Rashes for Primary Care

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Starting from the top

- **Objective:** To provide a structured approach to identifying and differentiating facial rashes.
- **Key Points:**
  - Importance of accurate diagnosis.
  - Common conditions presenting as facial rashes.
    - Variations of common conditions
    - Mimickers of common conditions
  - Diagnostic framework.

- **History:**
  - Onset, duration, progression.
  - Associated symptoms (fever, pruritus).
  - Exposure history (allergens, drugs).
- **Physical Examination:**
  - Morphology and distribution.
  - Systemic involvement.
- **Investigations:**
  - Skin biopsy.
  - Patch testing.
  - Serology or cultures as needed.

Diagnosis

- **By Morphology:**
  - Papules (e.g., acne, rosacea).
  - Plaques (e.g., lupus, psoriasis).
  - Vesicles (e.g., herpes, contact dermatitis).
- **By Distribution:**
  - Perioral (e.g., perioral dermatitis).
  - Malar region (e.g., lupus).
  - Diffuse (e.g., drug reactions).

Common causes of facial rashes

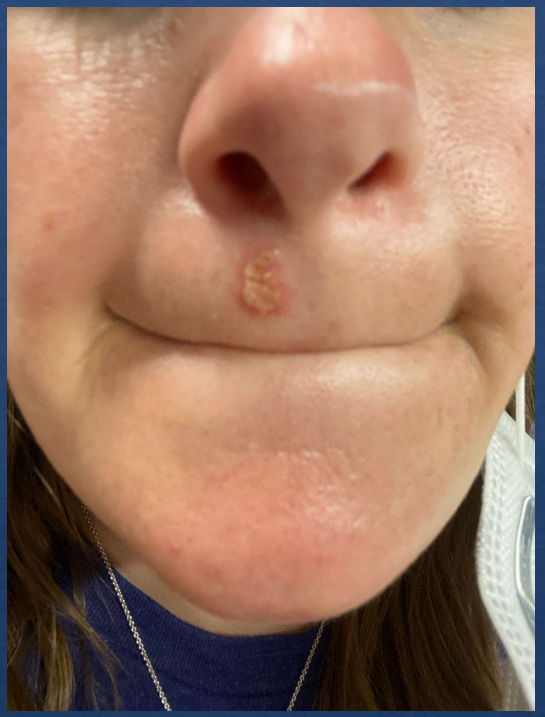
- Infectious causes.
- Inflammatory/autoimmune conditions.
- Allergic/contact reactions.
- Drug reactions.
- Miscellaneous causes (e.g., neoplastic).

Infectious

- **Bacterial:** Impetigo, cellulitis.
- **Viral:** Herpes simplex, varicella-zoster, measles.
- **Fungal:** Tinea faciei.
- **Parasitic:** Demodicosis.

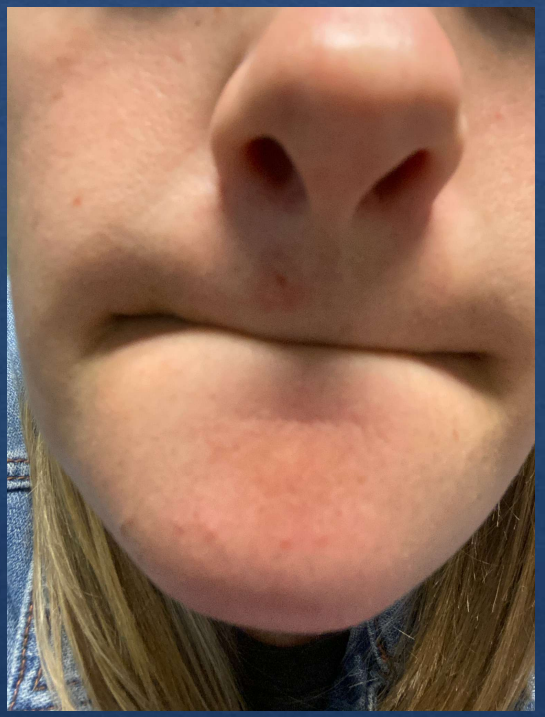
Case 1

- A few day history of slightly itchy crusty spot on right upper lip. Solitary lesion.



Impetigo

- Impetigo is a contagious, superficial bacterial infection observed most frequently in children ages two to five years, although older children and adults may also be affected
- Carriage of group A *Streptococcus* (GAS; *Streptococcus pyogenes*) and *Staphylococcus aureus* predisposes to subsequent impetigo
- Benefits of topical therapy include fewer side effects and lower risk for contributing to bacterial resistance compared with oral therapy
- The recommended length of treatment is five days



Case 2

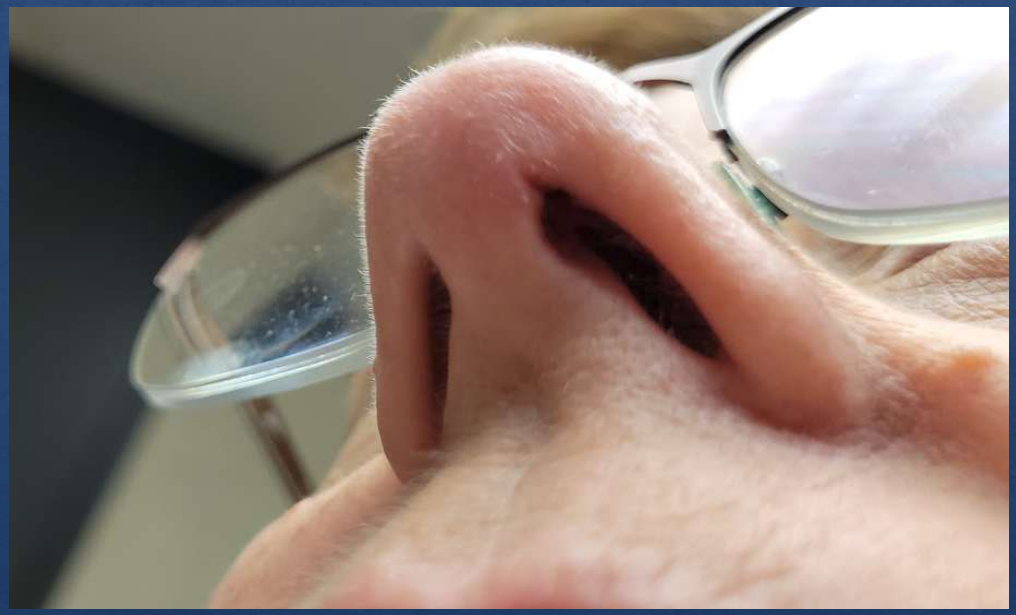
- 18 year develops an acneiform eruption mostly in the beard area over the last week or so. It seems to be getting worse. It is symmetrical. Feels irritated. His acne has been relatively mild until this episode.

Impetigo

- Physical examination shows comedonal acne on the temples but now also has involvement on the earlobe.

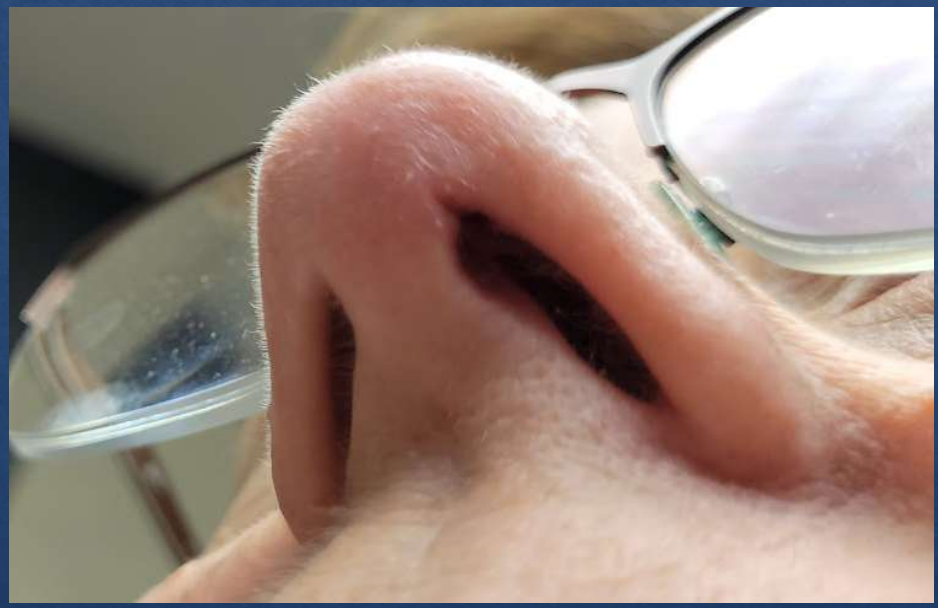
Case 3

- Patient presents with a tender lesion on the underside of the left opening of the nares. It has come and gone over the last few months. They have a history of mild seasonal allergies.



Staphylococcal nasal carrier

- Up to 30% of the human population are asymptomatically and permanently colonized with nasal *Staphylococcus aureus*.
- *Staphylococcus aureus* can be found in different body sites like the skin, rectum, vagina, gastrointestinal tract and axilla, the anterior nares appearing as the main reservoir.



Staph nasal carrier

- In addition, this study found a nasal carriage concordance in 68% of infant–mother pairs attesting the role of environmental factors in *S. aureus* carriage
- Another study found identical strains in 80% of infant–mother pairs. In 90% of these newborns, the source of *S. aureus* was the maternal nasal strain
- More common with obesity and atopic individuals
  - Front Microbiol 2018 Oct 8;9:2419.

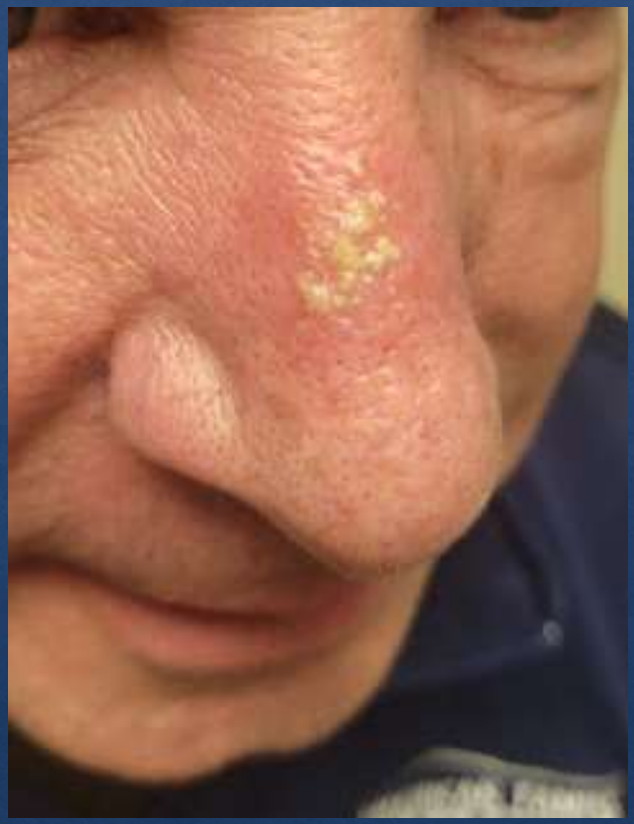
Pre-surgical Nasal Decolonization of *Staphylococcus aureus*

Ont Health Tech Asses 2022 Aug 23;22(4):1-165

- Based on the best evidence available, decolonization of *S. aureus* using nasal mupirocin combined with chlorhexidine body wash prior to cardiothoracic, vascular, orthopedic, gastrointestinal, or general surgery **lowers the incidence** of surgical site infection caused by *S. aureus* in patients who are *S. aureus* carriers (including methicillin-susceptible and methicillin-resistant strains) (i.e., targeted decolonization).
- **However**, nasal mupirocin alone may result in **little to no difference** in overall surgical site infections and *S. aureus*-related surgical site infections in pre-surgical patients prior to orthopedic, cardiothoracic, general, oncologic, gynecologic, neurologic, or abdominal digestive surgeries, regardless of their *S. aureus* carrier status
- Universal and targeted nasal decolonization using mupirocin combined with chlorhexidine body wash would prevent 32 and 22 *S. aureus*-related surgical site infections, respectively, per 10,000 patients in Ontario
- Universal nasal decolonization would lead to cost savings, whereas targeted nasal decolonization would increase the overall cost for the health care system since patients must first be screened for *S. aureus* carrier status before receiving nasal decolonization with mupirocin.

