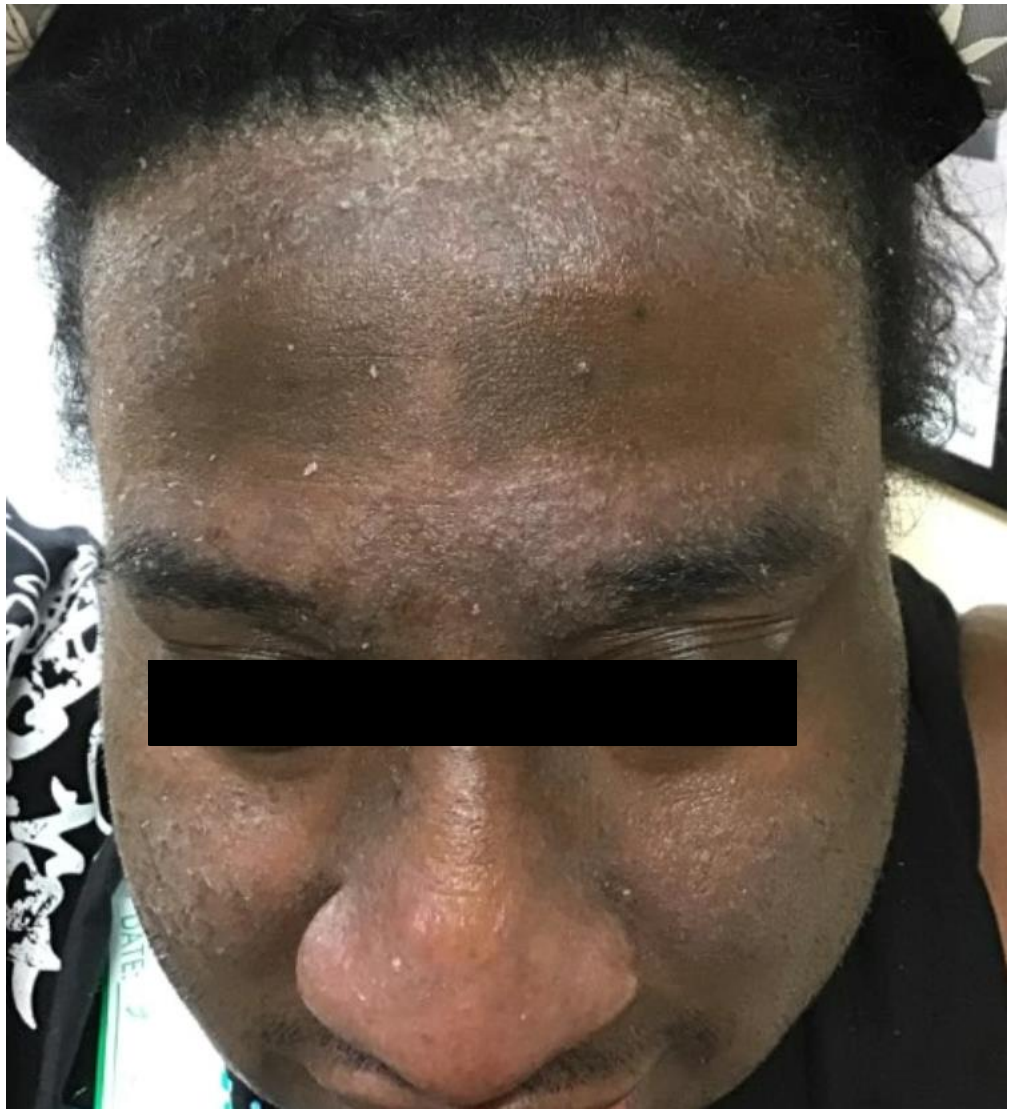
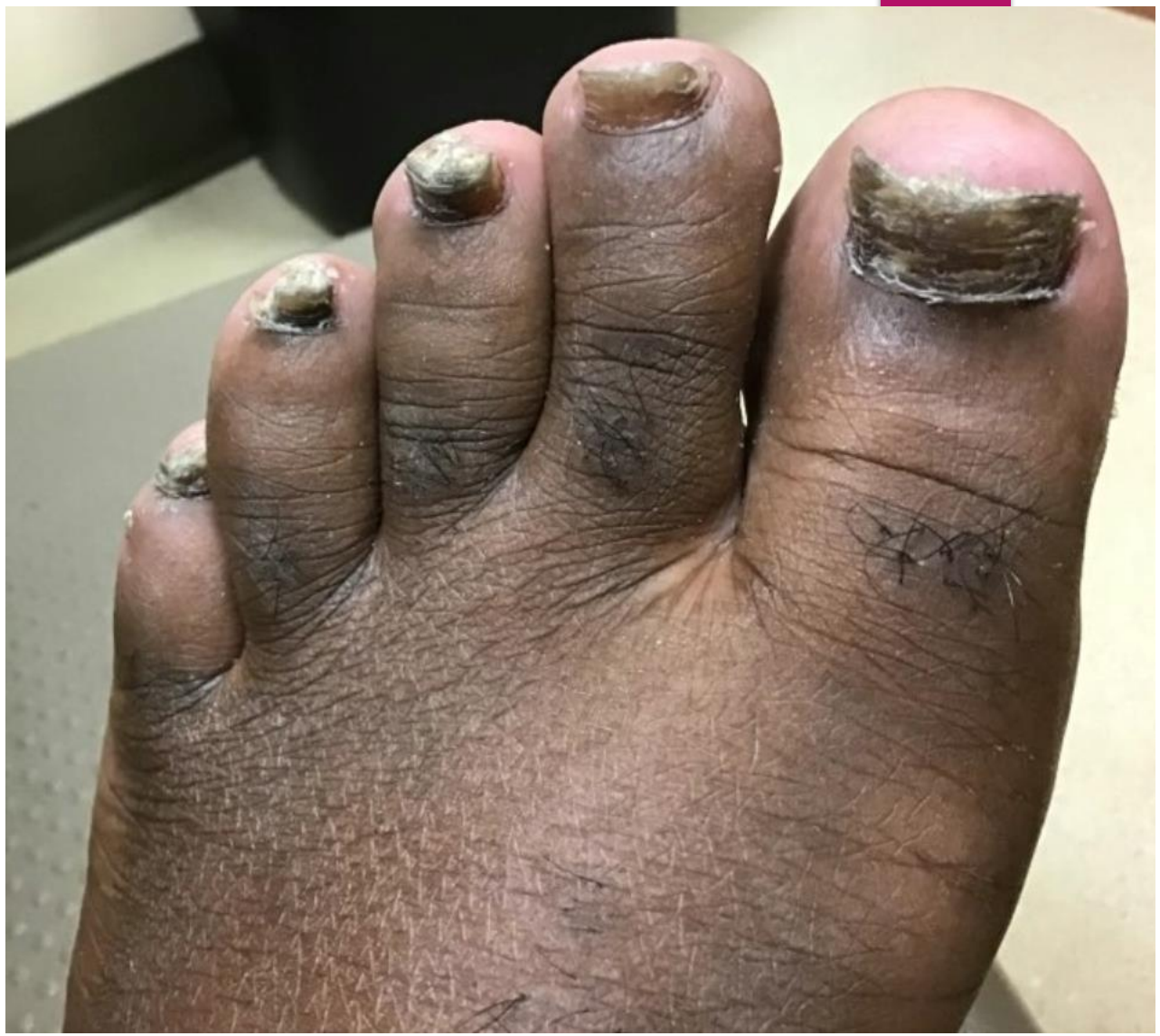










	Maintenance dose in adults	Efficacy (PASI 75)	Adverse effects and considerations
Methotrexate	15–20 mg per week, with folic acid	36% by week 16	Hepatoxicity (cirrhosis) with long-term use; pneumonitis or pulmonary fibrosis; bone marrow suppression; teratogenicity; contraindicated in case of renal insufficiency
Apremilast	30 mg twice a day	33% by week 16	Worsening of depression; gastrointestinal disturbance; weight loss; dose adjustment necessary in those with severe renal insufficiency
Ciclosporin	Up to 5 mg/kg per day to treat so-called crisis patients	65% clear or almost clear by week 8	Hypertension; hypomagnesaemia, hyperkalaemia, and hyperlipidaemia; lymphoma and skin cancer risks; not suitable for long-term use due to irreversible nephrotoxicity
Fumarates	Maximum 720 mg per day after gradual titration	37% by week 16	High rate of gastrointestinal intolerance; flushing leading to abandonment of treatment by 40% of patients
Acitretin	25–50 mg per day	47% by week 16	Contraindicated in women of childbearing age due to teratogenicity; xerosis, sticky skin, and hair loss (more probable with higher doses); hypertriglyceridaemia; hepatoxicity

PASI 75=75% reduction in the baseline Psoriasis Area and Severity Index value.

Table 1: **Oral agents for the treatment of moderate-to-severe plaque psoriasis**

Griffiths et al. The Lancet (2021). https://doi.org/10.1016/S0140-6736(20)32549-6.

	Drug type	Biological target	Indication	Dosing	Efficacy	Common side-effects	Precautions
Adalimumab	Anti-TNF	TNF	Psoriasis and psoriatic arthritis	80 mg loading dose, 40 mg 1 week later, then 40 mg every 2 weeks, subcutaneously	PASI 75: 71% (week 16)	Upper respiratory tract infection, injection site reactions	History of infections*, malignancies, heart failure, demyelinating disease, autoimmunity, live-attenuated vaccines
Certolizumab pegol	Anti-TNF	TNF	Psoriasis and psoriatic arthritis	400 mg at baseline, 2 weeks, and 4 weeks, then 200 mg every 2 weeks, subcutaneously	PASI75: 82% (week 16)	Upper respiratory tract infection, urinary tract infection	History of infections*, malignancies, heart failure, demyelinating disease, autoimmunity, live-attenuated vaccines
Etanercept	Anti-TNF	TNF	Psoriasis and psoriatic arthritis	50 mg twice weekly, subcutaneously	PASI 75: 59% (week 12)	Infections, Injection site reactions	History of infections*, malignancies, heart failure, demyelinating disease, autoimmunity, live-attenuated vaccines
Infliximab	Anti-TNF	TNF	Psoriasis and psoriatic arthritis	5–10 mg/kg of bodyweight at weeks 0, 2, and 6, then every 8 weeks, intravenous infusion	PASI 75: 80% (week 10)	Upper respiratory tract infection, infusion related reactions	History of infections*, malignancies, heart failure, demyelinating disease, autoimmunity, live-attenuated vaccines
Brodalumab	Anti-IL-17	IL-17RA (leading to inhibition of IL-17A, IL-17F, IL-17C, and IL-17E [IL-25])	Psoriasis	210 mg weekly from 0–2 weeks, then every 2 weeks, subcutaneously	PASI 75: 86% (week 12)	Injection site reactions, candida and tinea infections	History of infections, inflammatory bowel disease, live-attenuated vaccines, suicidal ideation and behaviour
Ixekizumab	Anti-IL-17	IL-17A	Psoriasis and psoriatic arthritis	160 mg loading dose, then 80 mg at weeks 2, 4, 6, 8, 10, and 12, then 80 mg every 4 weeks, subcutaneously	PASI 75: 90% (week 12)	Injection site reactions, upper respiratory tract infection, candida and tinea infections	History of infections, inflammatory bowel disease, live-attenuated vaccines
Secukinumab	Anti-IL-17	IL-17A	Psoriasis and psoriatic arthritis	300 mg weekly from 0–4 weeks, then monthly, subcutaneously	PASI 75: 82% (week 12)	Upper respiratory tract infection, candida and tinea infections	History of infections, inflammatory bowel disease, live-attenuated vaccines
Guselkumab	Anti-IL-23	IL-23	Psoriasis	100 mg at weeks 0 and 4, then every 8 weeks, subcutaneously[33]	PASI 90: 73% (week 16)	Upper respiratory tract infection, injection site reactions, tinea infections, herpes simplex infections	Infections, live-attenuated vaccines
Risankizumab	Anti-IL-23	IL-23	Psoriasis	150 mg at weeks 0 and 4, then every 12 weeks, subcutaneously	PASI 90: 75% (week 16)	Upper respiratory tract infection, tinea infections	Infections, live-attenuated vaccines
Tildrakizumab	Anti-IL-23	IL-23	Psoriasis	100 mg at weeks 0 and 4, then every 12 weeks, subcutaneously[33]	PASI 75: 64% (week 12)	Upper respiratory tract infection, injection site reactions	Infections, live-attenuated vaccines
Ustekinumab	Anti-IL-12 and IL-23	IL-12, IL-23	Psoriasis and psoriatic arthritis	45 mg (if bodyweight <100 kg), 90 mg (if bodyweight >100 kg) at weeks 0, 4, and 12, then every 12 weeks, subcutaneously	PASI 75: 64% (week 12)	Upper respiratory tract infection	Infections, malignancy, live-attenuated vaccines

PASI 75=75% reduction in baseline Psoriasis Area and Severity Index value. IL=interleukin. PASI 90=90% reduction in baseline Psoriasis Area and Severity Index value. *Especially tuberculosis.

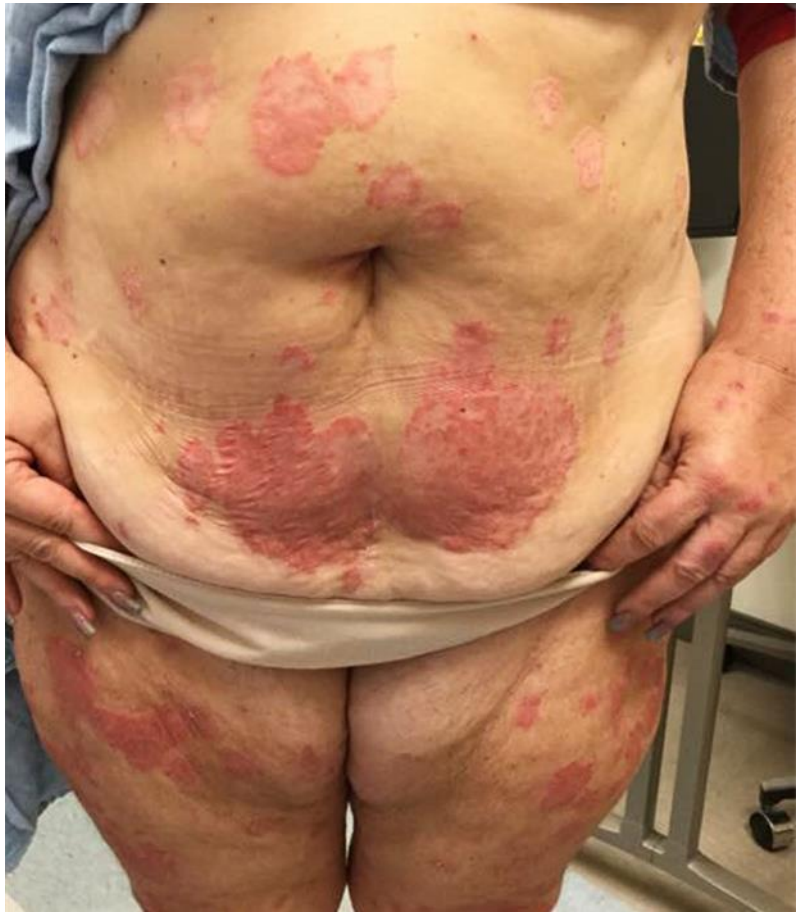
Table 2: **Efficacy and side-effects of biologics for the treatment of psoriasis**

General Treatment Recommendations for PsO in the setting of HIV

- HIV - undetectable viral load
  - Ist line: acitretin or apremilast
  - 2nd line: TNF antagonists
  - 3rd line: other biologics IL12/23, IL23/p19, IL17
  - Positive effects on CD4+ counts and viral load
- HIV – detectable viral load
  - acitretin or apremilast
- Chronic HCV
  - Adalimumab and etanercept
- Chronic HBV
  - Ustekinumab, acitretin, cyclosporine, apremilast
  - Reactivation of HBV
    - 39% of HBsAg+ patients treated with TFN-a blockers
    - IL-17a inhibitors
    - MTX contraindicated due to reactivation of HBV and liver toxicity
- Latent TB
  - Avoid MTX, CSA, TNFs, IL12/23
  - IL23, IL17, acitretin or apremilast ok