Case 4

- A few day history of a tender growing pustular eruption on nose



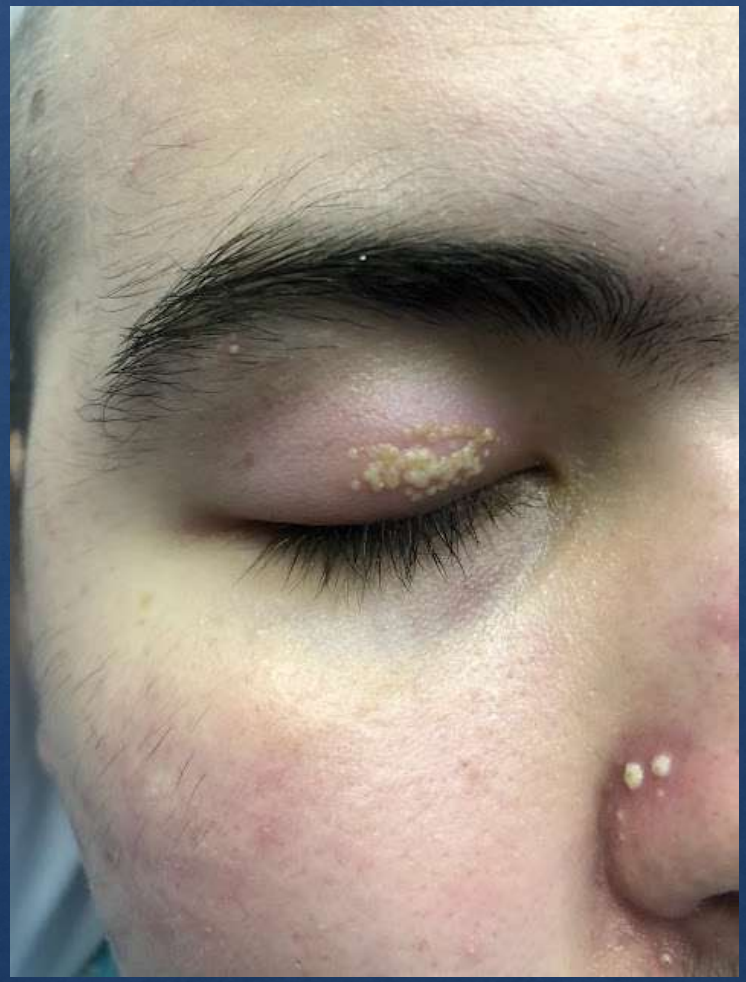
J Microbiol Immunol Infect. 2019 Jun;52(3):494-497.

Role of nasal swab culture in guiding antimicrobial therapy for acute cellulitis in the era of community-acquired methicillin-resistant Staphylococcus aureus: A prospective study of 89 patients

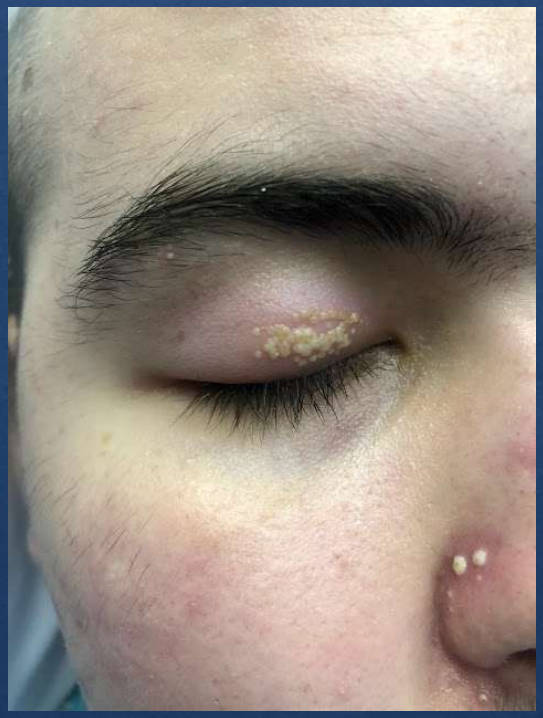
- Our prospective study, designed to be as close to ordinary practice scenarios as possible, found that nasal MRSA carriage has a high specificity (95%) in predicting MRSA cellulitis.
- This high specificity may allow a recommendation of antimicrobial therapy against MRSA in acute cellulitis patients with nasal MRSA carriage as well as other risk factors for MRSA infections, such as recent stay in healthcare facilities.
- However, the sensitivity (20%) was less impressive than the 55%–62% reported in two previous retrospective studies.

Case 6

- This teenage noted painful eruptions starting on the right upper eyelid as well as on the right side of nose.
  - How would you diagnosis it?
  - How would you treat it?



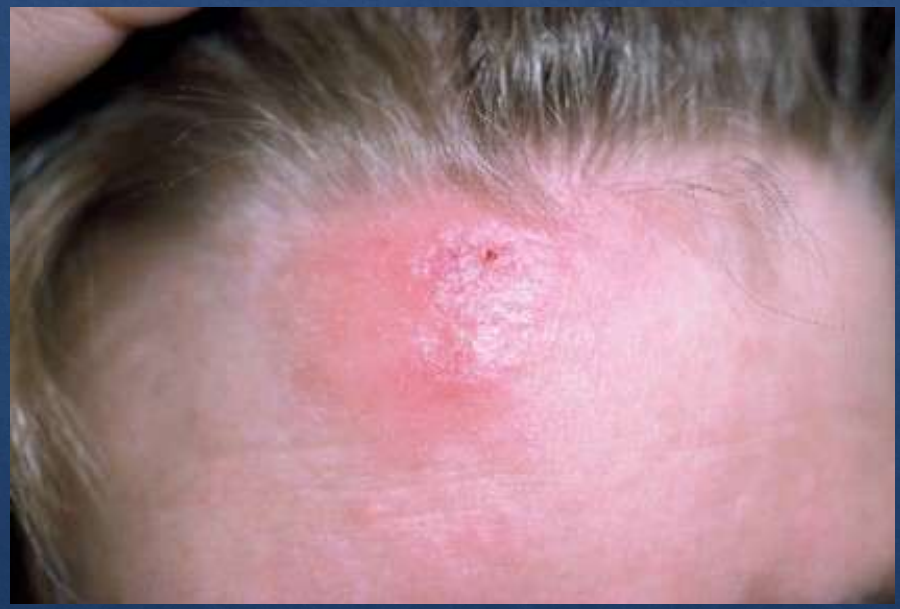
Herpes simplex/eczema herpeticum



- Eczema herpeticum (EH) is a secondary infection of eczematous skin with human herpes simplex virus (HSV).
- EH occurs most commonly in the setting of atopic dermatitis
- EH is a dermatologic emergency that requires prompt antiviral therapy.
- Extensive gingivostomatitis, which may impact oral intake
  - Ocular involvement (keratoconjunctivitis, keratitis)
  - Viremia
  - Meningoencephalitis
  - Hepatitis
  - Lymphopenia, eosinophilia, and lymphadenopathy
  - •Secondary infection with *S. aureus* and bacteremia
- Recurrences occur in over 20%

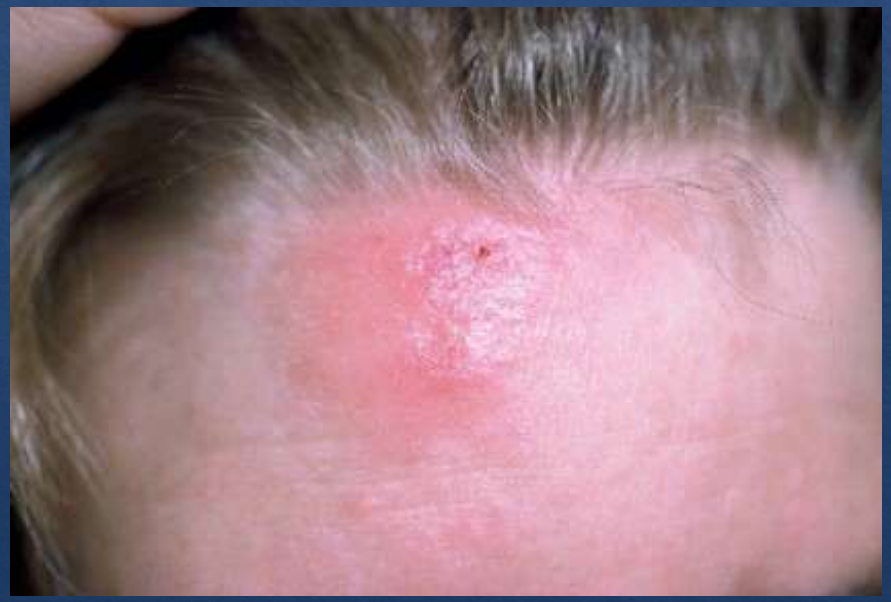
Case 7

- This almost 60 yo female presented with a tender area of a few days duration on the right upper forehead. She is otherwise healthy with no history of trauma or exposure.



Herpes zoster

- Begins with a prodrome of headache, malaise, and fever as well as unilateral pain or hypesthesia
- With the onset of the rash, hyperemic conjunctivitis, uveitis, episcleritis, and keratitis may occur
- Patients who develop epithelial or stromal keratitis are most at risk for vision loss.
- For most patients, we administer valacyclovir (1 g three times per day) for 7 to 10 days **and** prednisone (1 mg/kg for five days, without a taper



Treatment of herpes zoster

- **Corticosteroids for preventing postherpetic neuralgia**
  - Cochrane Database Syst Rev. 2010 Dec 8;(12):CD005582 & 2013 Mar 28:(3):CD005582
  - Five trials were included with 787 participants in total.
- There is moderate quality evidence that corticosteroids given acutely during zoster infection are ineffective in preventing postherpetic neuralgia.
- In people with acute herpes zoster the risks of administration of corticosteroids do not appear to be greater than with placebo, based on moderate quality evidence.
- Corticosteroids have been recommended to relieve the zoster-associated pain in the acute phase of disease

Treatment of herpes zoster
Valacyclovir vs famciclovir

- Indian J Pharmacol. 2020 Nov-Dec;52(6):472-475
  - Oral valacyclovir administered during acute zoster infection for a period of 7 days offers significant benefit compared to famciclovir by providing a well tolerated and greater resolution of pain
- J Dermatol. 2012 Nov;39(11):902-8.
  - A significant reduction in the number of patients with pain was observed as early as days 3-4 with famciclovir treatment as compared with valacyclovir treatment.
  - We conclude that famciclovir was superior to valacyclovir in the relief of acute pain of herpes zoster.
- Am J Ther. 2018 Nov/Dec;25(6):e626-e634
  - There was no significant difference between mild and moderate HZ patients.
  - In severe cases, a significant reduction in intensity of pain was observed on day 3 in the brivudine group, on day 7 in the famciclovir group, and at 2-3 weeks in the valacyclovir group.
- Arch Fam Med. 2000 Sep-Oct;9(9):863-9
  - No statistically significant differences for valacyclovir vs famciclovir on resolution of zoster-associated pain
  - Furthermore, no differences were evident between treatments on rash healing rates and on a range of analyses of postherpetic neuralgia.