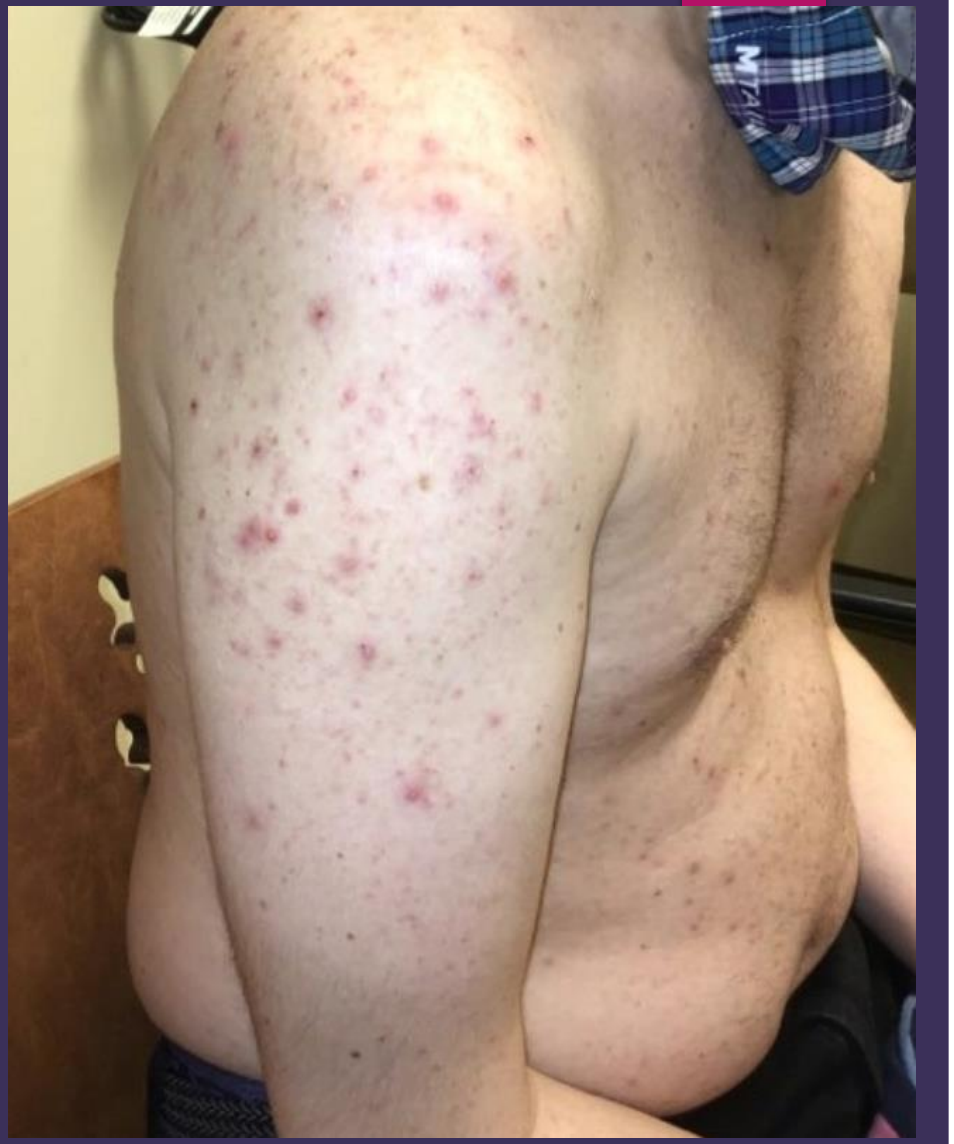
Psoriasis Comorbidities

- HIV
  - Increased dyslipidemia
  - Atherosclerosis-associated CVD
    - Driven by HIV-associated immune activation and inflammation
  - HOPS: increase frequency of MI after introduction of PIs
- PsO
  - Multiple comorbidities: obesity, MetS, DM, dyslipidemia
  - ACC/AHA 2018 Guidelines on Management of Cholesterol
    - PsO as risk-enhancing factor
  - Atherosclerosis and CVD
    - Coronary artery calcification risk = DM
    - 11K additional MACEs/yr in U.S.



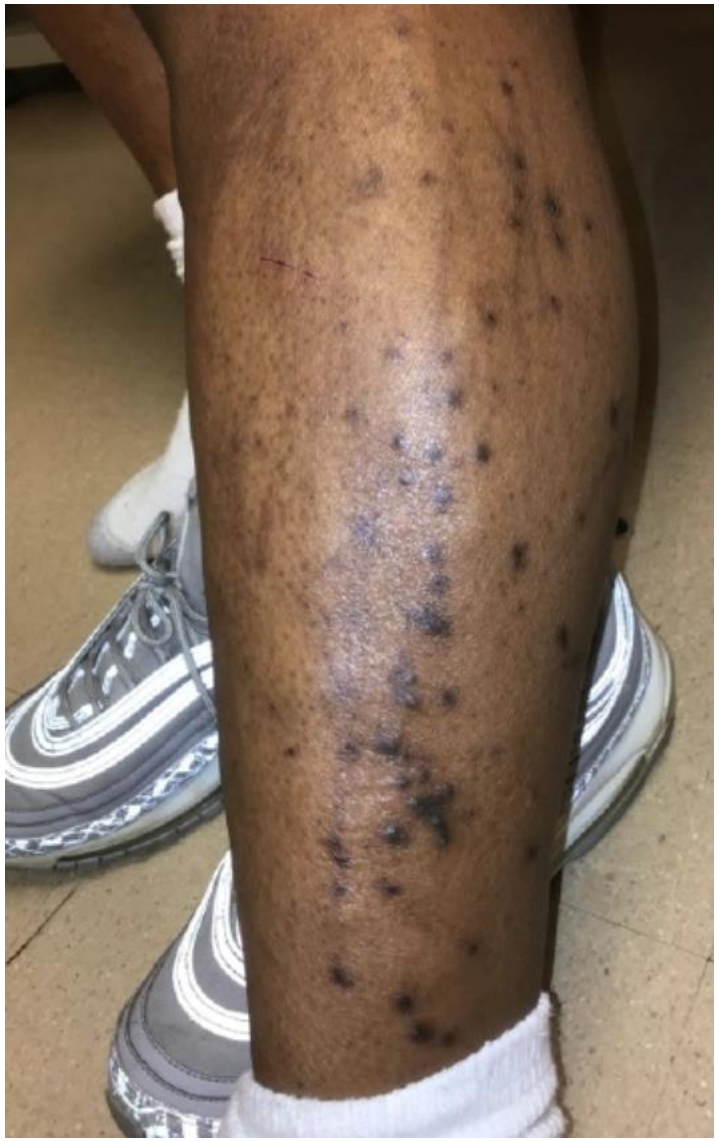
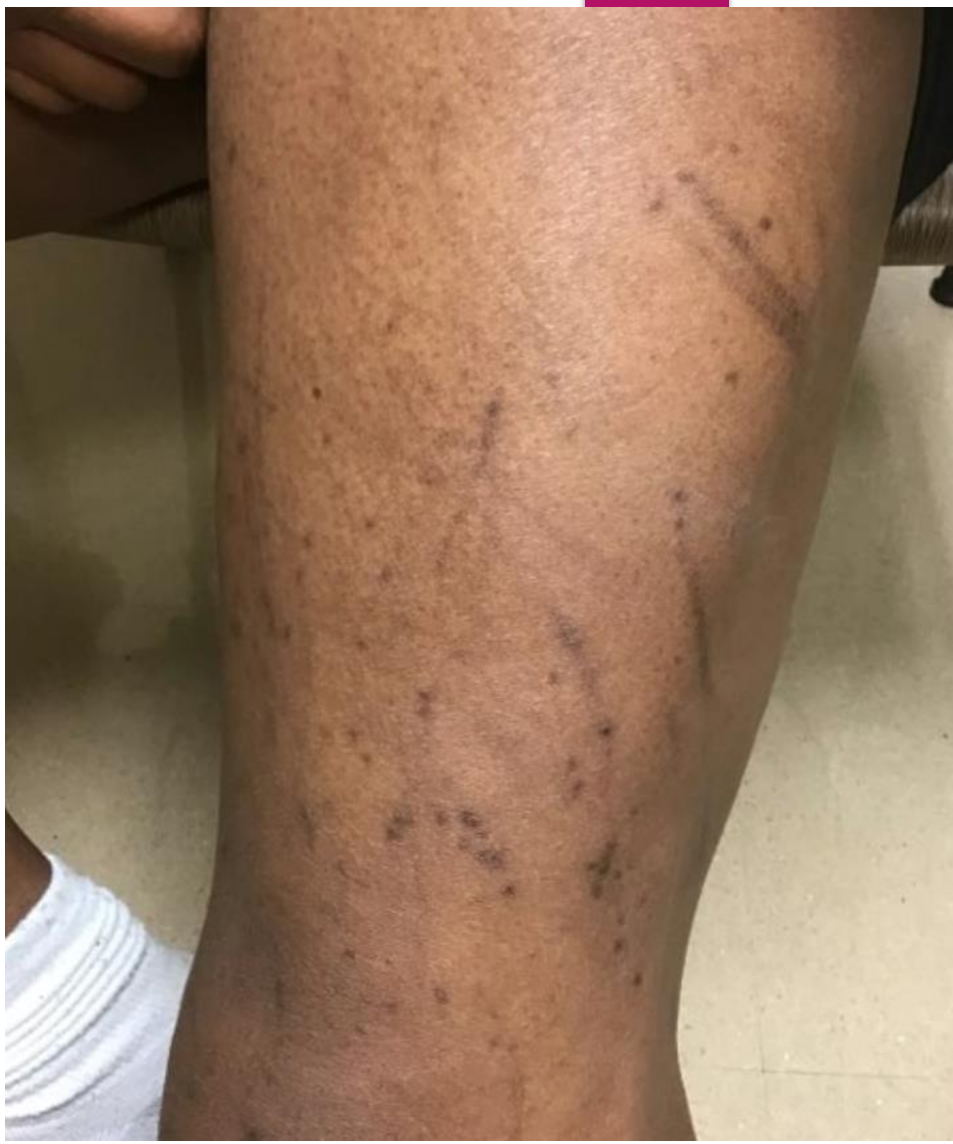
Eosinophilic Folliculitis

- Follicular edematous papulovesicles or pustules on face, neck, and upper arms
  - Extremely pruritic
  - Excoriated
  - PIH
- CD4 counts <300 cells/mL or IRIS
- Treatment
  - Oral and topical antifungals, metronidazole, ivermectin, dapsone, retinoids
  - Oral antihistamines, prednisone,
  - Permethrin, topical tacrolimus
  - UV-B
  - Improvement with ART



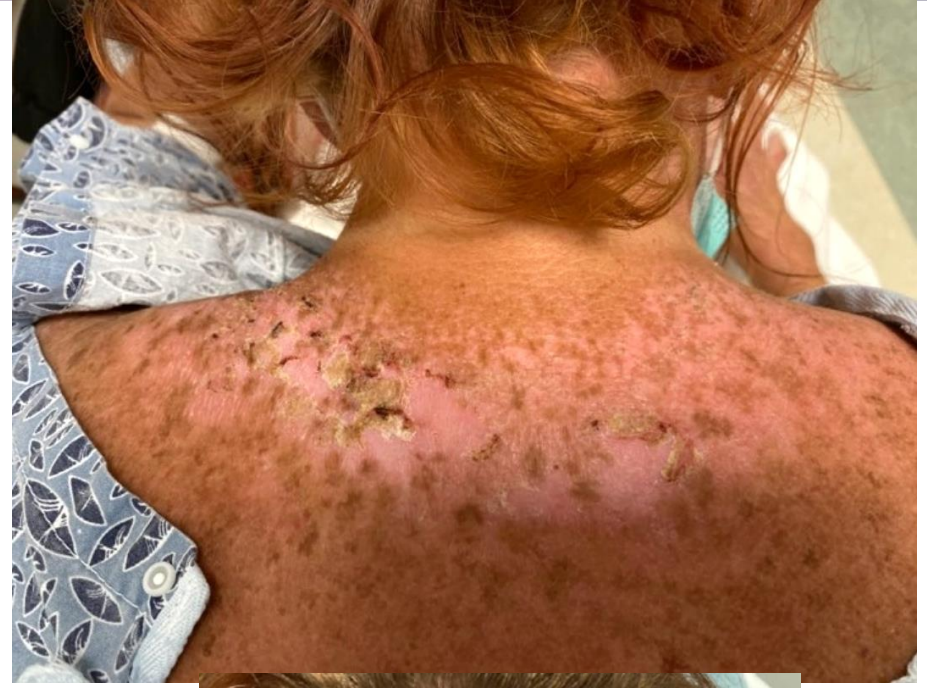
Pruritic Papular Eruption of HIV

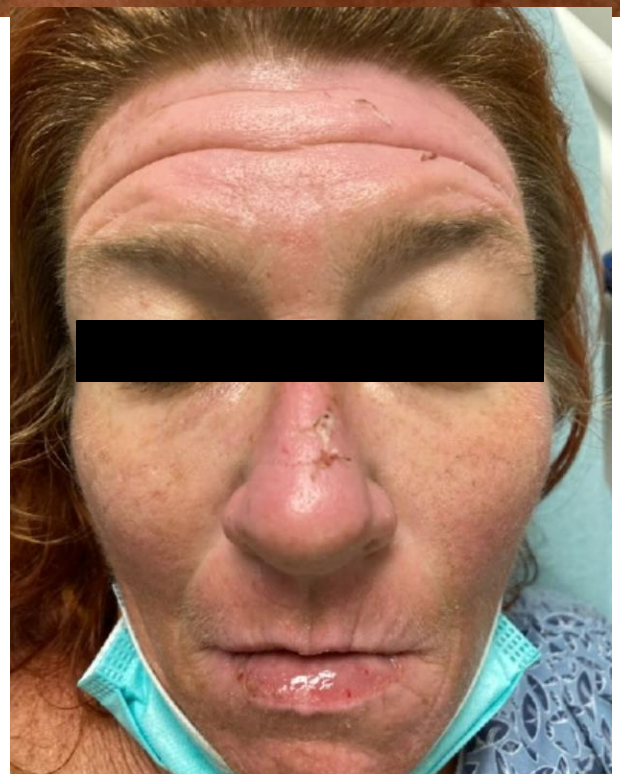
- Exaggerated response to arthropod bites
- May be exacerbated by underlying xerosis and pruritus
- Can lead to prurigo nodularis and PIH
- Leg are common location

Photosensitivity

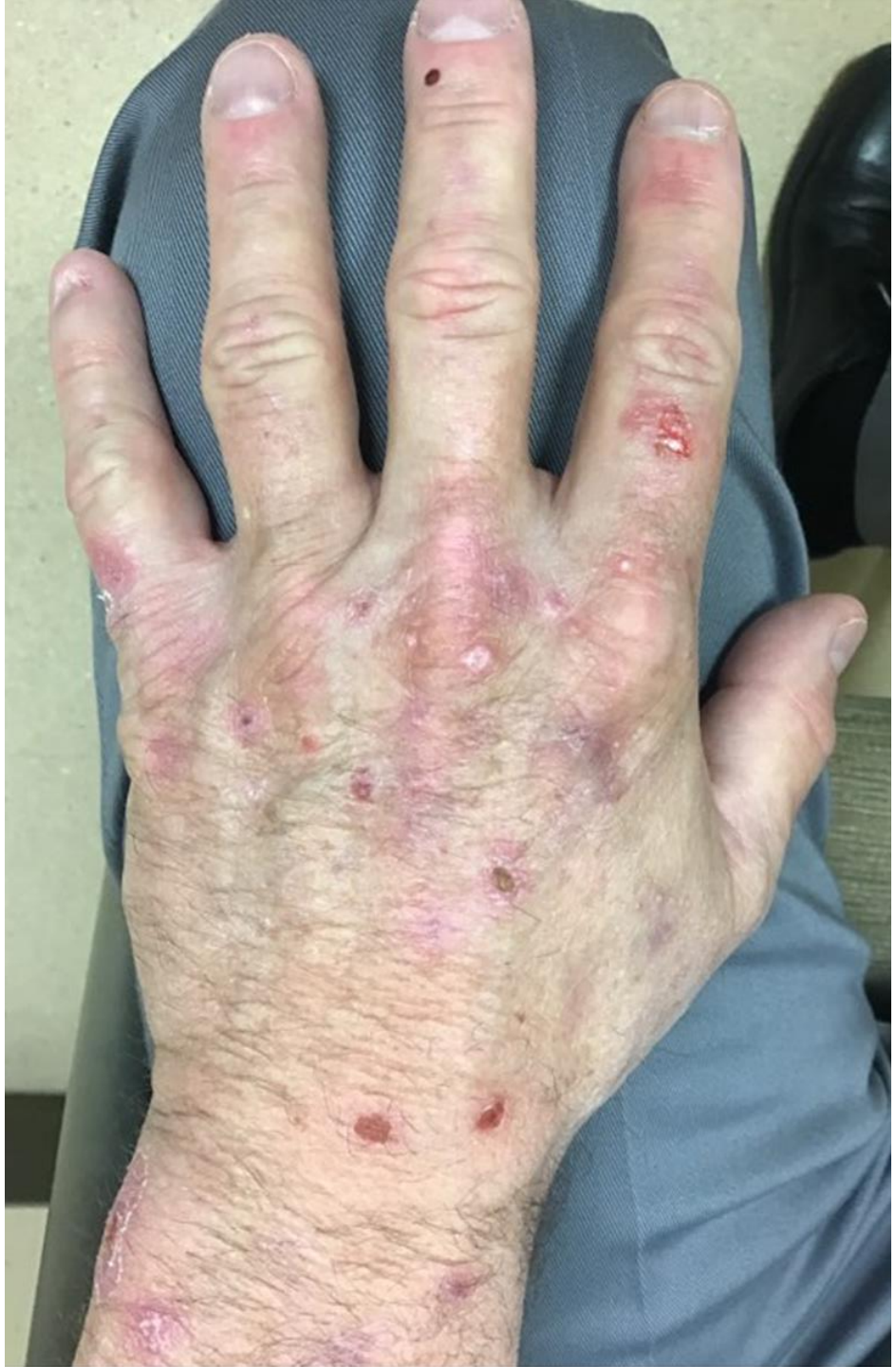
- Photosensitivity reactions
- Manifest in patients with low CD4 counts
- Photosensitizing medications
  - trimethoprim-sulfamethoxazole
  - dapsone
  - NSAIDs
  - antiretrovirals

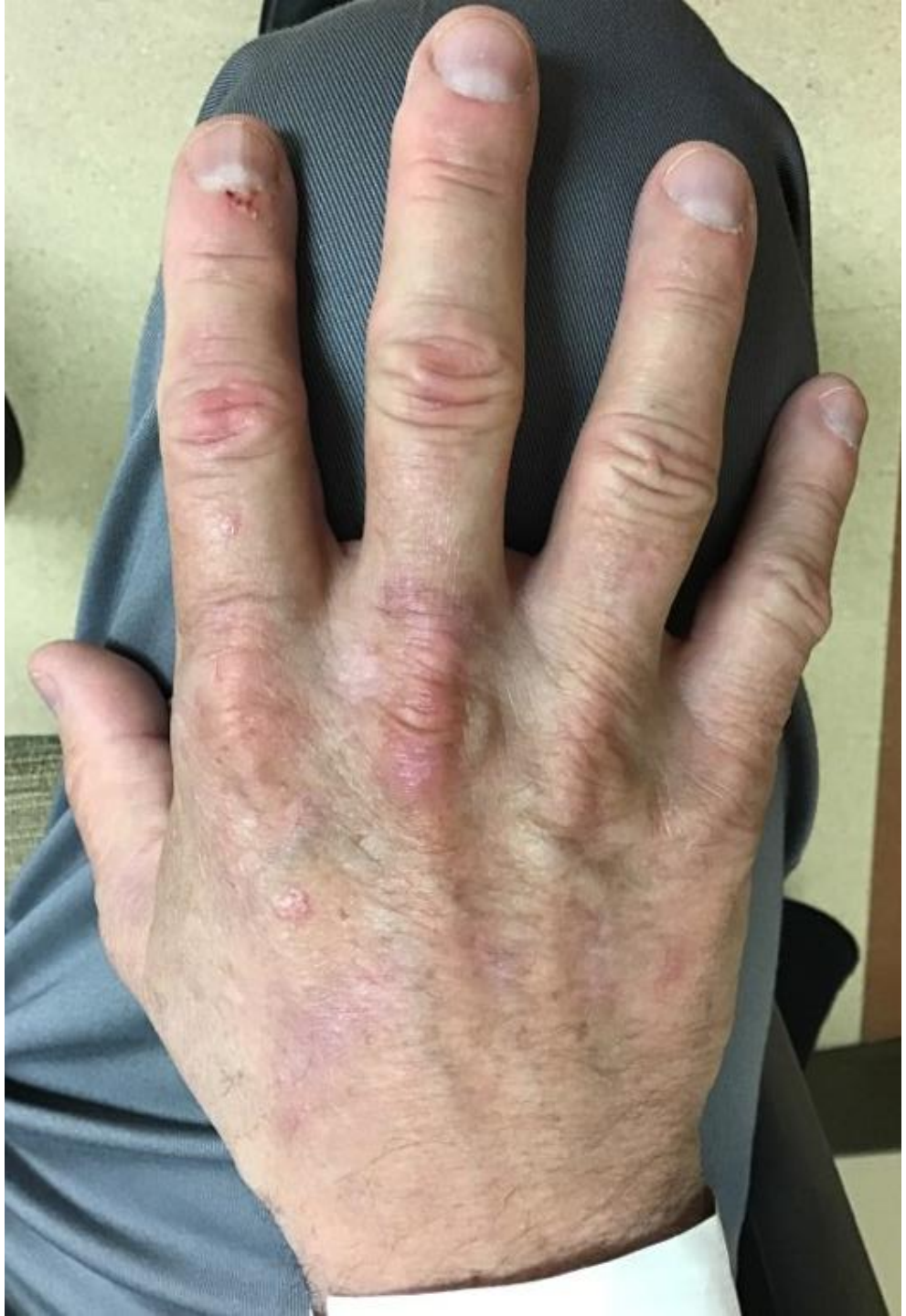


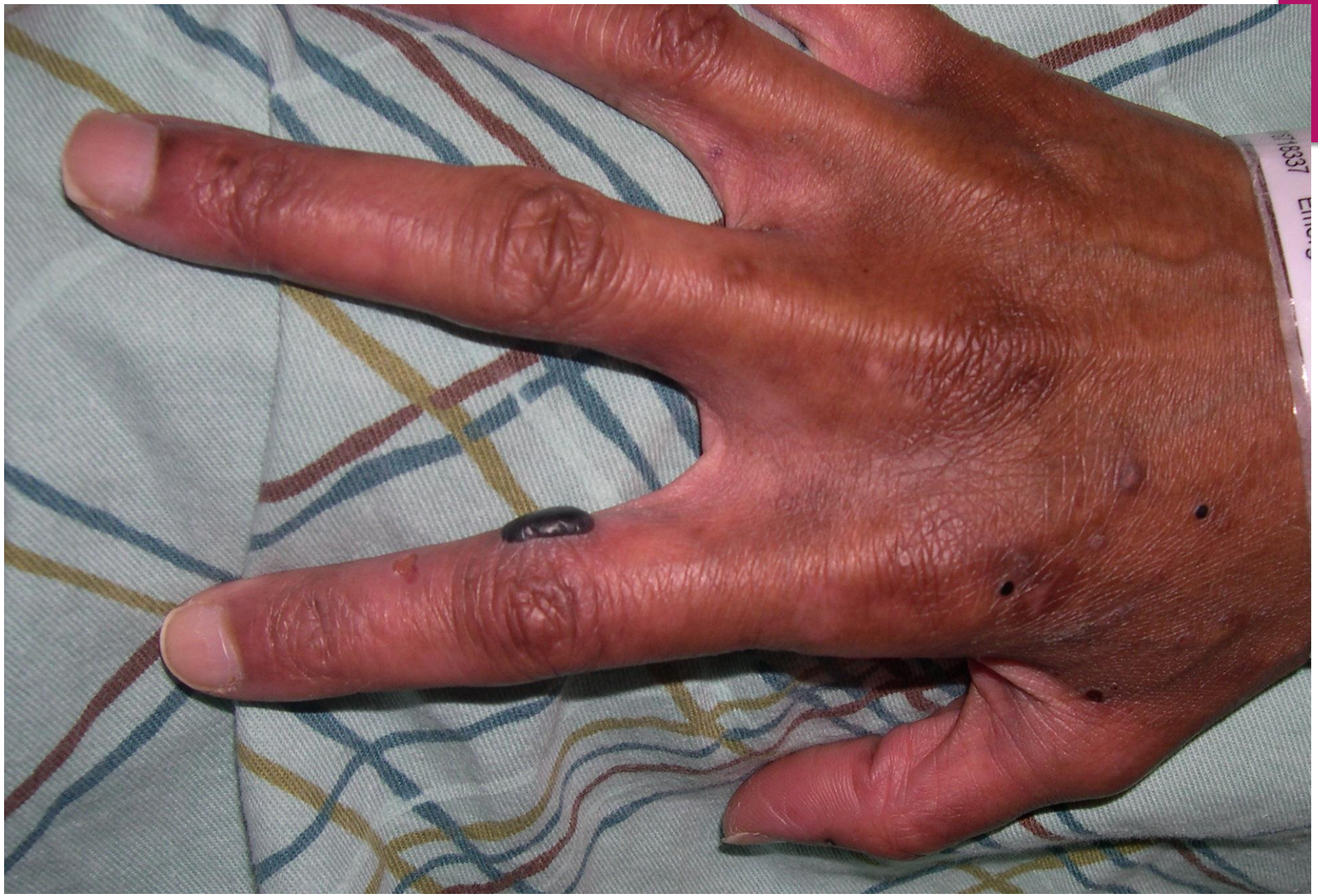


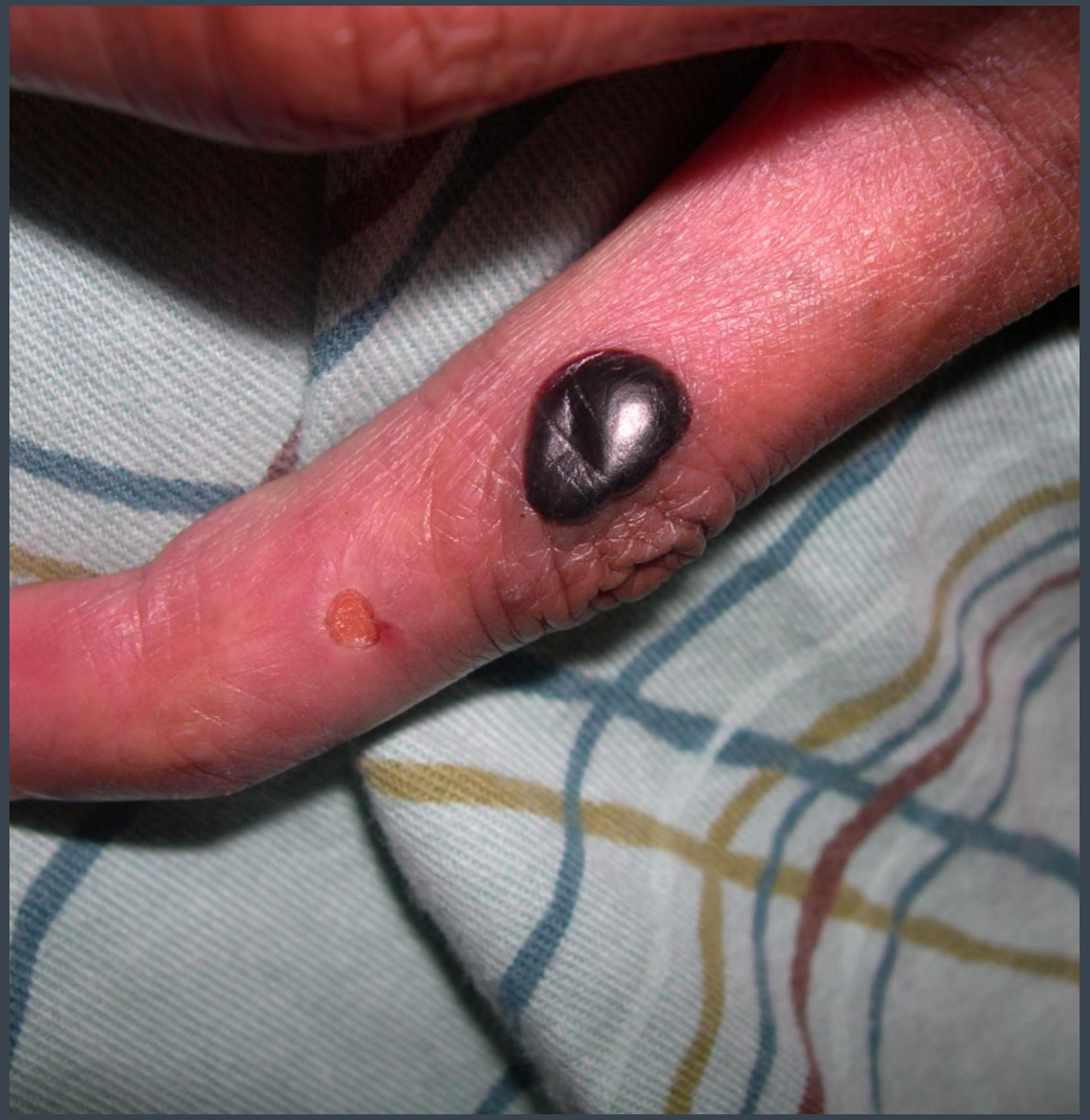
Porphyria Cutanea Tarda

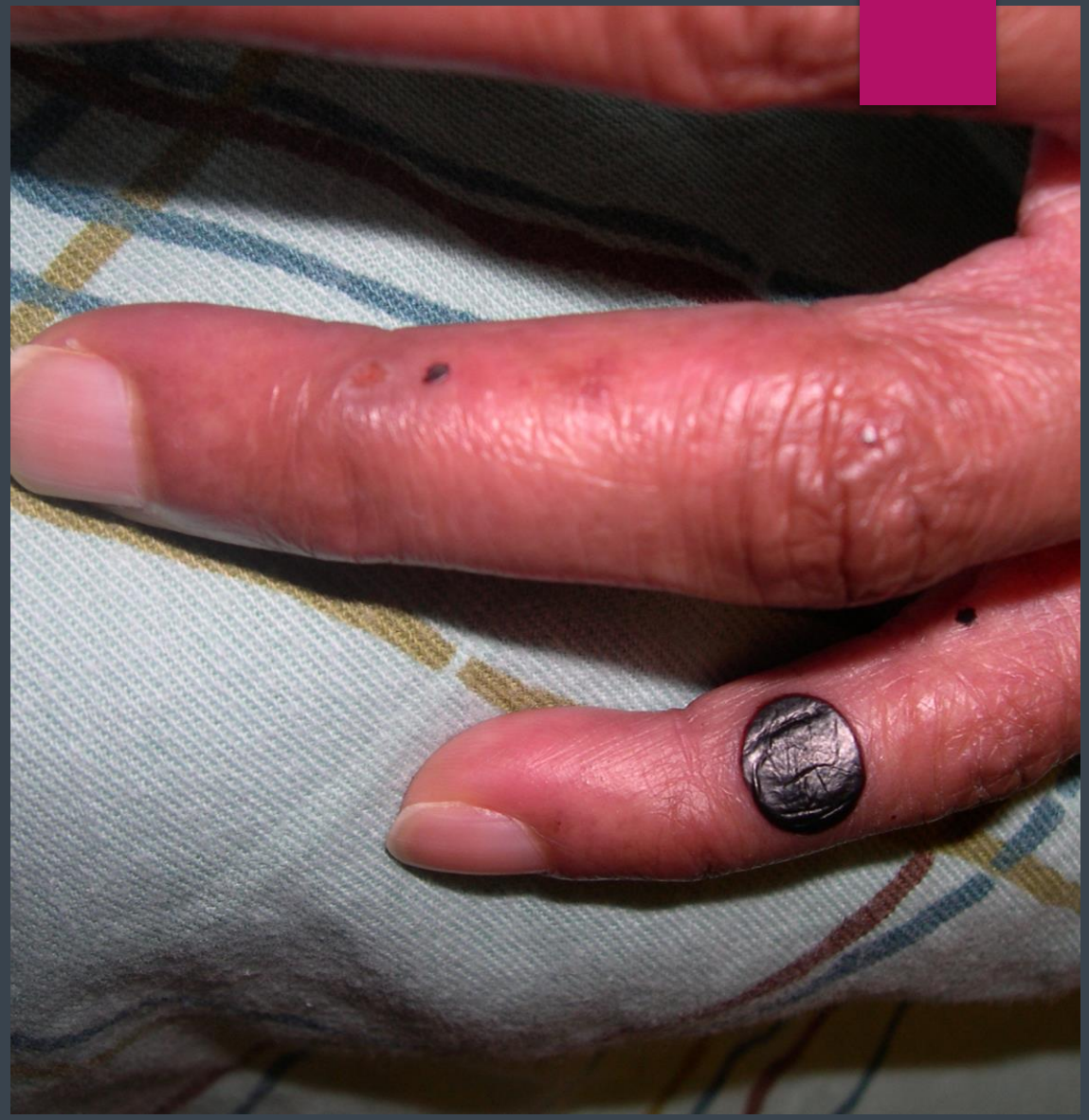
- Deficient activity of uroporphyrinogen decarboxylase (UROD) in liver
- Biopsy for H&E and DIF and serum + urine porphyrins
- Risk factors
  - Iron overload
  - HCV
  - HIV
  - ETOH
  - Medications
- Treatment
  - Address underlying RFs
  - Phlebotomy
  - HCQ
  - Sun protection