Case 8

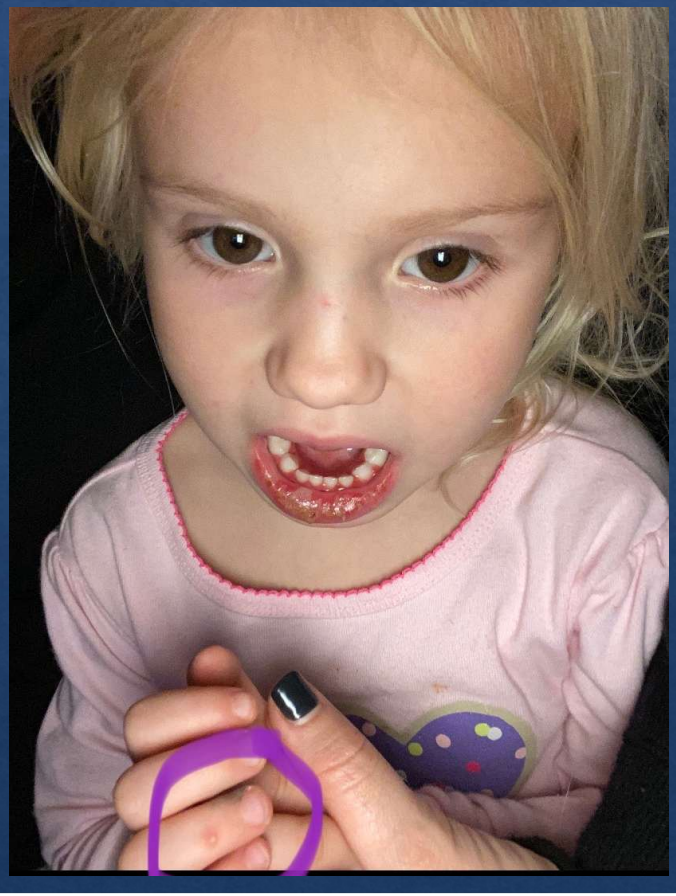
- Young patient presents with a one-to-two-month history of an asymptomatic solitary papule

Molluscum contagiosum

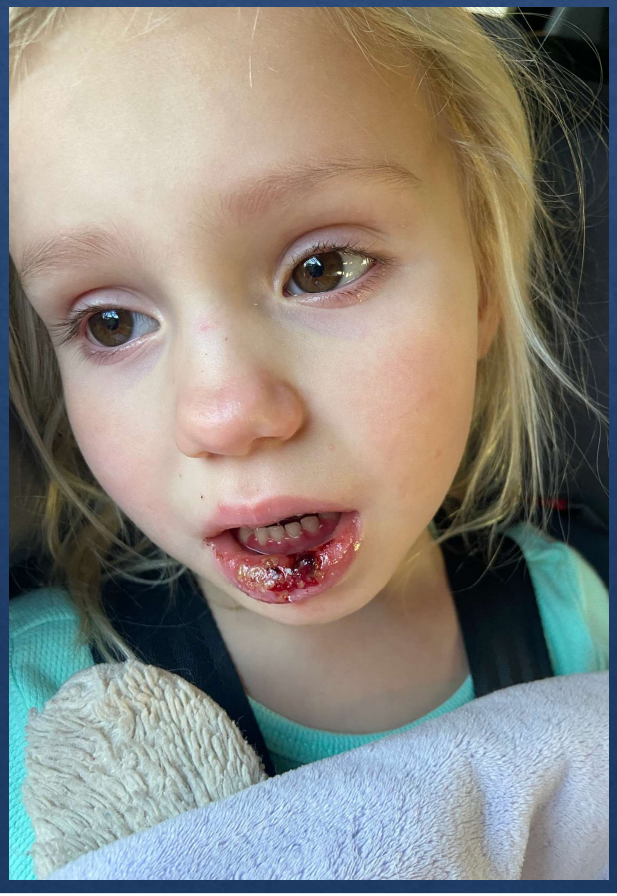
- Molluscum contagiosum virus (MCV) is a poxvirus
- Treatment options include cryotherapy, laser therapy, curettage, imiquimod, cantharidin, podophyllotoxin cream, salicylic acid, potassium hydroxide
- The destructive methods and topical agents reviewed below should not be utilized on lesions involving the ocular mucosa or eyelids
- Retinoids
  - Tretinoin (0.5% cream, 0.1% cream, or 0.025% gel), adapalene, and tazarotene have been used for the treatment of molluscum
  - Cimetidine is an H_2 antihistamine that has also been found to have immunomodulatory properties.
  - Data conflict on the efficacy of this agent for molluscum contagiosum

Case 9

One day history of low grade fever with onset of oral and hand lesions



24 hours later



Hand Foot Mouth

- Coxsackievirus A16 and enterovirus A71 (EV-A71) are the serotypes most frequently associated with HFMD
- Virus may be detected in the stool for six weeks and sometimes for several months after infection.
- The incubation period for HFMD typically is three to five days
- The diagnosis of HFMD usually is made clinically
- Complete resolution of symptoms and signs typically occurs within 7 to, at most, 10 days
- In a meta-analysis of 19 studies from the Asia-Pacific region (thus focused on HFMD caused by enterovirus A71 [EV-A71] rather than classic HFMD)
  - Temperature ≥37.5°C (99.5°F)
  - Fever (≥37.5°C [99.5°F]) ≥3 days
  - Lethargy
  - Vomiting
  - EV-A71 infection
  - Young age
- Laboratory studies not helpful
- Management is mainly supportive.

HFM

- **Drug Repositioning for Hand, Foot, and Mouth Disease**
  - Viruses 2022 Dec 27;15(1):75
  - The Nobel laureate James Black said that “the most fruitful basis of the discovery of a new drug is to start with an old drug”, and, accordingly, drug repurposing/repositioning represents an attractive drug discovery strategy
  - Drug repositioning reduces the research and development time, as in the case of remdesivir, which was approved for the treatment of SARS-CoV-2 about 1 year after the outbreak of the pandemic

Approved drugs repurposed for HFMD.

Classification.	Drug	Company (Action Date)	Previous Use(s)	Repurposed Use(s)	Clinical Phases
Anti-fungal	**Itraconazole** (**1**)	SANDOZ (05/28/2004)	deep fungi infection	a broad-spectrum enterovirus inhibitor	Preclinical
	Micafungin (**2**)	FRESENIUS KABI USA (05/17/2019)	candida infection	may target any step in the early viral infection	Preclinical
	Amphotericin B (**3**)	XGEN PHARMS (04/29/1992)	cryptococcus infection	inhibit the production of EV71	Preclinical
Anti-bacterial	**Azithromycin** (**4**)	OAK PHARMS INC (04/27/2007)	respiratory tract infection	reduce the RNA and protein levels of EV-71	Preclinical
	Spiramycin (**5**)	Odan Laboratories Ltd. (12/31/1957)	Respiratory infection	inhibit virus RNA replication	Preclinical
	Minocycline (**6**)	FOAMIX (10/18/2019)	broad-spectrum antibiotic	suppress cytokine productions and viral protein expressions	

HFM

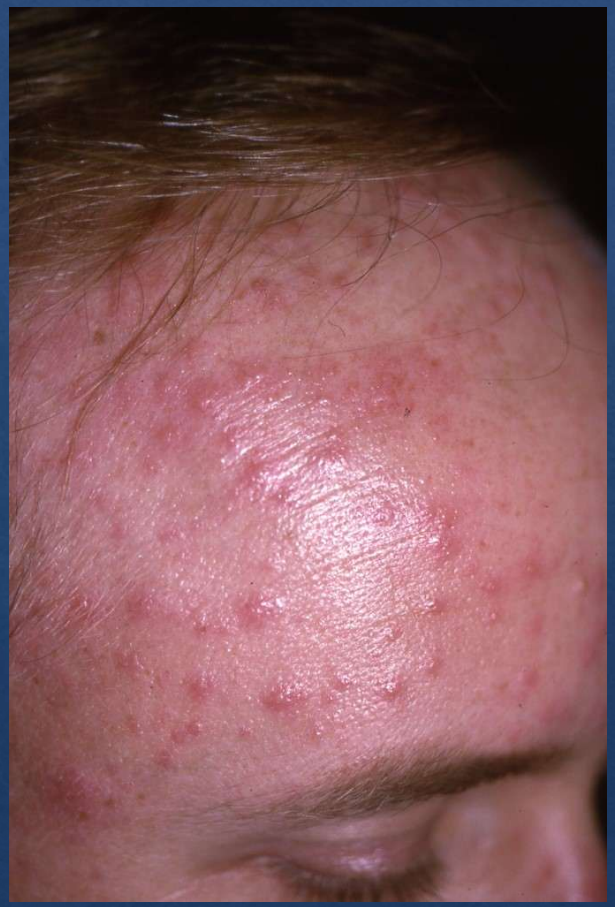
Fluoxetine (**20**)	APNAR PHARMA LP (08/02/2001)	antidepressant	inhibit CVB3 proliferation	Preclinical
Chloroquine (**27**)	SANDOZ (11/30/1995)	malaria	block the uncoating of EV71 and reduce viral RNA synthesis	Preclinical

Enteroviruses and coronaviruses: similarities and therapeutic targets
Expert Opin Ther Targets 2021 Jul 29:1–11.

- The main protease of coronaviruses and enteroviruses share similarities in their structure and function.
- These proteases process their viral polyproteins and thus drugs that bind to the active site have potential to target both virus groups.
- It is important to develop drugs that target more evolutionarily conserved processes and proteins.
- Moreover, it is a wise strategy to concentrate on processes that are similar between several virus families.

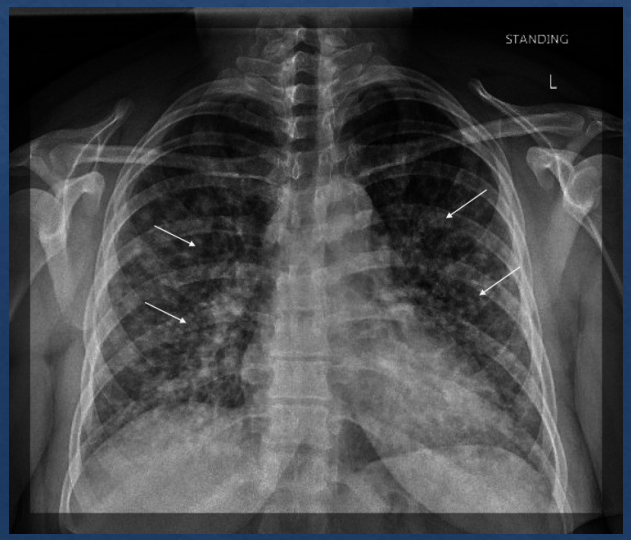
Case 10

- 38 year old male presents with a few day history of nonproductive cough and an itchy rash starting on the face and scalp over the last day with a low grade fever.



VZV-chickenpox

- Varicella-zoster virus (VZV) is one of eight herpesviruses known to cause human infection and is distributed worldwide. VZV infection causes two clinically distinct forms of disease: varicella (chickenpox) and herpes zoster (shingles).
- Pneumonia accounts for the majority of morbidity and mortality seen in adults with varicella, although it is infrequently seen since the introduction of vaccine (eg, 60 per 10,000 cases)
- Left untreated, the mortality associated with varicella pneumonia is high and ranges from 10-30 percent in the literature for adults



VZV-Chickenpox

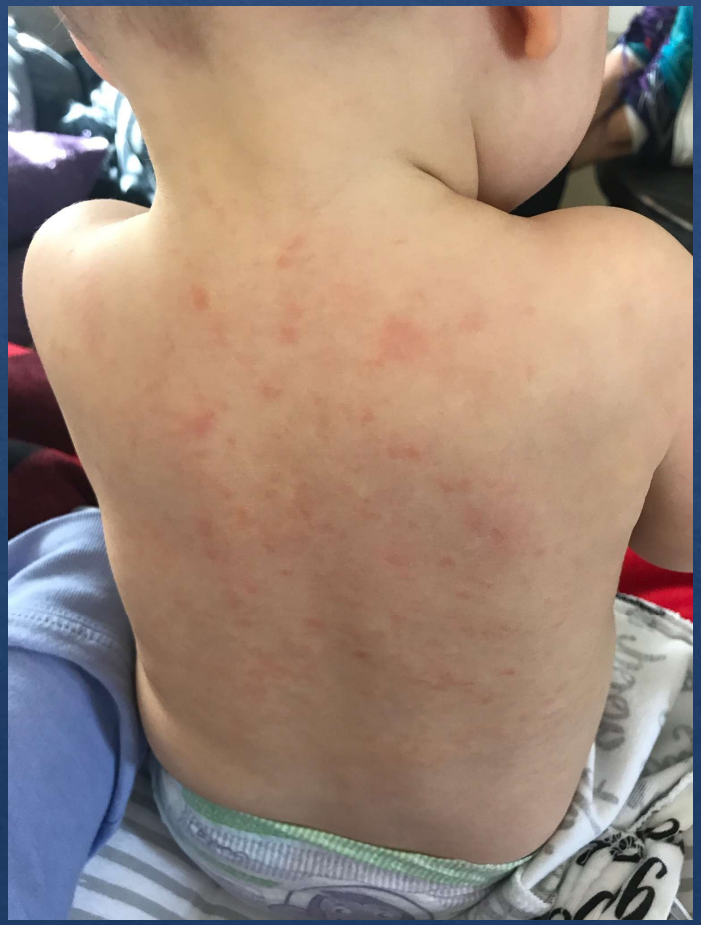
- **Early Treatment with Acyclovir for Varicella Pneumonia in Otherwise Healthy Adults: Retrospective Controlled Study and Review**
  - *Reviews of Infectious Diseases*, Volume 12, Issue 5, September 1990, Pages 788–798
- The group that received early acyclovir treatment had a lower mean temperature beginning on the fifth day of hospitalization (37.0°C vs. 37.7°C; *P* = .011) and a lower mean respiratory rate beginning on the sixth day of hospitalization (21 vs. 28 respirations per minute; *P* = .004).
- Early acyclovir therapy also resulted in a significant improvement in oxygenation beginning on the sixth day of hospitalization in patients with follow-up arterial blood gas measurements (*P* = .035).
- Thus, early institution of acyclovir therapy is associated with reduction in fever and tachypnea and improvement in oxygenation in otherwise healthy adults with varicella pneumonia.