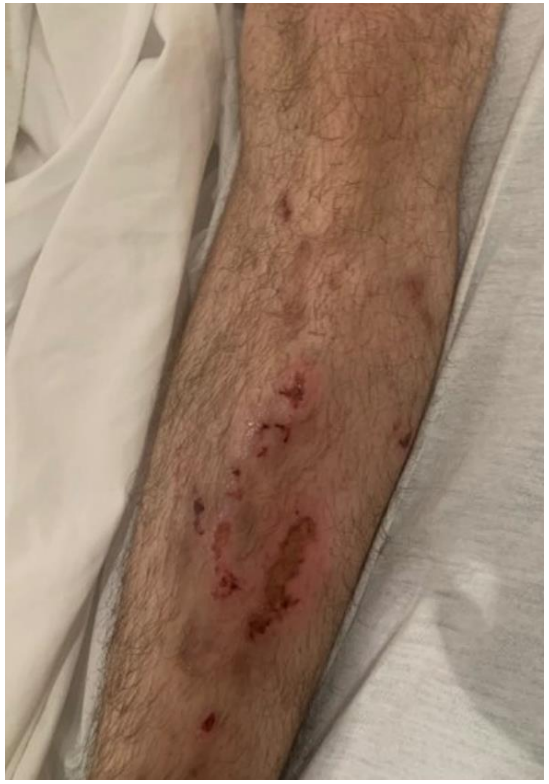
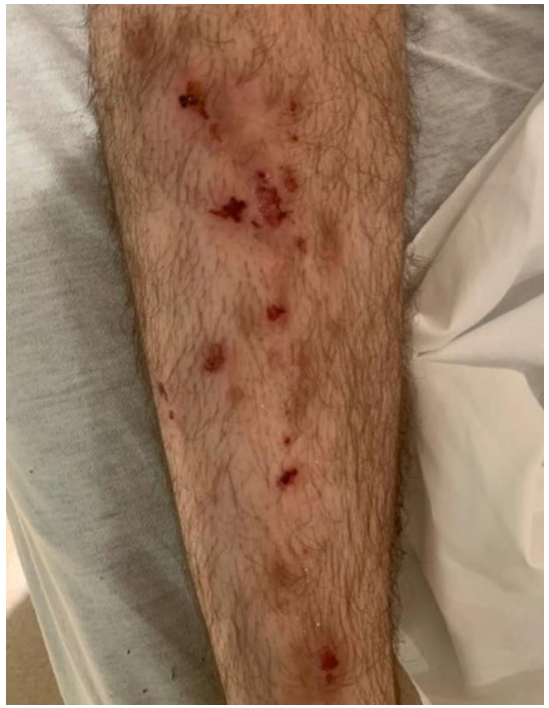
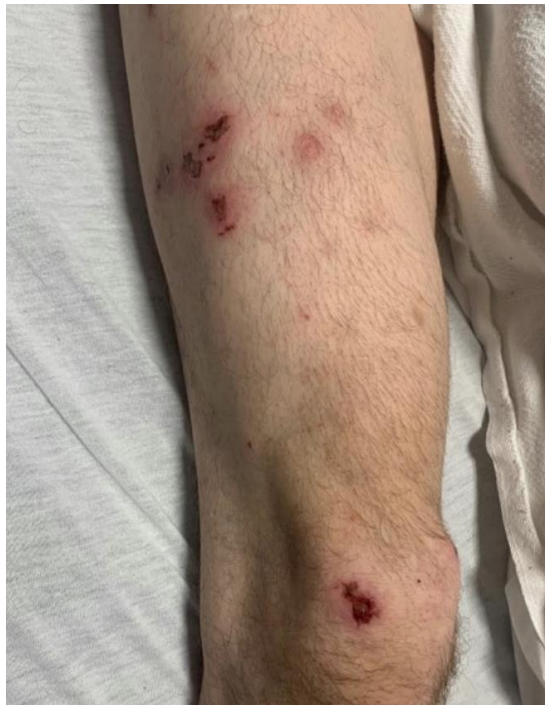


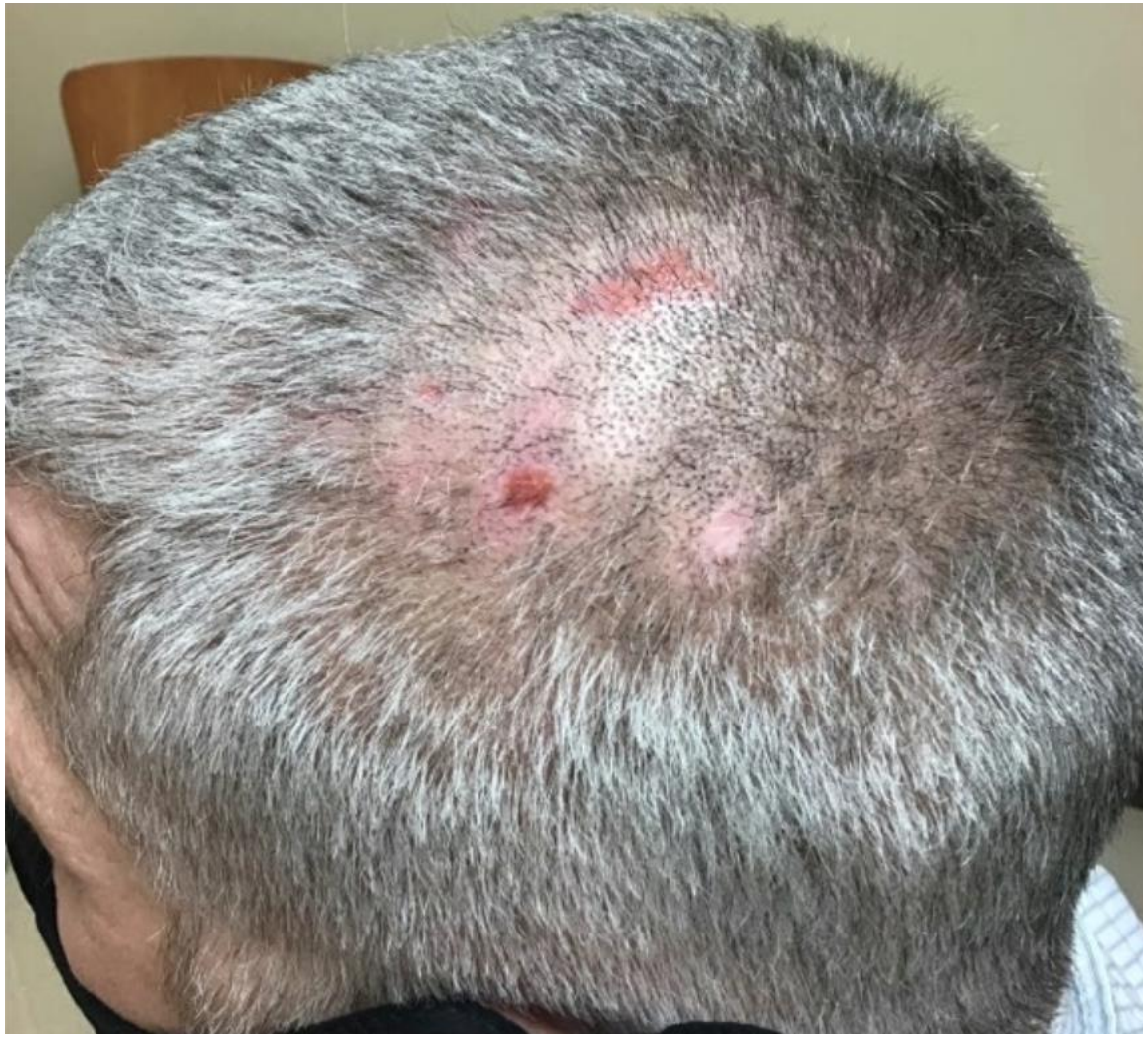
Psychodermatoses

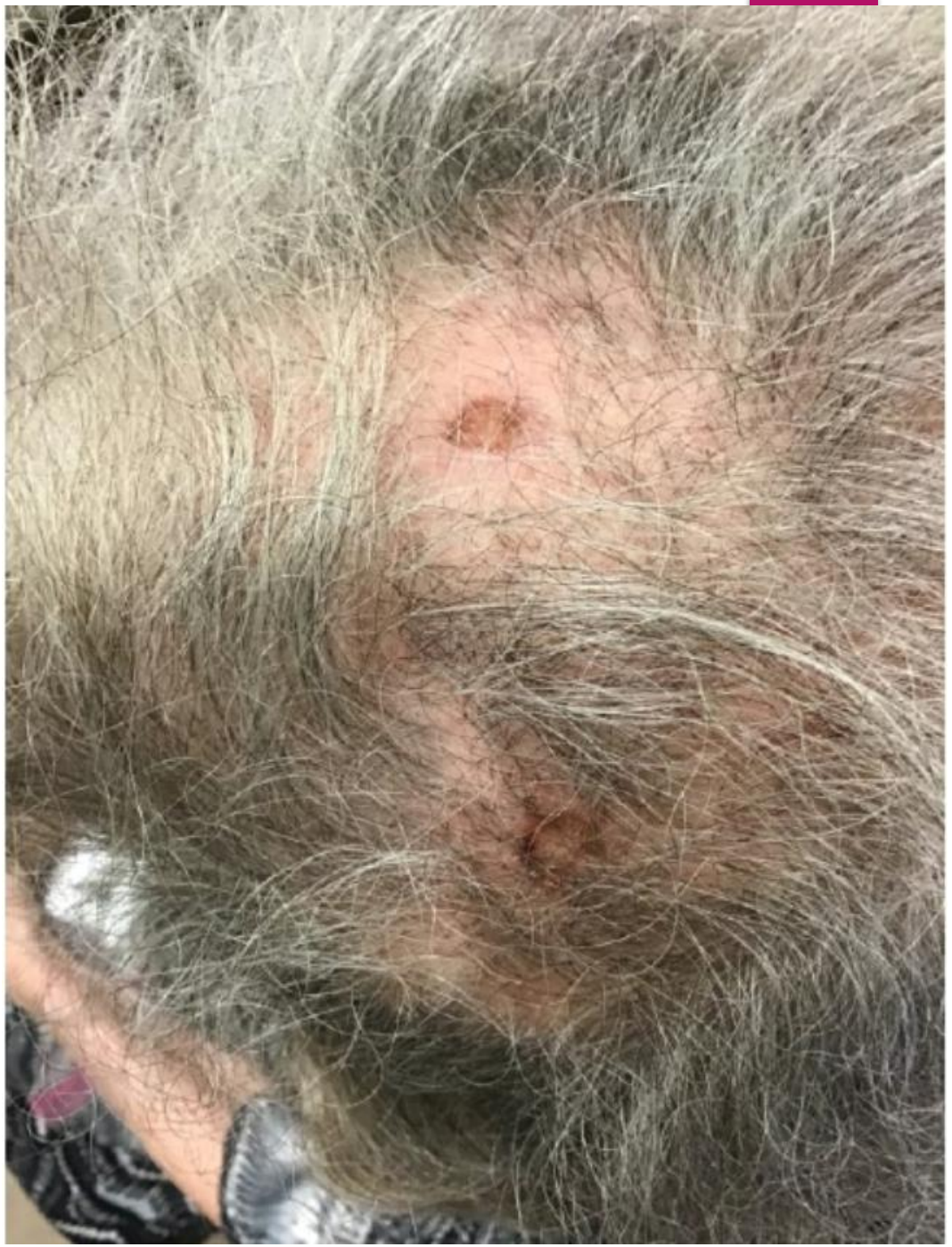
NEUROTIC EXCORIATIONS
DELUSIONS OF PARASITOSIS
TRICHOTILLOMANIA
HABIT TIC DEFORMITY

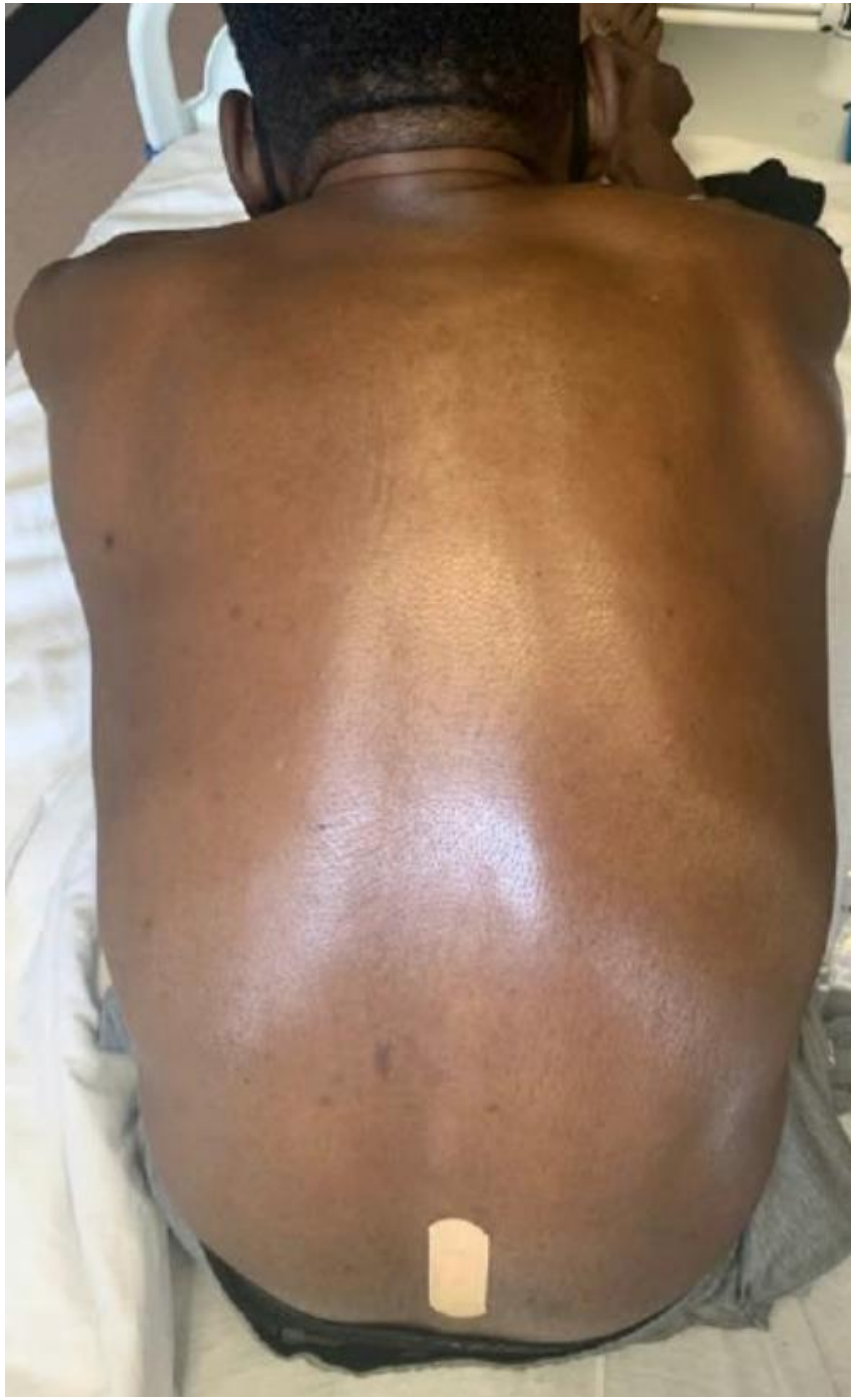
DOP

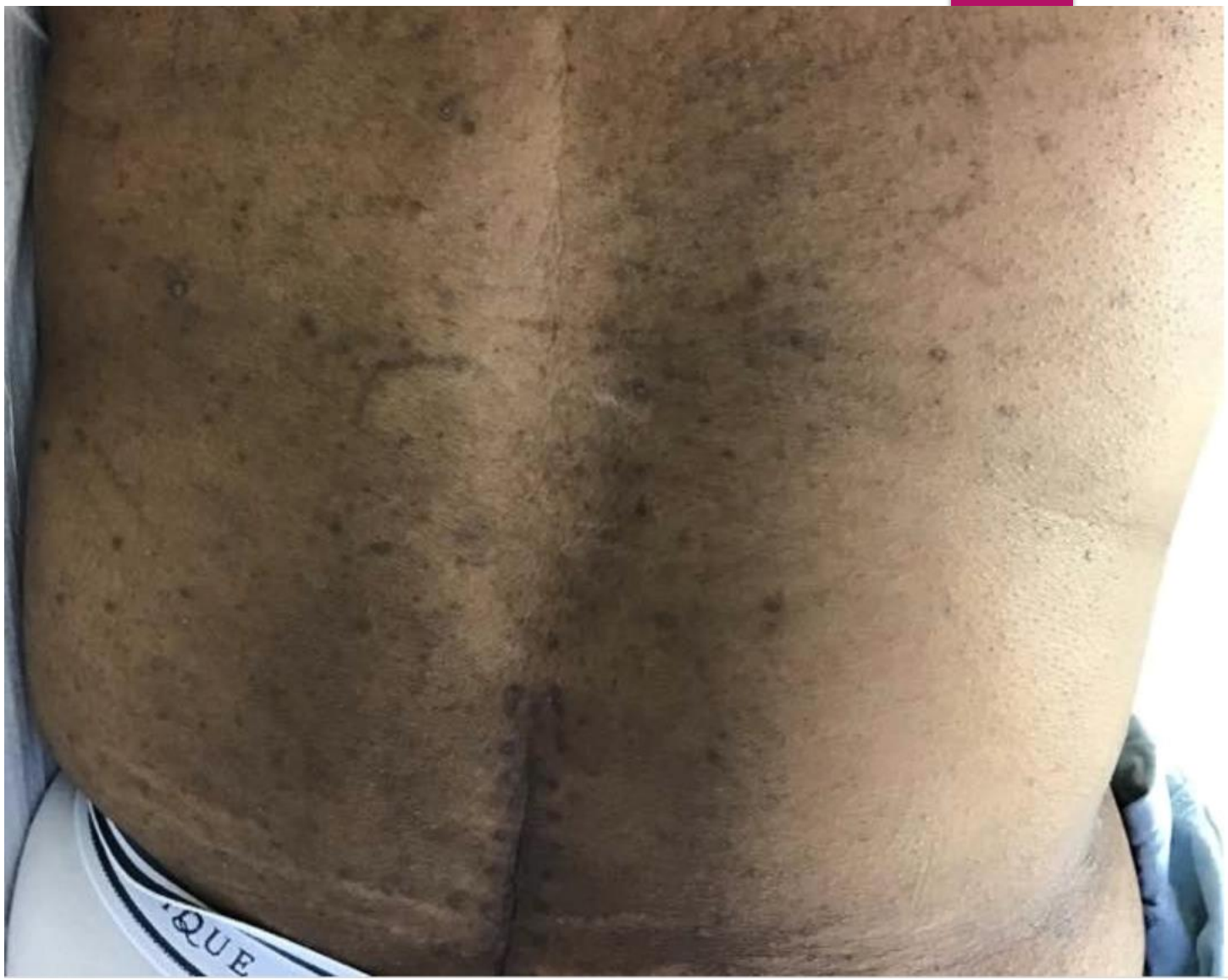
- H/o depression, anxiety, bipolar
- Describe something in skin
  - Worms/bugs/grains of sand coming from the skin
  - Mucous or fluid leaking from skin, odor, or film/build up on skin
  - Often using tweezers or nail clippers on skin
- Matchbox sign
- Seen multiple doctors
  - Nothing has helped
  - Other family members may be part of the delusion
  - Very distressed and takes over their lives
- No primary lesions
- Biopsy shows trauma and chronic inflammation
- Need antipsychotics and psychiatry referral