Chickenpox in a Vaccinated Adult
Gen Int Med 2019 Mar;34(3):479-480.

- This patient developed chickenpox almost two decades after being vaccinated. Each year after vaccination, the rate of breakthrough varicella increases.
- A meta-analysis found approximately 80% effectiveness for a single dose in preventing varicella disease of any severity and over 99% effectiveness in preventing severe disease (defined by > 500 lesions, complications requiring medical care, hospitalization, or death).
- Two doses increased the mean effectiveness to approximately 92 to 93% in preventing breakthrough varicella of any severity.
- This patient was treated with a 7-day course of valacyclovir and was advised to stay home from work for two weeks.

Case 11

- This 11-month-old patient presented with fever, nonproductive cough, runny eyes, and rash. No known exposure history.

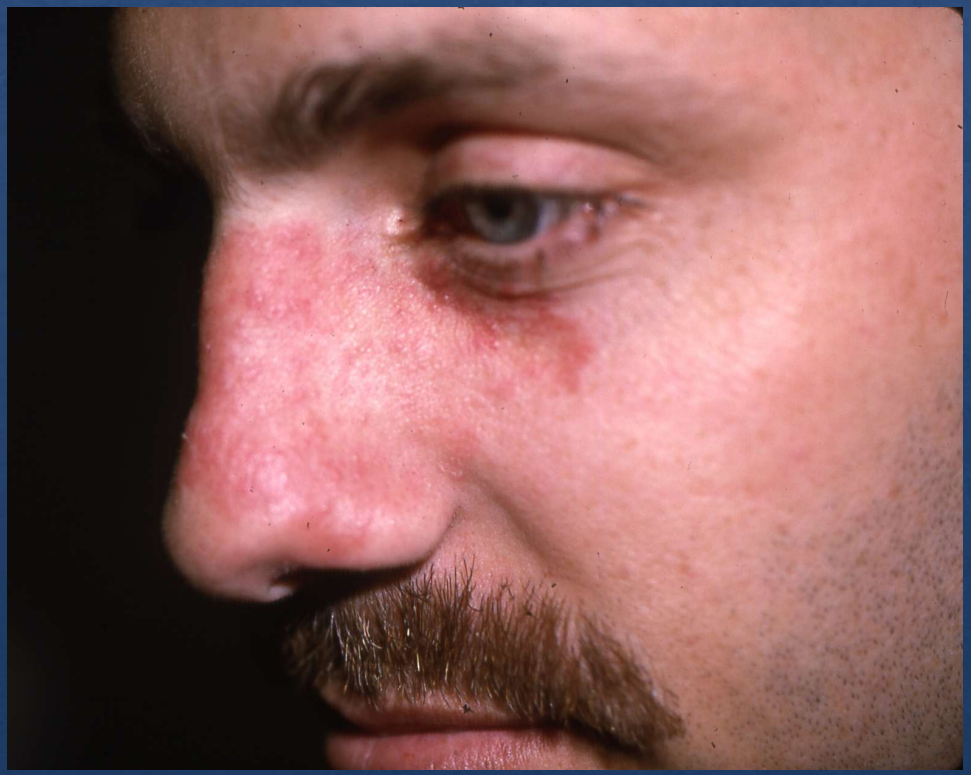


Measles

- The incubation period for measles is 6 to 21 days (median 13 days)
- The prodrome usually lasts for two to four days but may persist for as long as eight days.
- It is defined by the appearance of symptoms that typically include fever, malaise, and anorexia, followed by conjunctivitis, coryza, and cough
- The exanthem of measles arises approximately two to four days after onset of fever; it consists of an erythematous, maculopapular, blanching rash, which classically begins on the face and spreads cephalocaudally and centrifugally to involve the neck, upper trunk, lower trunk, and extremities
- Modified measles is an attenuated infection that occurs in individuals with pre-existing measles immunity (either via wild-type disease or vaccination).
- Given the risk of measles-associated mortality among individuals in certain risk groups, we agree with some experts who favor use of ribavirin for treatment of measles pneumonia in patients <12 months, patients ≥12 months with pneumonia requiring ventilatory support, and immunosuppressed patients.
  - It is a guanosine (ribonucleic) analog used to stop viral RNA synthesis and viral mRNA capping, thus, it is nucleoside analog. When metabolized, it resembles purine RNA nucleotides and interferes viral replication.

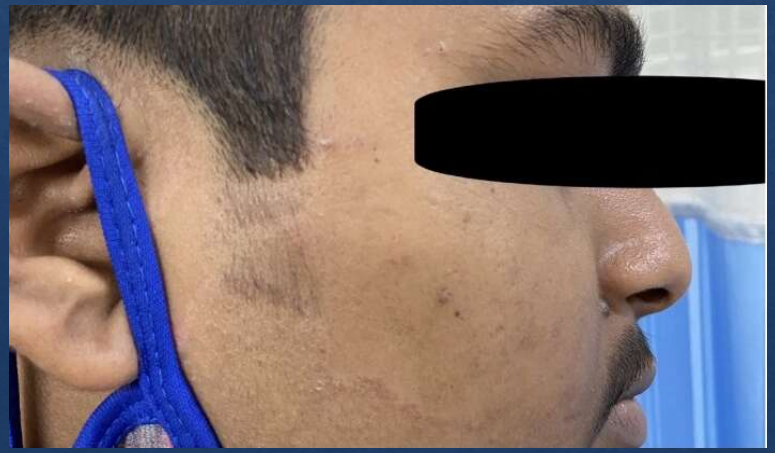
Case 12

- This 30 year old male presents with a slowly enlarging rash on the central face that is slightly itchy.



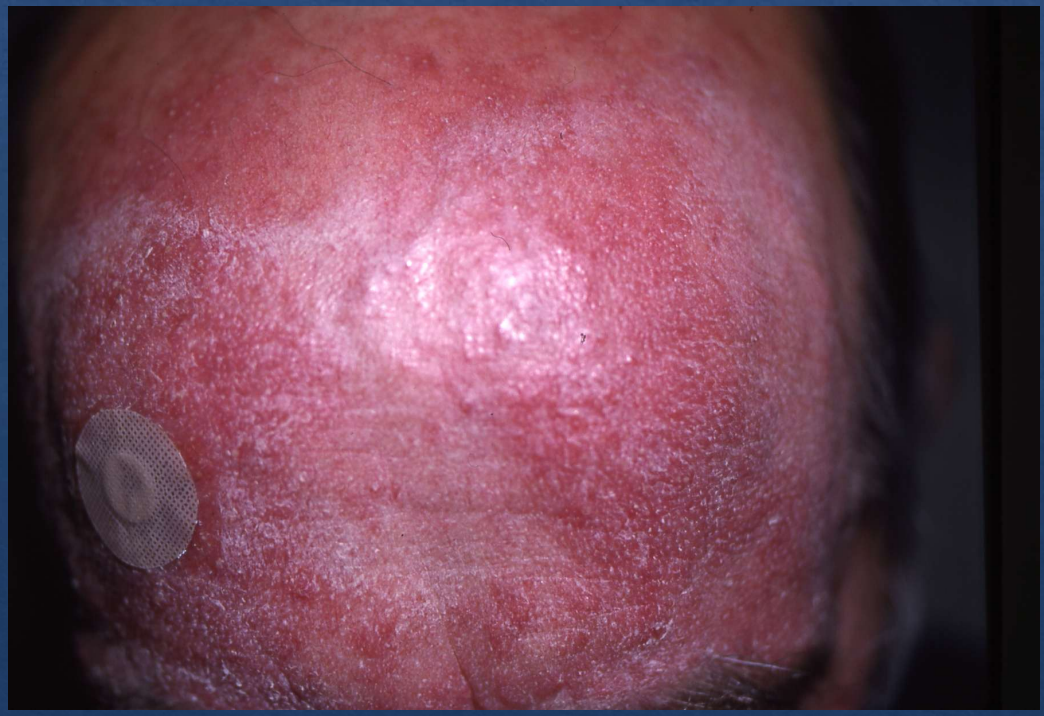
Dermatophyte

- **‘Mask tinea’: tinea faciei possibly potentiated by prolonged mask usage during the COVID-19 pandemic**
  - Clin Exp Dermatol 2021 Jan 1;46(1):190–1
- Face masks create a humid microenvironment due to occlusion and increased sweating, which are the perfect conditions for the fungus

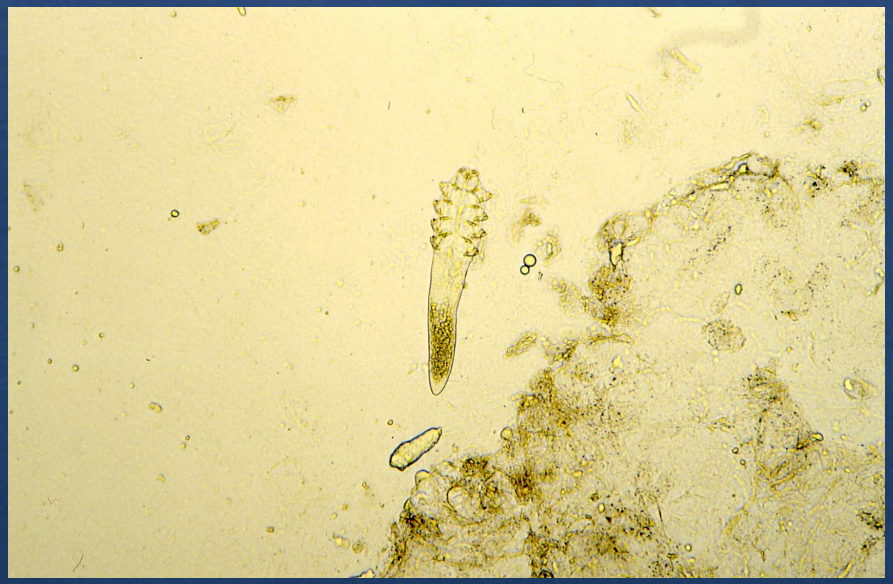


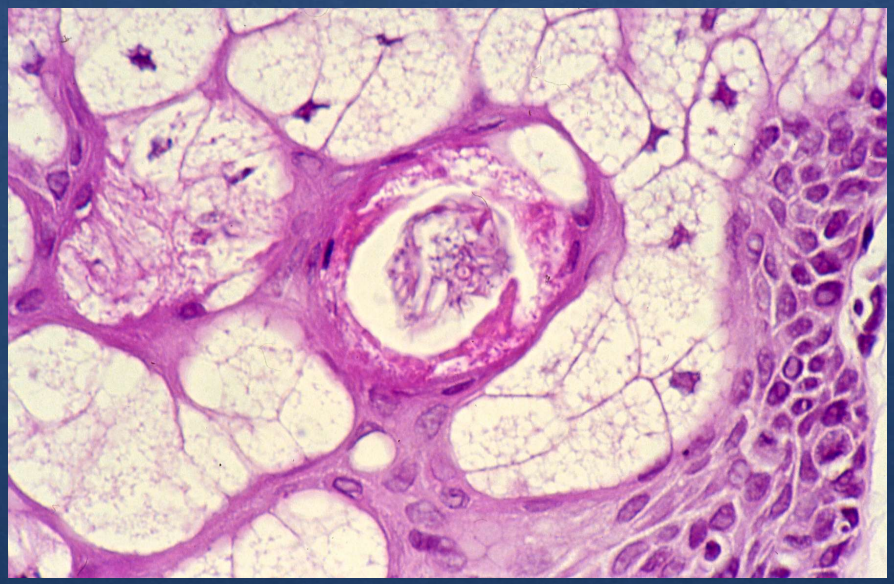
Case 12

- This 68 year old male presented with a worsening rash on the forehead that mostly asymptomatic. A fine papular eruption can be appreciated.