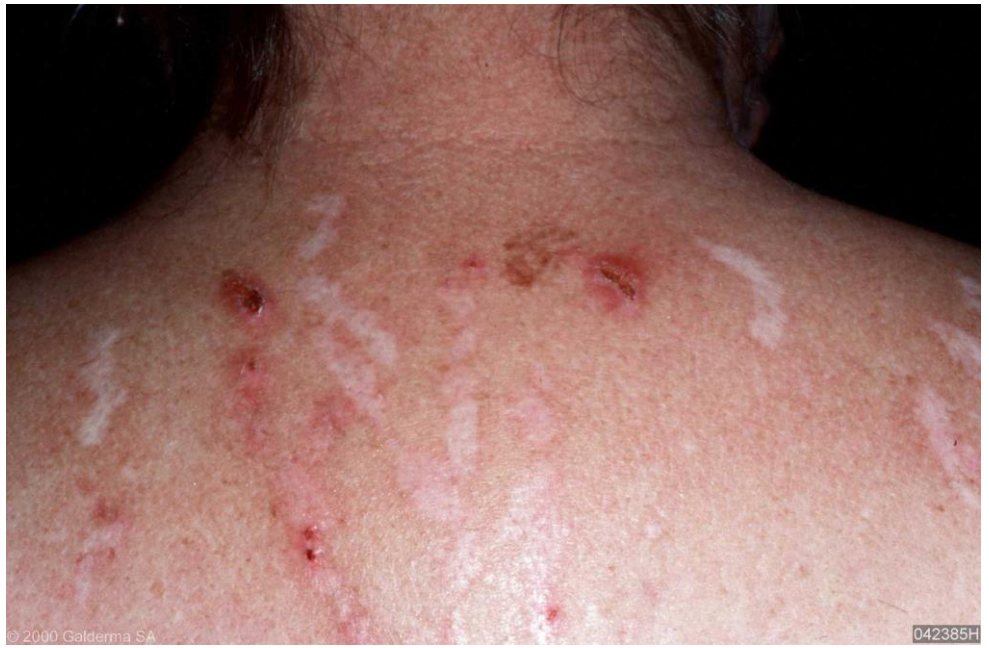



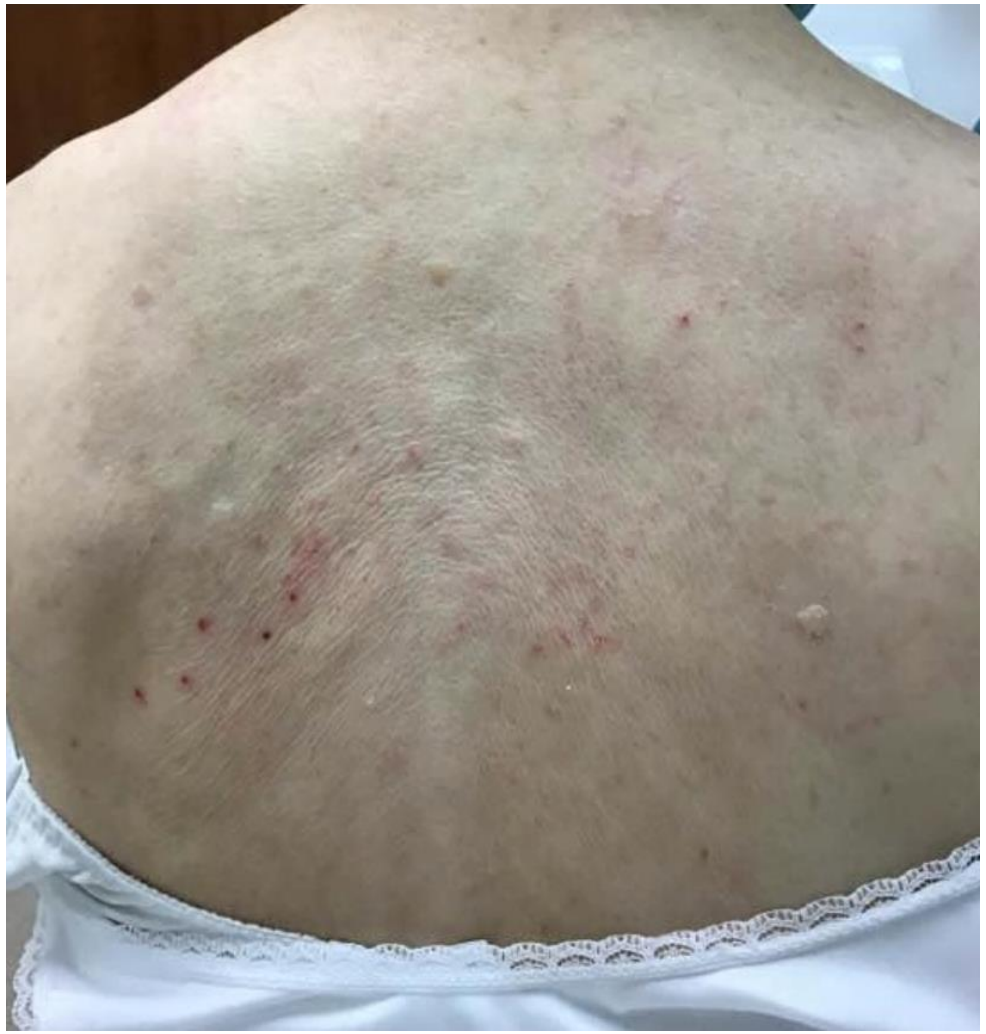


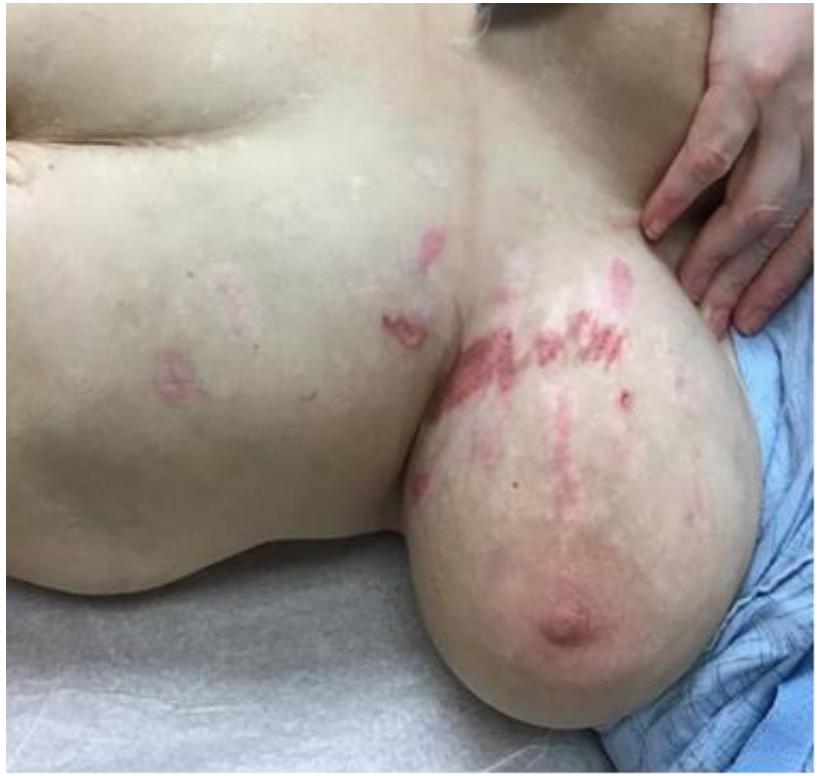


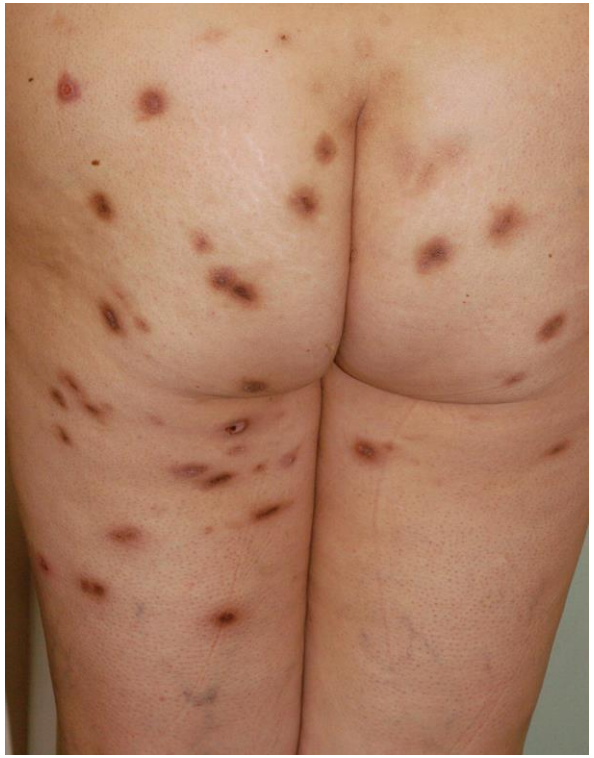


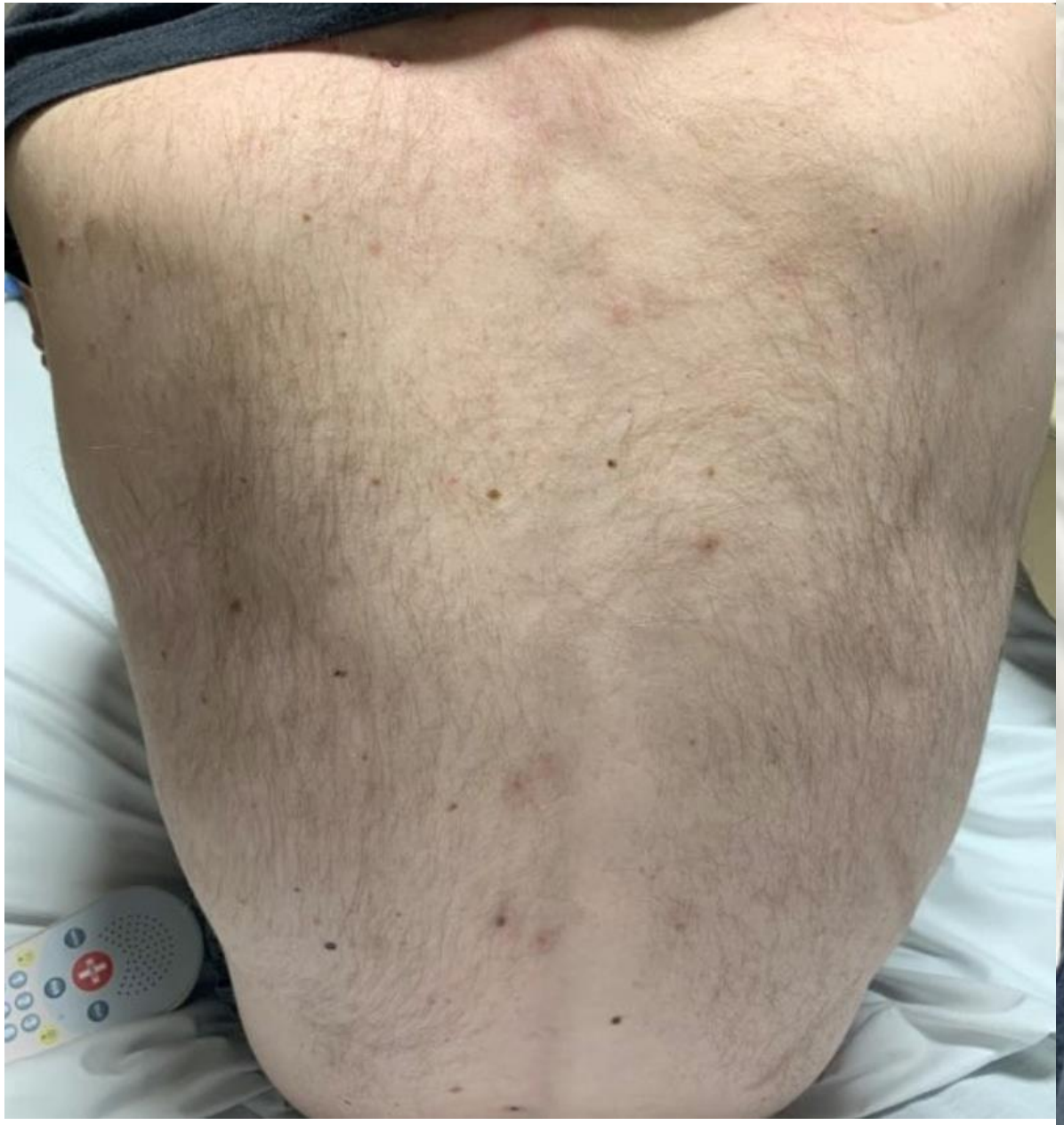
Neurotic Excoriations

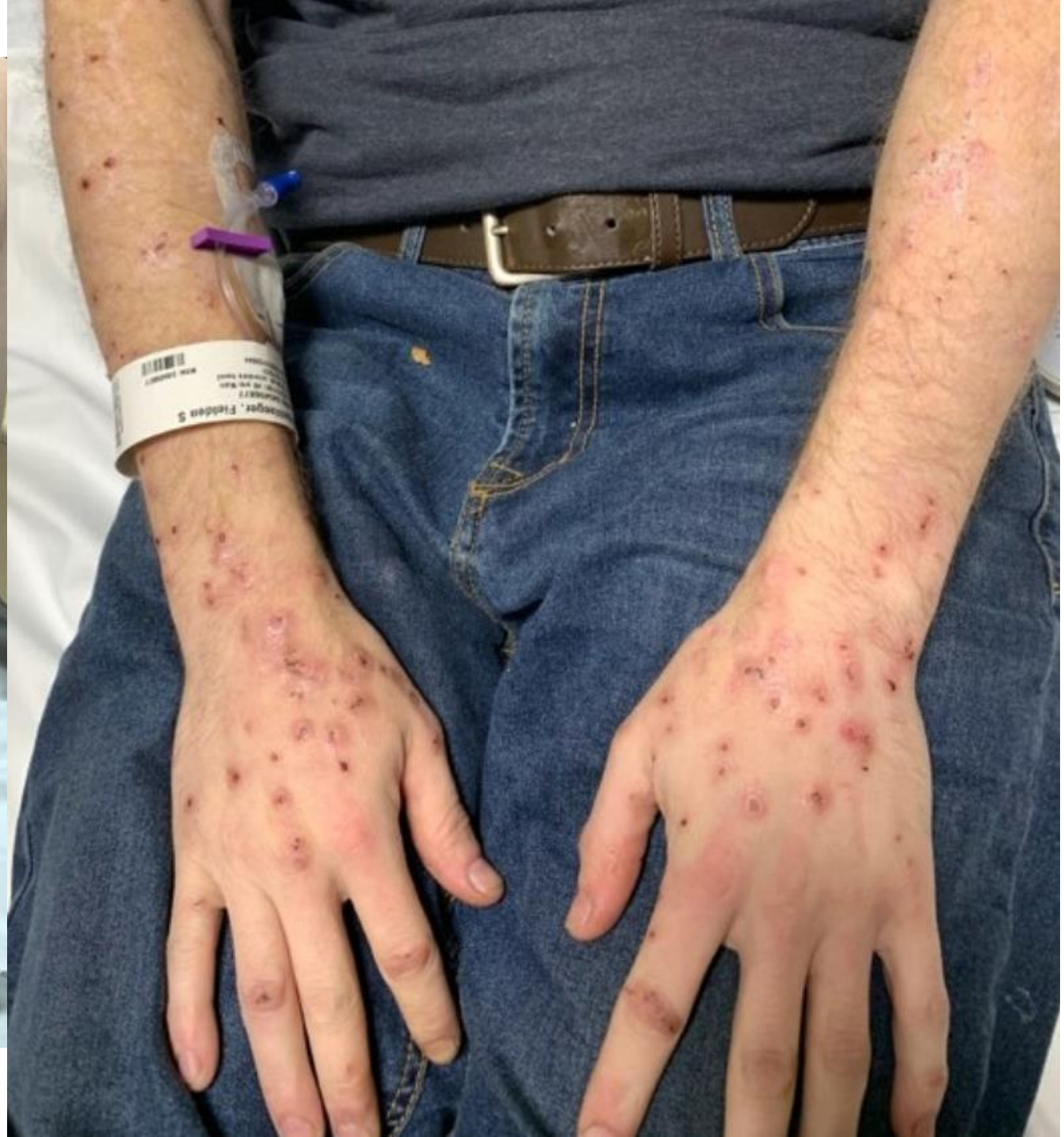




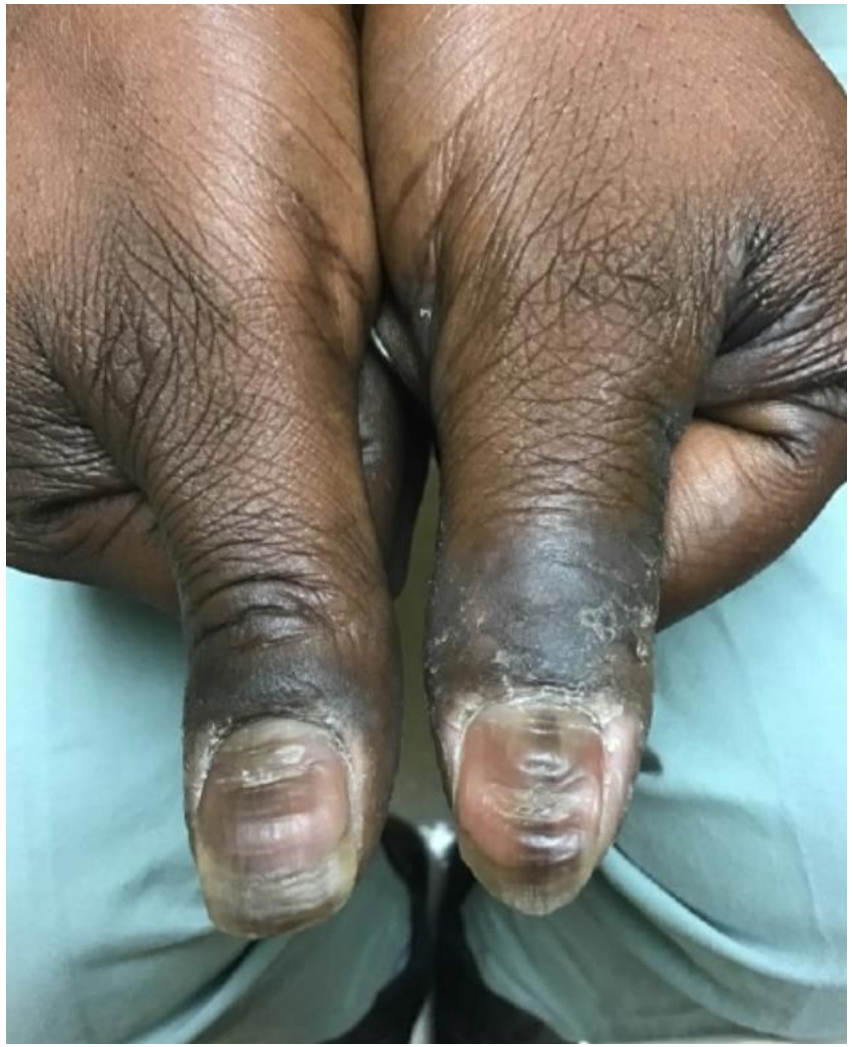








Habit Tic Deformity



Adverse Cutaneous Drug Reactions (ACDRs)

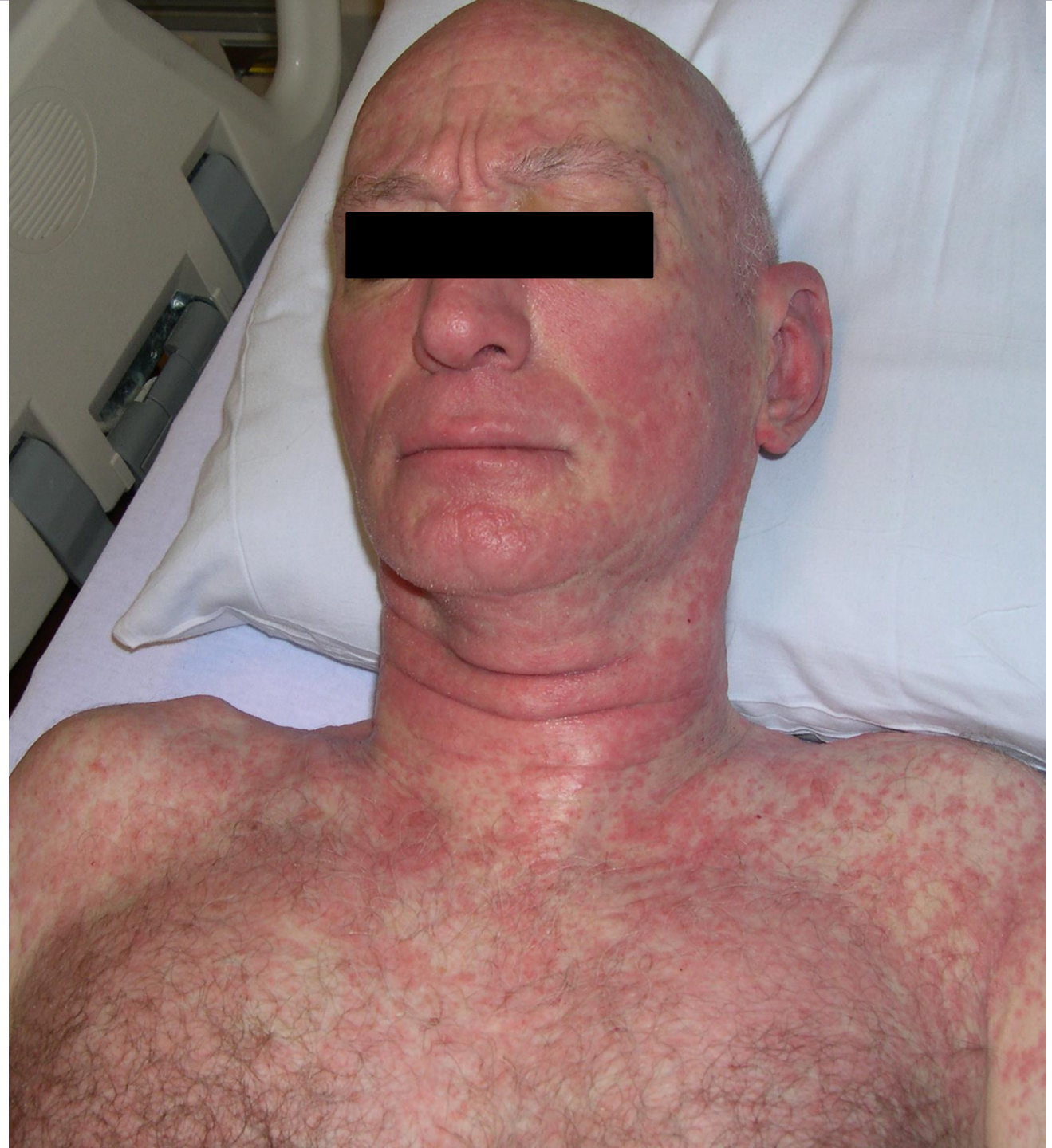
ACDR

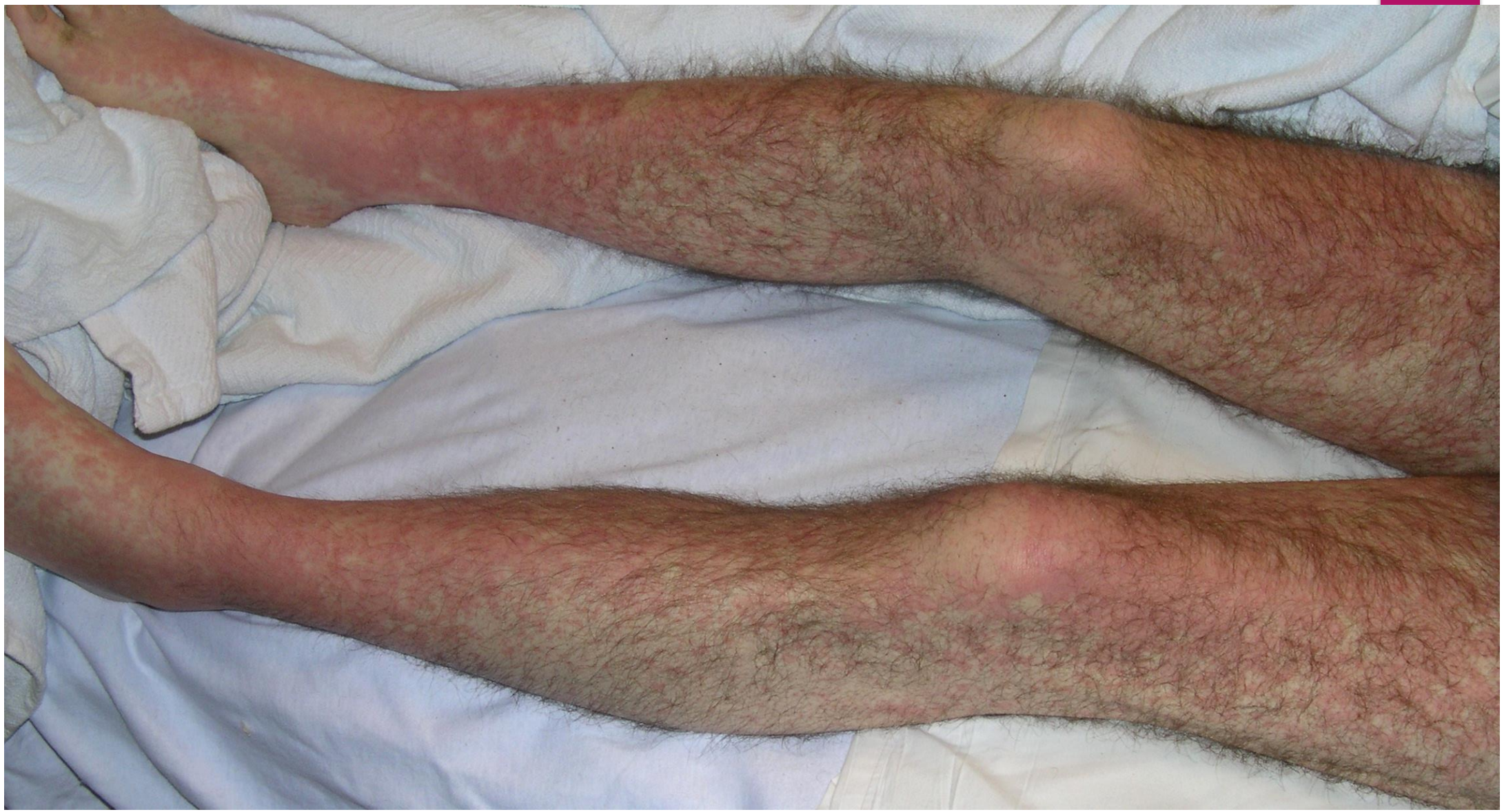
- HIV-positive pts 100x more susceptible to drug reactions than general population
  - advanced immunodeficiency = greater risk
- Trimethoprim-sulfamethoxazole is most common
  - 2–8% in the general population
  - 43-69% in HIV-positive pts
- Antituberculosis drugs: rifampicin, isoniazid, pyrazinamide and ethambutol, antiretrovirals
- Dapsone
- Antiretrovirals
- NSAIDs
- Anticonvulsants

- RFs
  - Polypharmacy
  - Slow acetylator status
  - Relative glutathione deficiency
    - increases probability of circulating toxic intermediates like hydroxylamine derivatives which play key role in inciting drug reaction
  - CD4+ T-cell counts of <200 cells/mm^3
  - Latent CMV and EBV
  - High CD8+ T-cell counts >460 cells/mm
  - UV is co-factor
- 95% morbilliform

Morbilliform Drug Eruptions

- Begins 4-14d after medication administration
- Presentation
  - Symmetric
  - Centripetal spread
  - Mucosae spared
- Treatment
  - Topical steroids
  - Systemic antihistamines
  - Liberal emollients



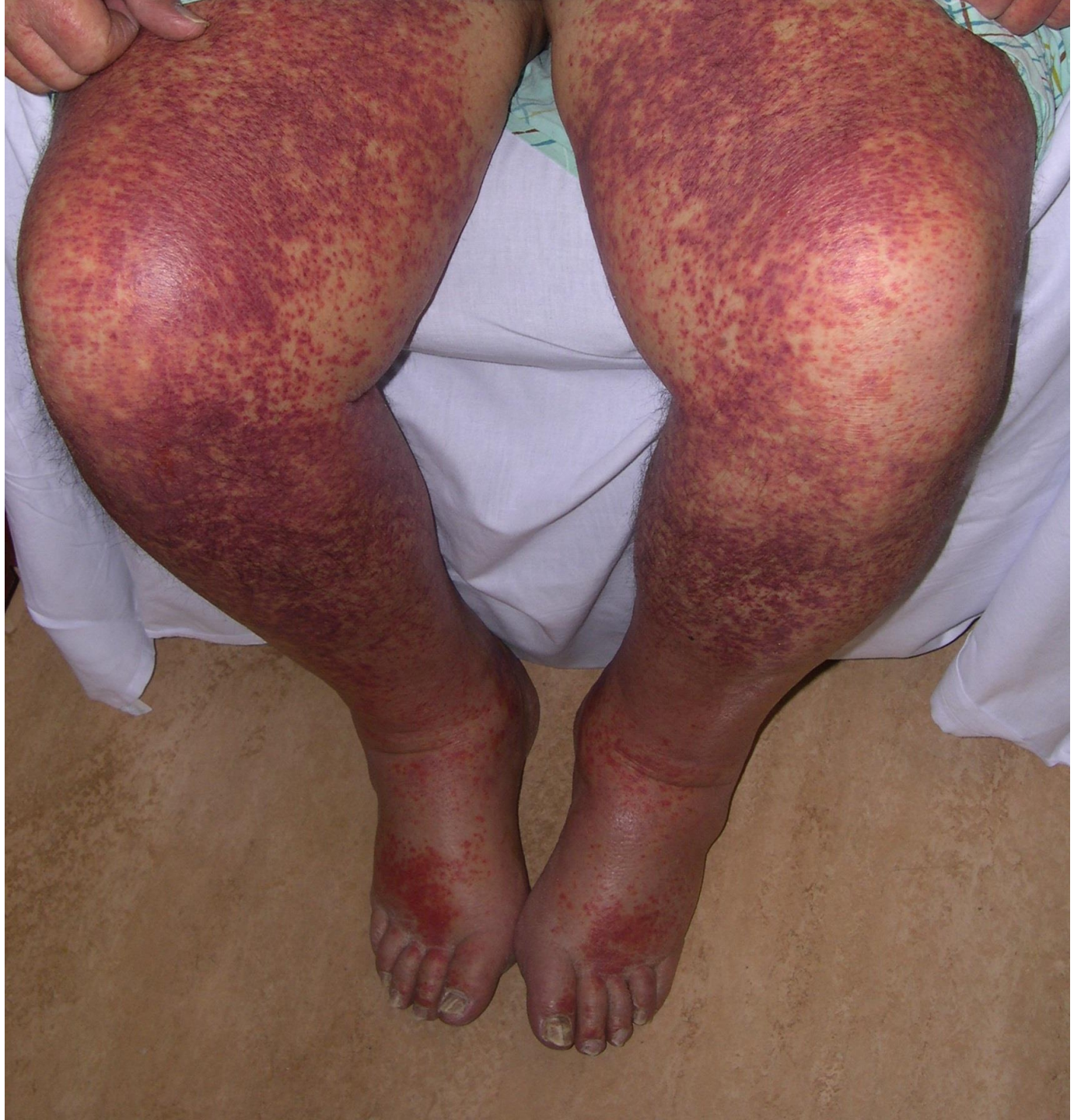


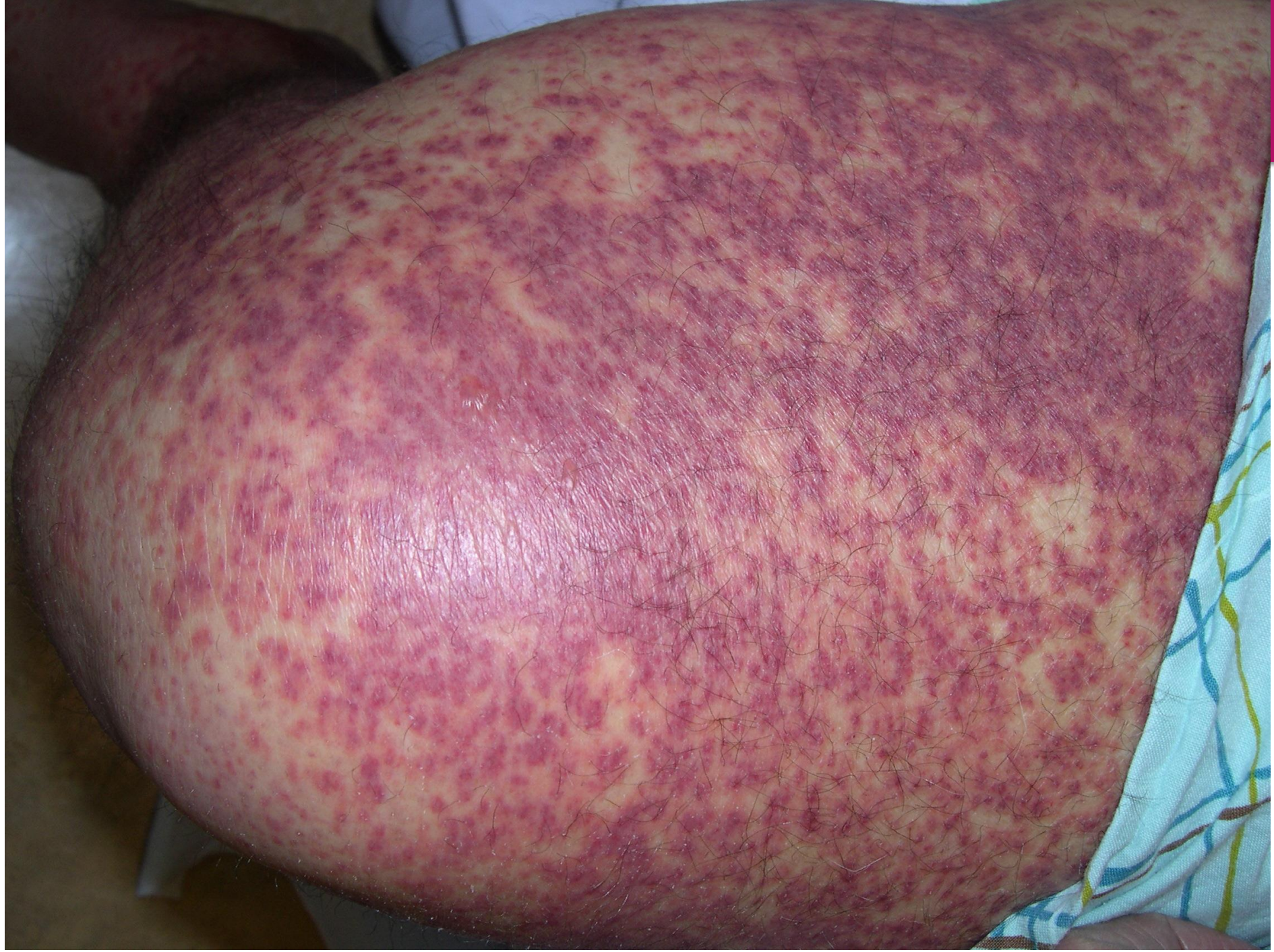
Adverse Event	ARV Agent(s) or Drug Class		Comments
	Switch from	Switch to	
Rash	NNRTIs (especially NVP and EFV)	PI- or INSTI-based regimen	Mild rashes that develop after initiation of NNRTIs other than NVP rarely require treatment switch. When serious rash develops due to any NNRTI, switch to another drug class.
	DRV/c, DRV/r	ATV/c, ATV/r, or another drug class (e.g., INSTI)	Mild rashes following DRV/r use may resolve without modification of therapy. For more severe reactions, change to an alternative boosted PI or an agent from another drug class.

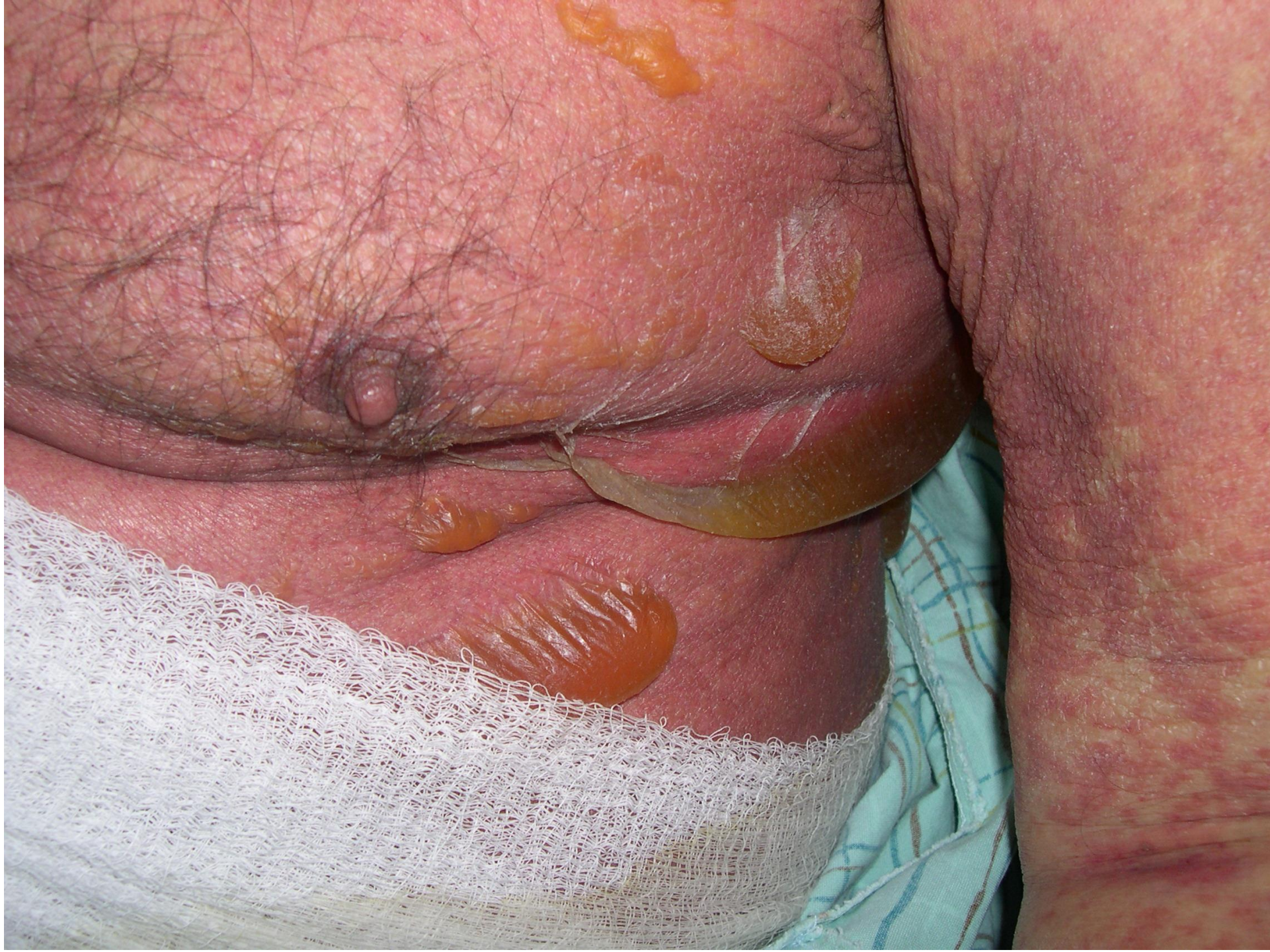
https://clinicalinfo.hiv.gov/en/guidelines/adult-and-adolescent-arv/adverse-effects-antiretroviral-agents