Demodex





Rosacea

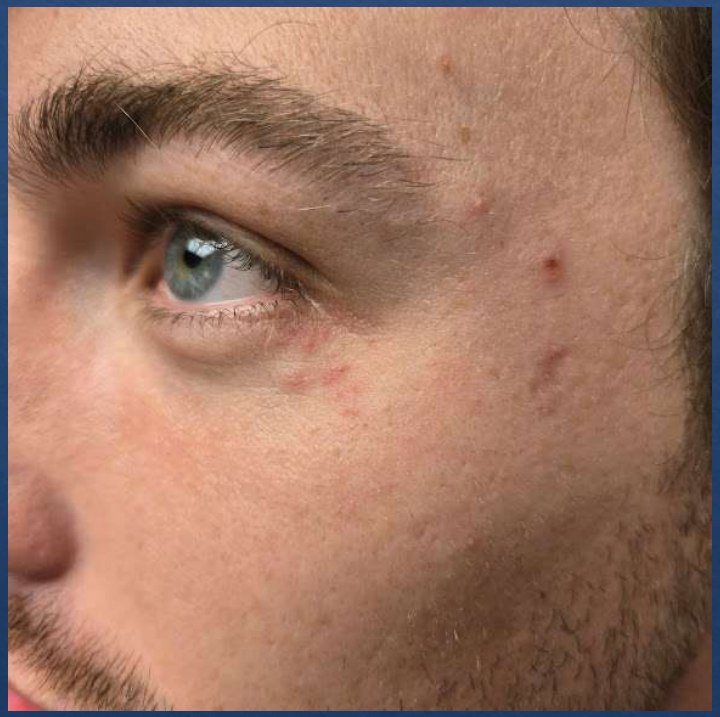
- Rosacea is a common, chronic disorder that can present with a variety of cutaneous or ocular manifestations. Cutaneous involvement primarily affects the central face, with findings such as persistent centrofacial redness, papules, pustules, flushing, and telangiectasia
- *Demodex* mites and various bacteria are proposed stimulators
- Studies have found an association between *Demodex* infestation and rosacea
- In contrast to acne vulgaris, inflammation is often more perivascular and extends well beyond the follicle
- Demodicosis can present with numerous inflammatory papules on the face and is difficult to distinguish from papulopustular rosacea on clinical examination
- Multiple therapies have been reported to be effective for demodicosis in individual patients.
  - Examples include topical permethrin, topical sulfur, oral ivermectin, and topical or oral metronidazole

Rosacea

- Treatment for rosacea usually involves education, including avoiding ultraviolet light exposure, extreme temperatures, diet and alcohol
- First line treatments
  - Transient erythema: brimonidine or oxymetazoline (topical) and beta blockers (oral).
  - Persistent erythema: brimonidine or oxymetazoline (topical), IPL and PDL.
  - Inflammatory papules/pustules: azelaic acid (topical), ivermectin (topical), doxycycline (oral) and metronidazole (topical), topical clindamycin, sulfacetamide, topical sulfur, topical minocycline
  - Telangiectasia: electrodessication, IPL, and lasers.
  - Phyma: doxycycline or minocycline (oral) and Isotretinoin (oral).

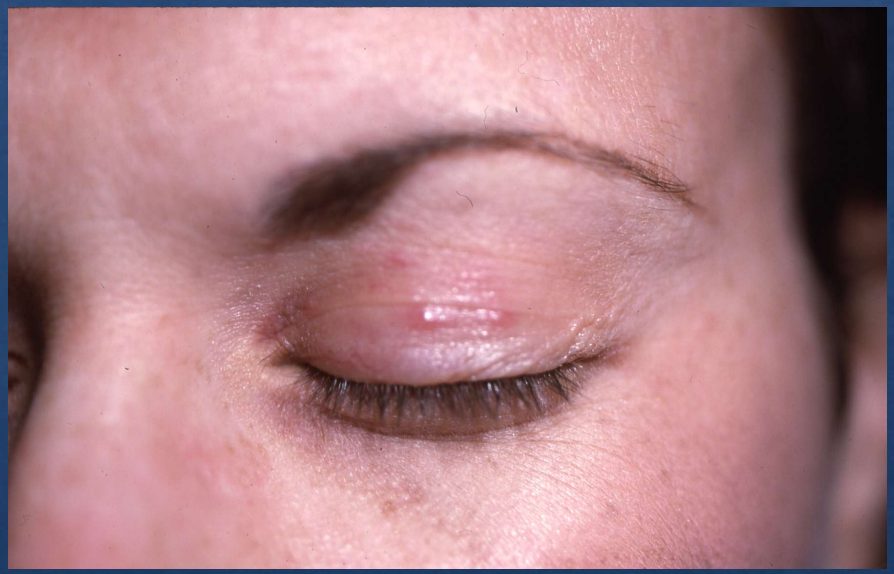
Case 13

- This 30 year old male presents with asymptomatic erythematous papules on both lower lateral eyelids. He does not use eyedrops and has no exposure history.



Case 14

- This 39 year old female presents with a several week history of asymptomatic erythematous bumps on both upper eyelids.

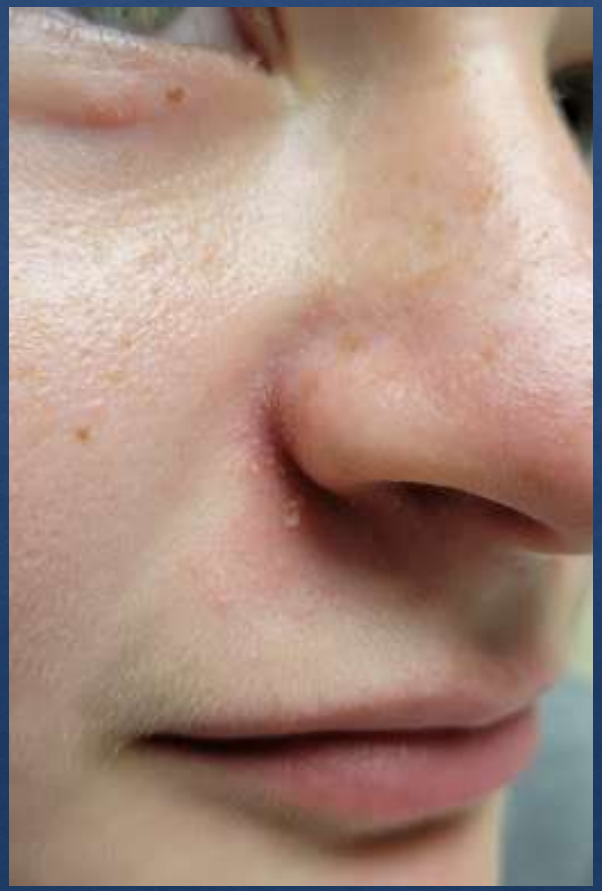


Periorbital dermatitis

- Periorificial dermatitis, is a skin disorder that typically presents with multiple small, inflammatory papules around the mouth, nose, or eyes
- Pathogenesis of POD is poorly understood
- The histopathologic findings of POD are nonspecific
- The management of POD generally involves the discontinuation of topical corticosteroids, avoidance of topical products that may promote or exacerbate POD
- Topical calcineurin inhibitors that have been used for POD include topical pimecrolimus cream
- Topical erythromycin or metronidazole
- Oral doxycycline or minocycline
- Topical ivermectin, azelaic acid, sulfacetamide

Case 15

- This 12 yo patient has had this paranasal papular erythematous scaling rash for a few months that is asymptomatic.

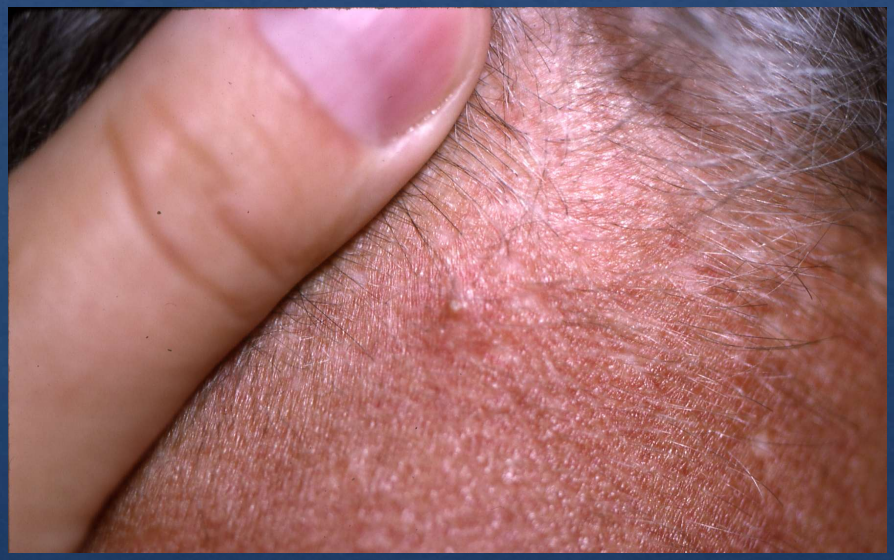


Perinasal seborrheic dermatitis

- Seborrheic dermatitis has a biphasic incidence, occurring in infants between the ages of 2 weeks and 12 months and later during adolescence and adulthood.
- The cause of seborrheic dermatitis is not known
- sebaceous glands appear to be involved in the development of seborrheic dermatitis as indicated by the predilection for body sites with increased numbers of sebaceous glands and larger sebaceous glands (face, scalp, upper trunk, external auditory meatus, and anogenital area)
- *Malassezia/pityrosporon involvement*
  - Studies suggest that seborrheic dermatitis may result from the host's immune response to *Malassezia* or to its byproducts
- Facial lesions favor the forehead below the hairline, the eyebrows and glabella and the nasolabial folds
- treatment with a low-potency topical corticosteroid cream (groups 6 or 7), a topical antifungal agent (eg, ketoconazole 2% cream, other azole creams, ciclopirox 1% cream

Case 15

- This 45 year has been noted little pimple like lesions that pop up randomly on the scalp. Changing shampoos has not help. Describes them as both itchy and tender.

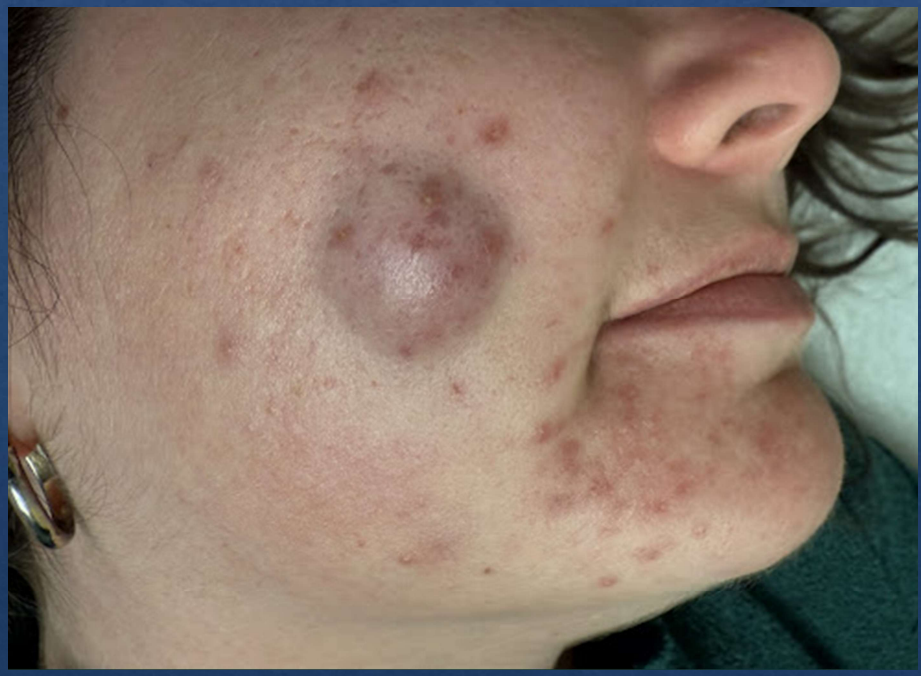


Seborrheic folliculitis

- The clinical presentation of *Malassezia* folliculitis (MF) can imitate acne vulgaris (AV), making it difficult to distinguish between the two conditions.
- Moreover, MF can coexist with AV in the same patient.
- A study revealed that patients diagnosed with MF were 7.38 times more likely to have itchy symptoms than patients diagnosed with AV.
  - Clin Cosmet Investig Dermatol. 2022 Dec 10;15:2647-2654
- Comparing the MF positive and MF negative groups demonstrated that the age younger than 20, itchy symptoms, dandruff, and acneiform lesions on the forehead, scalp/ hairline, upper chest, and upper back, had a significant association with MF
  - This information confirms existing knowledge about MF that it is more common in young adults who present as tiny, uniform, itchy papules, and pustules, particularly on the forehead, hairline, upper chest, and back
  - All patients showed clinical improvement within two weeks after starting treatment with oral fluconazole 100–200 mg daily, and/or topical 2% ketoconazole cream applied twice daily.