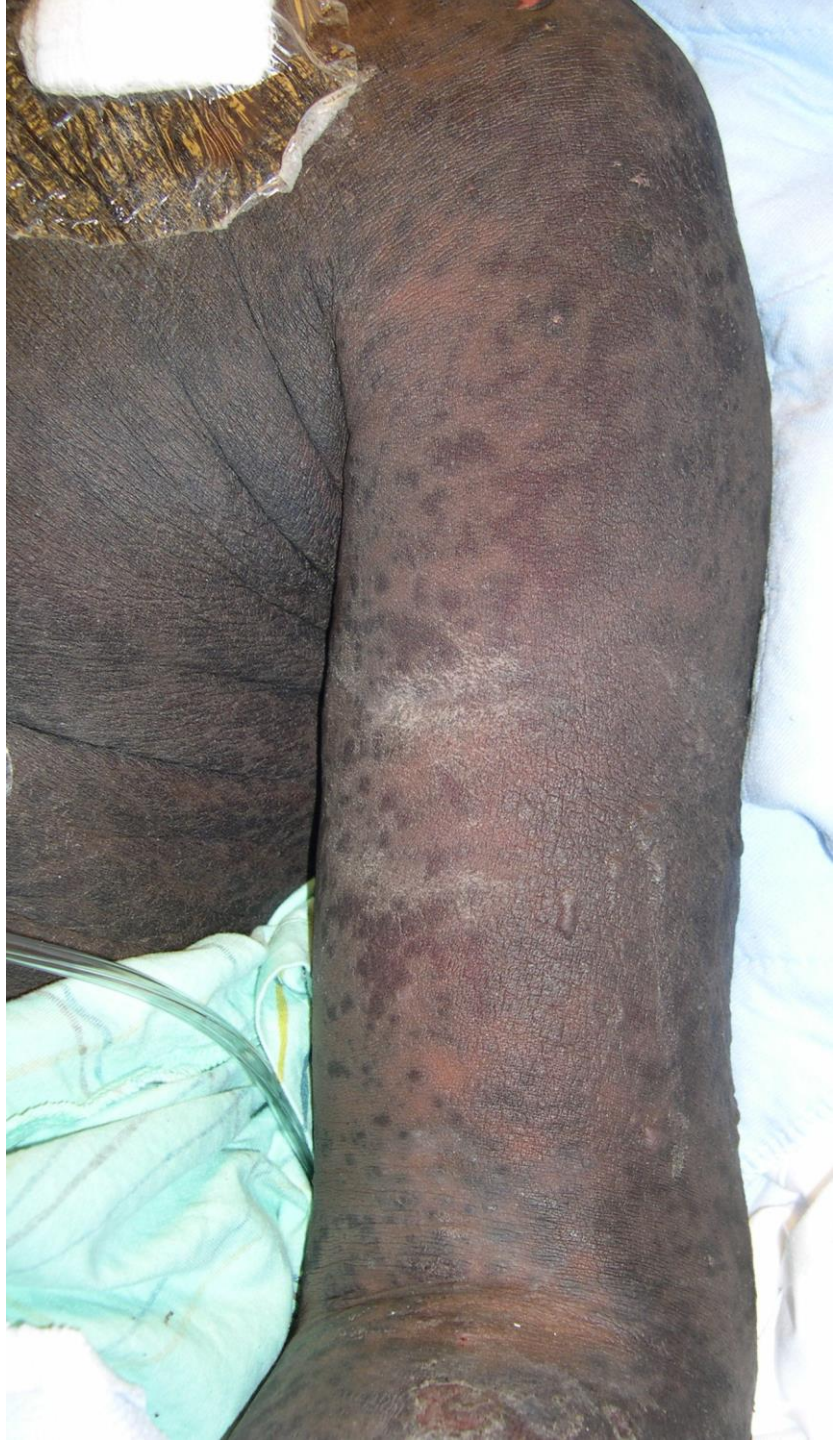
Hypersensitivity Syndrome

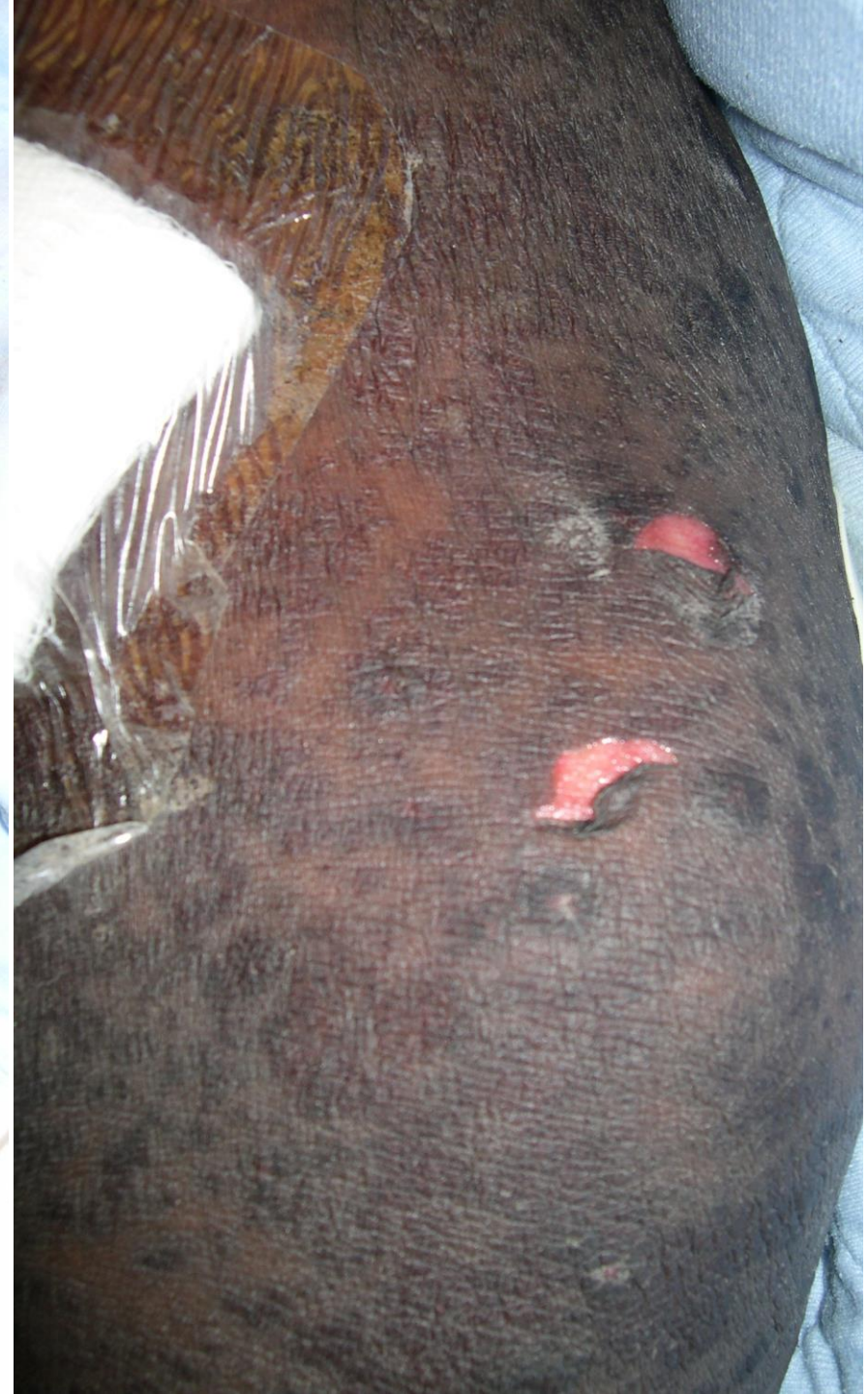
- life-threatening reaction which occurs in the first 6 weeks of antiretroviral therapy
- DRESS-like: rash + systemic features
  - fever, constitutional symptoms, gastrointestinal disturbances, respiratory symptoms, elevated LFTs with
  - rash reported in 70% of cases
- Elimination of Abacavir drug hypersensitivity syndrome following implementation of HLA-B57:01 screening
- nonnucleoside reverse transcriptase inhibitors (NNRTIs)
  - ~15% of patients starting treatment have ACDR
  - significant portion are SCAR: TEN, DRESSDRESS
  - drug-induced liver injury (DILI)
  - nevirapine

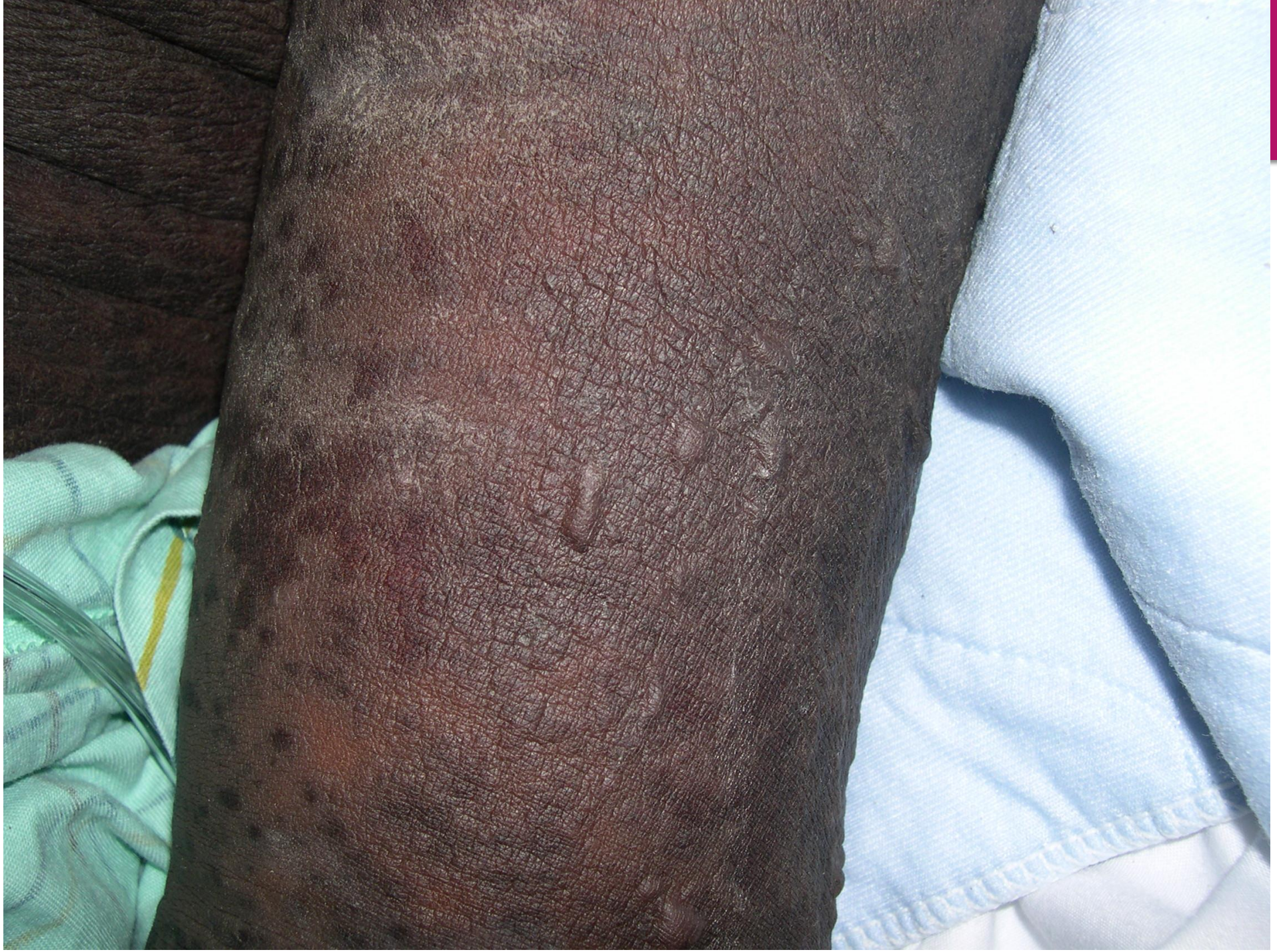


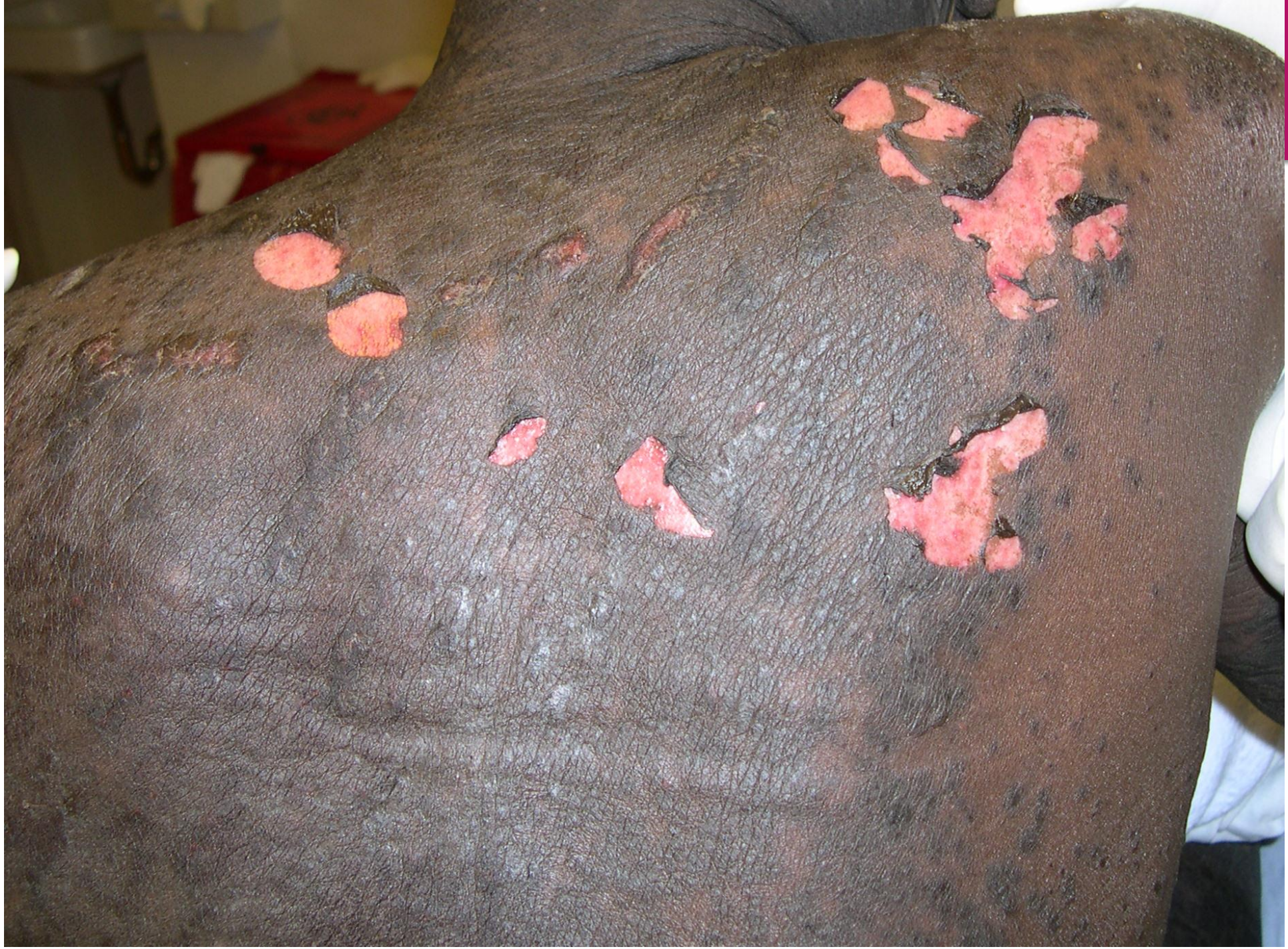












Adverse Effect	Drug Class				
	NRTIs	NNRTIs	PIs	INSTIs	EIs
Hypersensitivity Reaction Excluding rash alone or Stevens-Johnson syndrome	**ABC**: **Contraindicated** if patient is HLA-B*5701 positive. Median onset for HSR is 9 days after treatment initiation; 90% of reactions occur within 6 weeks. **HSR Symptoms (in Order of Descending Frequency)**: Fever, rash, malaise, nausea, headache, myalgia, chills, diarrhea, vomiting, abdominal pain, dyspnea, arthralgia, and respiratory symptoms Symptoms worsen with continuation of ABC. Patients should not be rechallenged with ABC if HSR is suspected, regardless of their HLA-B*5701 status.	NVP: Hypersensitivity syndrome of hepatotoxicity and rash that may be accompanied by fever, general malaise, fatigue, myalgias, arthralgias, blisters, oral lesions, conjunctivitis, facial edema, eosinophilia, renal dysfunction, granulocytopenia, or lymphadenopathy. Risk is greater for ARV-naive women with pre-NVP CD4 counts >250 cells/mm^3 and men with pre-NVP CD4 counts >400 cells/mm^3. Overall, risk is higher for women than men. A 2-week dose escalation of NVP reduces risk.	N/A	RAL: HSR reported when RAL is given with other drugs also known to cause HSRs. All ARVs should be stopped if HSR occurs. DTG: Reported in <1% of patients in clinical development program	MVC: HSR reported as part of a syndrome related to hepatotoxicity.
Rash	**FTC**: Hyperpigmentation	All NNRTIs	ATV, DRV, and LPV/r	All INSTIs	MVC, IBA, FTR
Stevens-Johnson Syndrome/Toxic Epidermal Necrosis	N/A	NVP > EFV, ETR, RPV	Some reported cases for DRV, LPV/r, and ATV	RAL	N/A

Key: 3TC = lamivudine; ABC = abacavir; ART= antiretroviral therapy; ARV = antiretroviral; ATV = atazanavir; ATV/r = atazanavir/ritonavir; BIC = bictegravir; BMD = bone mineral density; CAB = cabotegravir; CD4 = CD4 T lymphocyte; CNS = central nervous system; COBI = cobicistat; CPK = creatine phosphokinase; Cr = creatinine; CVD = cardiovascular disease; d4T = stavudine; ddC = zalcitabine; ddI = didanosine; DLV = delavirdine; DOR = doravirine; DRV = darunavir; DRV/r = darunavir/ritonavir; DTG = dolutegravir; ECG = electrocardiogram; EFV = efavirenz; EI = entry inhibitor; ETR = etravirine; EVG = elvitegravir; EVG/c = elvitegravir/cobicistat; FPV = fosamprenavir; FPV/r = fosamprenavir/ritonavir; FTC = emtricitabine; FTR = fostemsavir; GI = gastrointestinal; HBV = hepatitis B virus; HCV = hepatitis C virus; HDL = high-density lipoprotein; HSR = hypersensitivity reaction; IBA = ibalizumab; IDV = indinavir; IM = intramuscular; INSTI = integrase strand transfer inhibitor; LDL = low-density lipoprotein; LPV/r = lopinavir/ritonavir; MI = myocardial infarction; MVC = maraviroc; NFV = nelfinavir; NNRTI = non-nucleoside reverse transcriptase inhibitor; NRTI = nucleoside reverse transcriptase inhibitor; NVP = nevirapine; PI = protease inhibitor; RAL = raltegravir; RPV = rilpivirine; RTV = ritonavir; SCr = serum creatinine; SQ = subcutaneous; SQV = saquinavir; SQV/r = saquinavir/ritonavir; T-20 = enfuvirtide; TAF = tenofovir alafenamide; TC = total cholesterol; TDF = tenofovir disoproxil fumarate; TG = triglycerides; TPV = tipranavir; TPV/r = tipranavir/ritonavir; ULN = upper limit of normal; ZDV = zidovudine

THANK YOU!!

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