Case 16

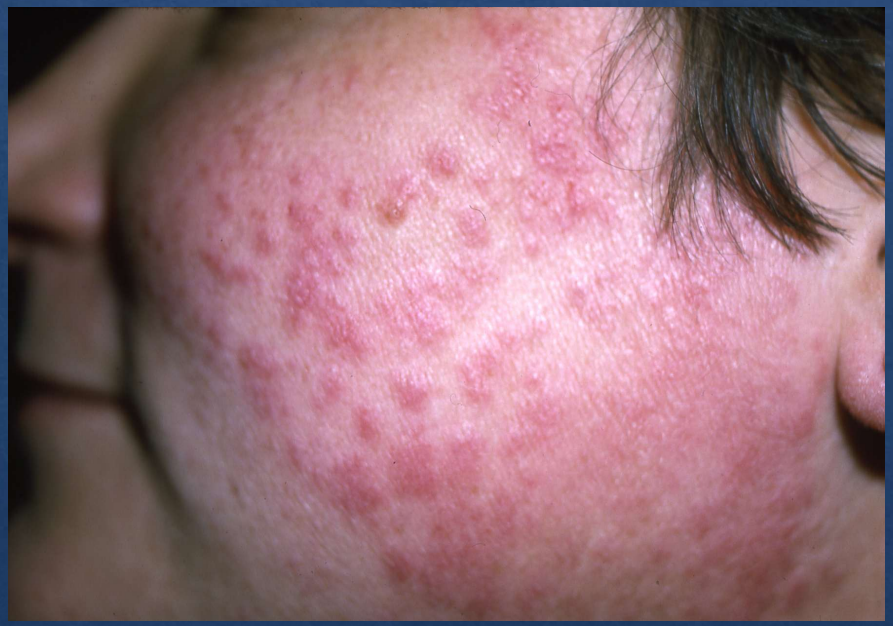
- This 25 yo presents for treatment of a tender cyst of over 2 weeks duration.



Acne cyst

- **Dermatologist Use of Intralesional Triamcinolone in the Treatment of Acne**
  - J Clin Aesthet Dermatol. 2020 Dec;13(12):41-43
- The most common reported concentration of intralesional triamcinolone was 2.5mg/mL (52.5%).
- The most frequently used volume injected was 0.05mL (42.3%).
- 61.6 % of those surveyed answered that they inject into the center of the lesion.
- 50.5 % of respondents counsel patients on potential adverse effects of hypopigmentation and atrophy before every injection.
- The majority of respondents (88.8%) reported that less than one percent of their patients returned for adverse events resulting from triamcinolone usage, and 48.4 percent reported that atrophy lasted over six months (48.4%)
- While consistency exists for the concentration of triamcinolone used, there was significant discordance in the volumes and depth of triamcinolone injection
- Concentration was 1.0-5.0 mg/ml
- Volume was 0.05-0.1 ml

Case 16



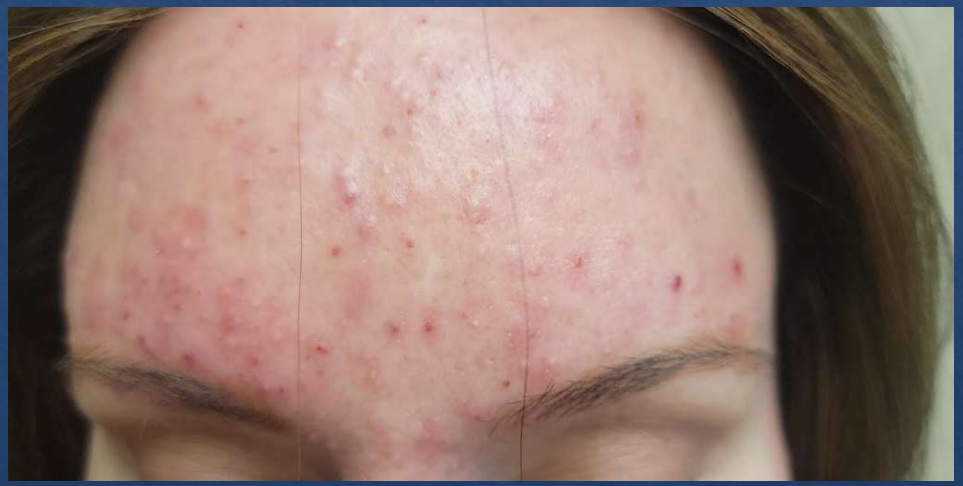
- This patient presented for evaluation of her skin breaking out. She had recently using mometasone cream for several months for an unknown condition on her face.

Steroid acne

- **History:** use of oral, inhaled, or topical corticosteroids and other agents that may elicit acneiform drug eruptions (eg, cyclosporine, lithium)
- **Misuse of topical corticosteroids on facial skin. A study of 200 patients**
  - J Dermatol Case Rep. 2017 Mar 31;11(1):5-8
- Betamethasone or clobetasol ointments were used in 75 patients (37.5%) and momatasone was used in 15 patients (7.5%)
- Duration of application was over 1 month up to 3 years, daily.
- The use of corticosteroids was attributed to the advice of pharmacists (69; 34.5%), friends and relatives (61; 30.5%), cosmetologists (22; 11.0%), non-dermatology physicians (30; 15.0%) and dermatologists (18; 9%).

Case 17

- This 52 year old patient was being treated for an underlying malignancy with paclitaxel and solumedrol who developed this rash after 3 months



Steroid acne

- **Intramuscular Corticosteroid Therapy in the Treatment of Alopecia Areata: A Time-to-Event Analysis**
  - Drug Des Devel Ther. 2022 Jan 7;16:107-116.
- Our IMC protocol was triamcinolone acetonide 20–40 mg/mL injected every 4–6 weeks.
- Adverse events were experienced by 18.8% of the patients (n = 19) and included acneiform eruption (n = 16, 15.8%)

Case 17

- This 2 ½ year old presente with a two year history of rash covering 50% of her body. Her parents have been keeping home out of concern of her appearance.

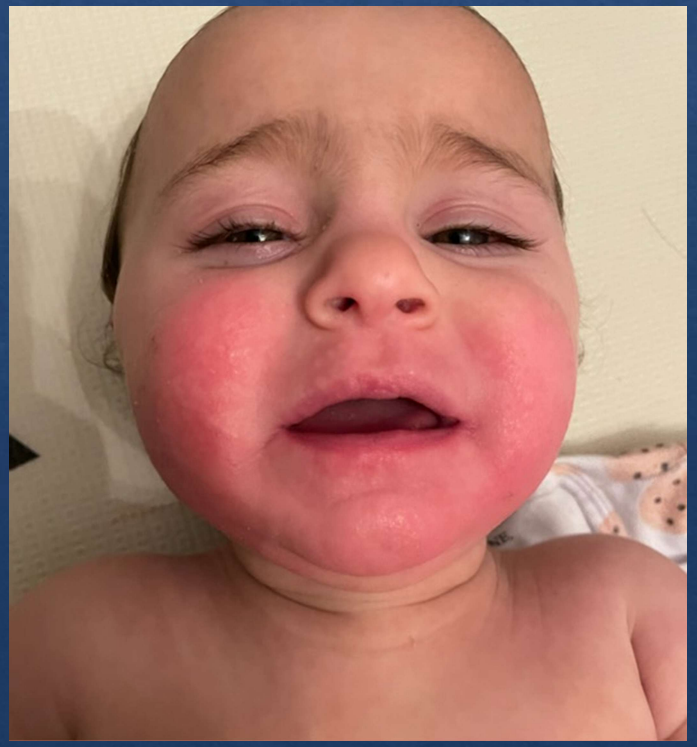
Atopic dermatitis

- ASSESSMENT OF SEVERITY
  - For the management of the individual patient, it is important that clinicians evaluate the extent and characteristics of the rash (eg, presence of erythema, excoriations, oozing, lichenification, clinical signs of bacterial superinfection) and ask general questions about itch, skin pain, sleep, impact on daily activities, frequency of flares, and persistence of disease
  - Marked lichenification indicates that itching or rubbing has been chronic and may reflect undertreatment.
- **Mild** – Areas of dry skin, infrequent itching (with or without small areas of redness); little impact on everyday activities, sleep, and psychosocial well-being
- ●**Moderate** – Areas of dry skin, frequent itching, redness (with or without excoriation and localized skin thickening); moderate impact on everyday activities and psychosocial well-being, frequently disturbed sleep
- ●**Severe** – Widespread areas of dry skin, incessant itching, redness (with or without excoriation, extensive skin thickening, bleeding, oozing, cracking, and alteration of pigmentation); severe limitation of everyday activities and psychosocial functioning, nightly loss of sleep

Baseline

2 months later

Case 18



Topical nonsteroidal options

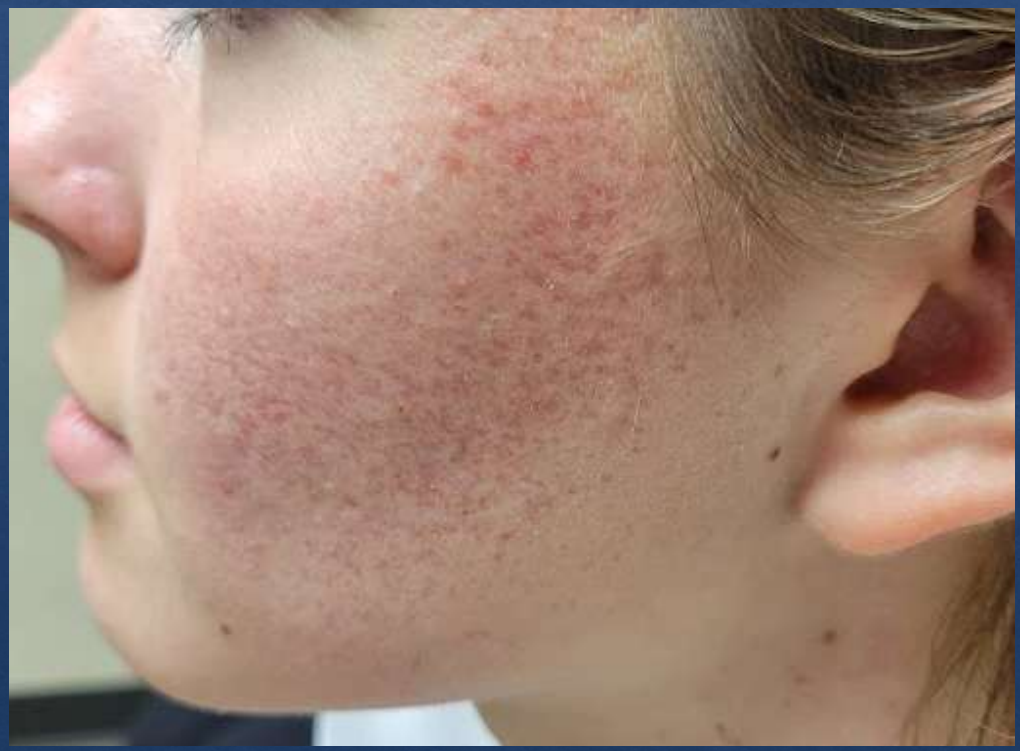
- Calcineurin inhibitor
  - Pimecrolimus (Elidel)
  - Tacrolimus (Protopic)
- PDE4 inhibitor
  - Crisaborole (Eucrisa)
  - Roflumilast (Zoryve)
- AHR agonist
  - Tapirinoff (Vtama)
- JAK inhibitor
  - Ruxolitinib (Opzelura)

Case 19

- This 11 yo presented for evaluation to improve the redness on her face

Keratosis pilaris rubra faciei

- Keratosis pilaris rubra faciei, a clinical variant of the common keratosis pilaris characterized by marked perifollicular erythema on the cheeks, forehead, and neck



Keratosis pilaris atrophicans

- Keratosis pilaris atrophicans is caused by abnormal keratinization of the follicular infundibulum, resulting in obstruction of the growing hair shaft and inflammation.
- Chronic inflammation leads to fibrosis, atrophy, shrinkage of the hair bulb, and alopecia.
- Atrophoderma vermiculatum is a rare form of keratosis pilaris atrophicans, characterized by hyperkeratotic follicular papules with surrounding erythema on the cheeks, which evolve into coalescent follicular depressions in a honeycomb or worm-eaten pattern
- There are no effective therapies for keratosis pilaris atrophicans

Case 20

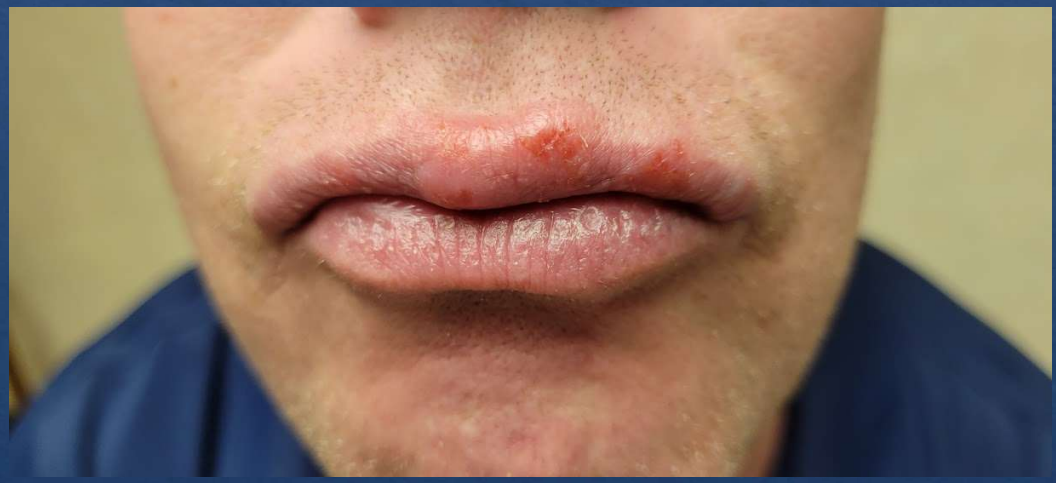
- This 50 year old presented with an irritating rash symmetrically on at both corners of the lips. He denies any exposure history and has been using the personal products for years.

Allergic Cheilitis

- Allergic contact cheilitis is a delayed-type hypersensitivity reaction to allergens that come in contact with the lips.
- Women are more commonly affected than men, likely due to a heavier exposure to allergens from lipsticks, lip balms, sunscreens, makeup products
- Other causes of allergic contact cheilitis include oral hygiene products, such as toothpastes and mouthwash
- Fragrances, *Myroxylon pereirae*, and nickel remain the most frequent cosmetic sensitizers
- Ricinoleic acid (also known as castor oil) found in most lipsticks for its ability to dissolve pigments, resins (eg, colophony, shellac), drug and cosmetic dyes, preservatives (eg, methylisothiazolinone), ozonated olive oil, propolis (a bee product found in many lip-care products), cera alba (bee wax), carmine, lanolin, linalool, sunscreens (eg, benzophenones), and copolymers have all be implicated

Case 21

- This 45 year presented with a three day history of an itchy irritated eruption on his lips. He denies any new exposure history.



Mango mouth

- *Mangifera indica,* commonly known as mango, is a flowering plant species native to the Indo-Burmese region and has been cultivated for around 4000 years
- It is a member of the Anacardiaceae family,
- Other key members of the Anacardiaceae family are poison ivy, poison oak, sumac, pistachio and cashew.
- It is the fifth most widely consumed fruit in the world
- The most common clinical manifestation is contact dermatitis, which can be localized or systemic (disseminated) and is represented by rash, pruritus, eczema and blisters.
- Dermatitis may appear on the extremities after contact with mango fruit, peel, stem, sap, or even the tree itself
- Other cutaneous signs include lips and perioral eczematous lesions or periorbital edema.
- Usually, the onset of symptoms is within 8–12 h after the contact; they consist of rash and induration, followed by blister formation within 72 h

Who is at risk..

- **Contact Allergy Induced by Mango (*Mangifera indica*): A Relevant Topic?** Medicina (Kaunas). 2021 Nov 13;57(11):1240
- We found 12 case reports and four case series, with a total of 37 patients.
- Only seven of these cases were reported in patients from mango-cultivating countries, the other 30 were from countries where mango cultivation does not occur, and 26 were also from countries where poison ivy/oak are commonly found.
- We found that contact dermatitis may occur on the first exposure to mango due to previous sensitisation to urushiol-containing plants

- **Exploring the mango-poison ivy connection: the riddle of discriminative plant dermatitis**
  - Contact Dermatitis 2005 Jan;52(1):3-5
  - We report 17 American patients employed in mango picking at a camp in Israel who developed a rash of varying severity.
  - All patients were either in contact with poison ivy/oak in the past or lived in areas where these plants are endemic.
  - None recalled previous contact with mango.
  - In contrast, none of their Israeli companions who had never been exposed to poison ivy/oak developed mango dermatitis.
  - These observations suggest that individuals with known history of poison ivy/oak allergy, or those residing in area where these plants are common, may develop allergic contact dermatitis from mango on first exposure.
  - We hypothesize that previous oral exposure to urushiol in the local Israeli population might establish immune tolerance to these plants.

Case 22

- This 20 year old has had a persistent itchy rash around her ears for a few months that has failed over the counter remedies.

Seborpsoriasis

- Psoriasis is the main condition in the differential diagnosis of seborrheic dermatitis in adolescents and adults.
- Sometimes the two diseases may coexist, and the term "sebopsoriasis" has been given to those cases where the distinction cannot be made.
- Usually, however, psoriatic lesions are sharply demarcated and erythematous, and the scales are more abundant and silvery white
- Younger age of onset of psoriasis, male sex, more severe disease, and **involvement of the scalp**, flexures, and nails were associated with the presence of genital disease
  - JAAD 2015 Jun;72(6):978-83
  - Eighty-seven percent reported itch, 39% pain, 42% dyspareunia, 32% a worsening of their genital psoriasis after intercourse, and 43% a decreased frequency of intercourse.
  - This study highlights the high prevalence of genital psoriasis and its profound impact on quality of life and sexual health.
  - Can not treat all sites similarly

Case 23

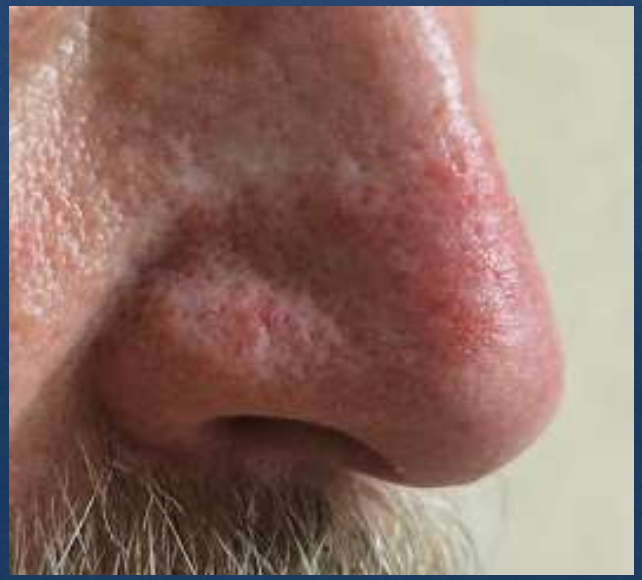
- This 8 yo patient has come in for treatment of early acne on her chin area that has not responded to OTC topical acne treatment.

Flat warts

- Flat warts — Many treatments for common and plantar warts also may be effective for flat warts
- Cryotherapy and topical medications such as salicylic acid, topical tretinoin, imiquimod and FU are among the most common treatments.
- The mechanisms of action of cryotherapy, salicylic acid, imiquimod, and FU are likely similar to their mechanisms for common and plantar warts; the efficacy of topical tretinoin may involve the induction of a local irritant reaction.
- The side effects of treatments should be carefully considered prior to treatment selection, particularly for flat warts on cosmetically sensitive areas such as the face
- Patients with dark skin are at greatest risk for postinflammatory hyperpigmentation.

Case 24

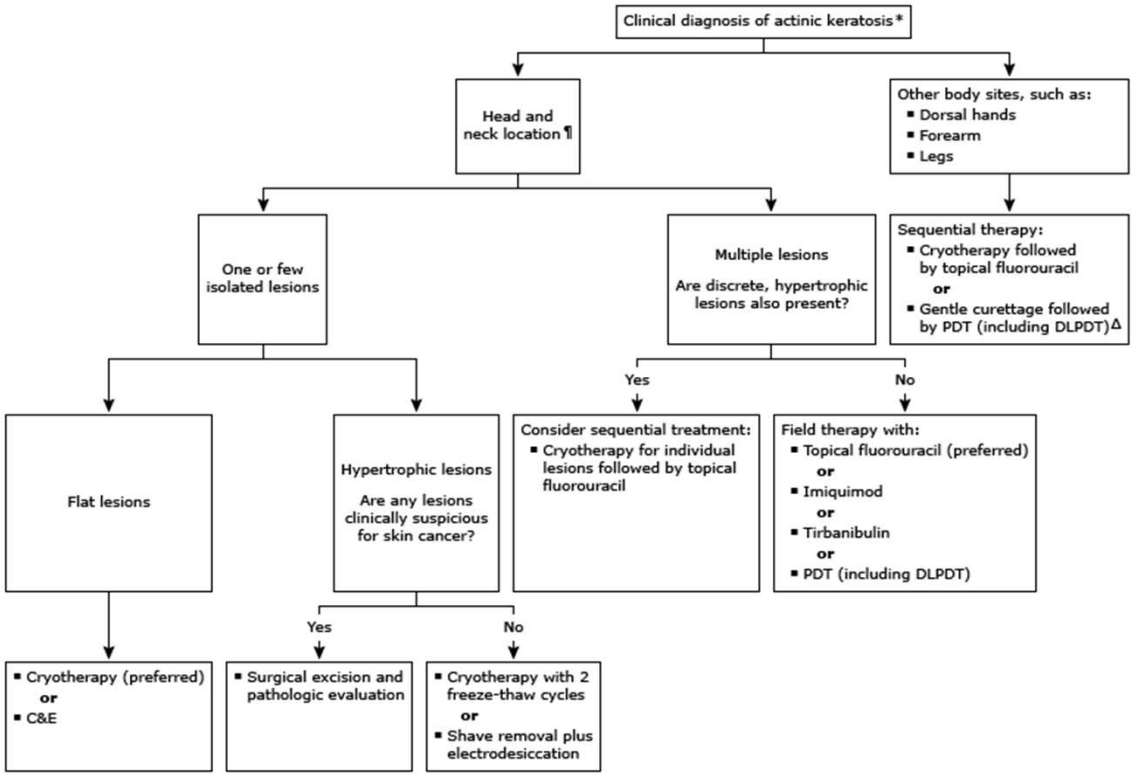
- This gentleman presented for an asymptomatic rough textured erythematous patch on his nose of a few months duration that does not respond to moisturizing.



Actinic keratoses

- The likelihood of progression of an individual AK to SCC is low.
- Estimates of annual rates of transformation from large studies range from less than 0.1 percent to approximately 3 percent.
- An Australian study that evaluated 1689 adults over the age of 40 who had more than 20,000 AKs found the risk for transformation of an individual AK to SCC within one year to be approximately 0.06 percent
- Reported rates of AK regression generally range between 20 to 30 percent per year, though a regression rate up to 63 percent per year has been reported
- Although few AKs progress to SCC, data from these studies suggest that approximately 60 percent of cutaneous SCCs arise from pre-existing AKs

Approach to the management of actinic keratosis



C&E: curettage and electrodesiccation; PDT: photodynamic therapy; DLPDT: daylight photodynamic therapy.

* Refer to UpToDate topics on clinical features and diagnosis of actinic keratosis.

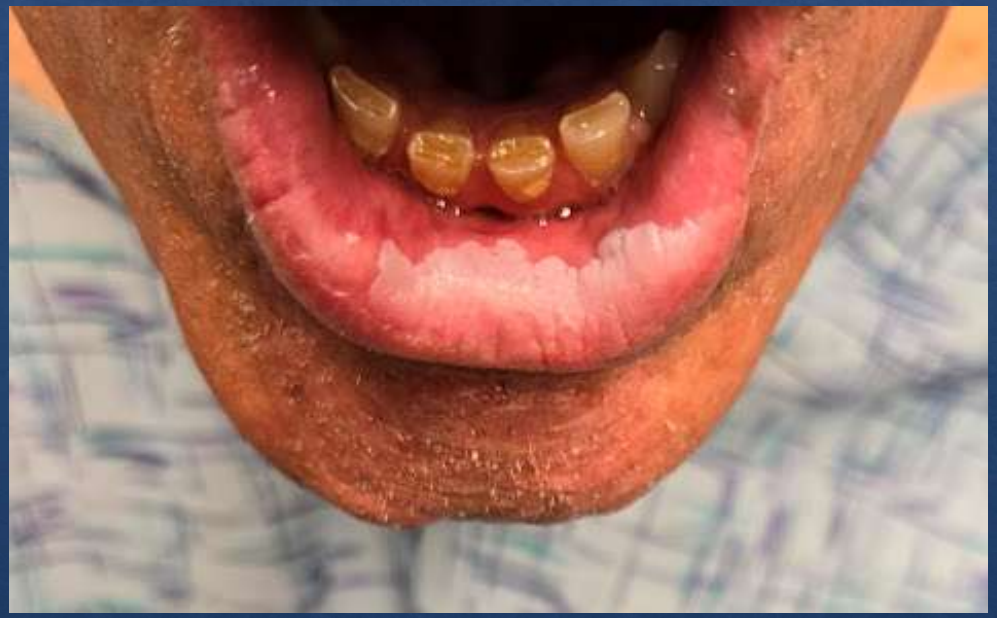
¶ Periocular lesions are best treated with cautious cryotherapy.

Δ Refer to UpToDate topics on PDT for standard and modified PDT regimens for actinic keratosis.

UpToDate®

Case 25

- This 63 yo male presents with a whitish color area on his lower lip that is asymptomatic that has been present for a few months.

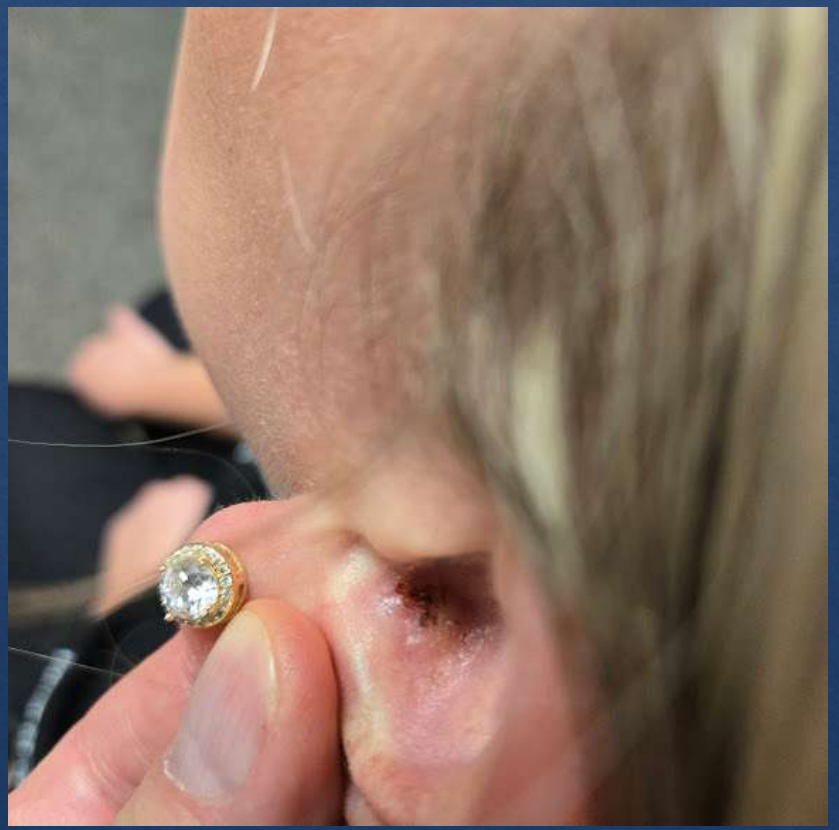


Actinic cheilitis

- Actinic cheilitis, also called solar cheilitis, is a premalignant disorder of the lip caused by chronic sun exposure that is most common on the lower lip.
- Reported prevalence rates among individuals with high levels of occupational exposure to ultraviolet radiation (eg, fishermen, farmers) range from 10 to 40 percent
- A lip biopsy is **not** routinely performed in patients with a history of chronic sun exposure and early, obvious changes of actinic cheilitis
- A biopsy is warranted in patients presenting with hyperkeratotic (leukoplakia-like) or nodular areas, with or without erosions or ulceration, that are suspicious for SCC
- There is no general consensus on the management of actinic cheilitis.
- Treatments commonly used include topical medications (topical fluorouracil, imiquimod), destructive therapies (liquid nitrogen, electrodessication, chemical peels, laser therapy, photodynamic therapy [PDT]), and surgery

Case 26

- This 29 year old female presented for evaluation of bump inside her left ear that is asymptomatic and been there about one year.

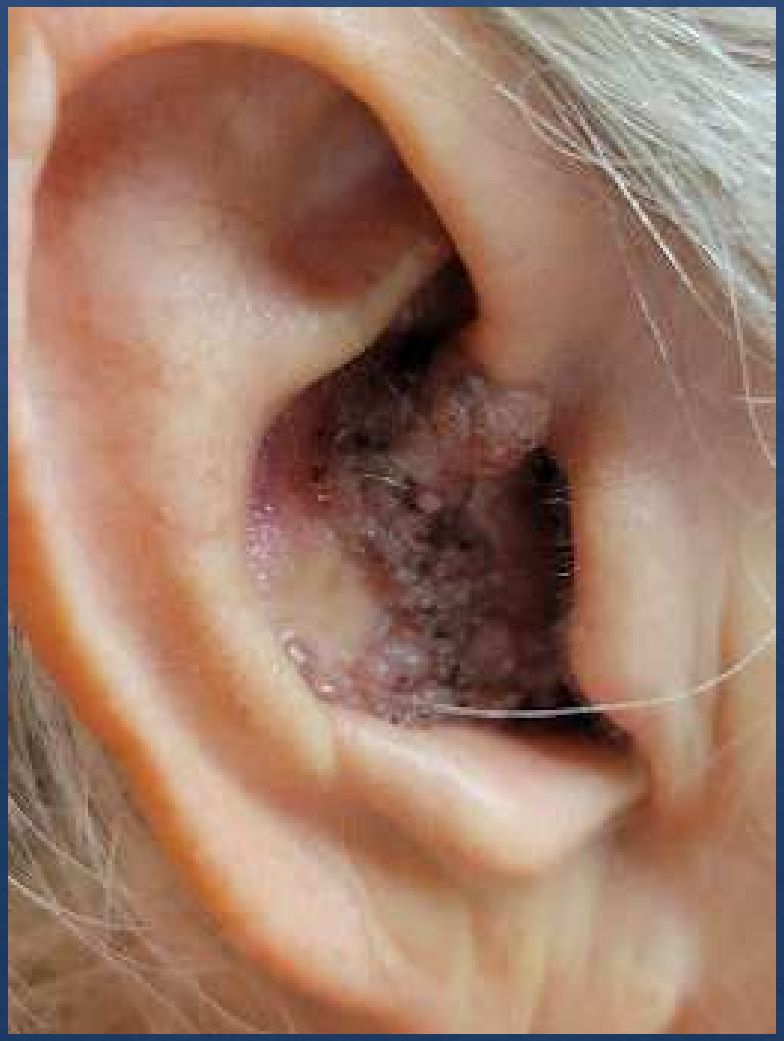


Basal cell carcinoma

- BCC is the most common human malignancy (80% of all kinds)
- According to available data, an estimated 3.6 million new cases of basal cell carcinoma were diagnosed in the United States each year, making it the most common type of skin cancer and overall cancer diagnosed.
- Clin Exp Derm 2012 Apr;37(3):227-9
- The incidence of BCC increased from 0.73 to 1.79 per 100 000 in those aged < 30 years over the study period.
- More than half (55%) of BCCs were on the head and neck, and the most common histological subtype was superficial BCC (38%).

Case 27

- This 70 year old female presented for evaluation of an asymptomatic slow growing lesion inside the right ear.

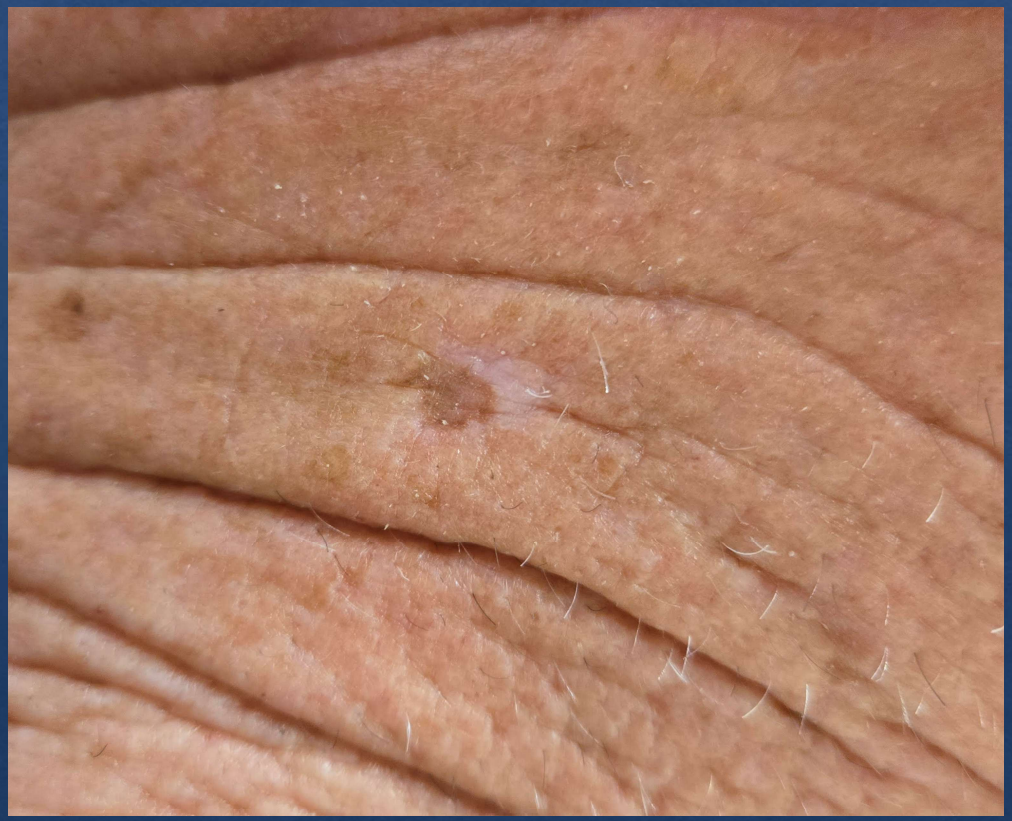


Seborrheic keratosis

- Seborrheic keratosis (SK) is a common benign skin neoplasm consisting of immature epidermal keratinocytes
- It presents with various morphologies, ranging from a lightly pigmented, superficial patch to a brown to black, scaly papule or plaque with a "stuck-on" appearance.
- Treatment
  - Cryosurgery
  - ED&C
  - Laser
  - Shave biopsy
  - Tazarotene
  - Trichloroacetic acid

Case 28

- This 70 year old male presented for a routine mole check and was noted to have this on his lateral neck.



Melanoma in situ

- Melanoma in situ is a form of radial growth phase melanoma in which the proliferation of malignant melanocytes is restricted to the epidermis
- For patients with melanoma in situ (Tis), there are no data from randomized trials to define the optimal extent of surgical resection.
- American Academy of Dermatology (AAD) that recommend a margin of 0.5 to 1 cm
- For these lesions, Mohs micrographic surgery (MMS) is sometimes used; in selected series, the local recurrence rates and survival have been reported to be similar to wide excision.
- However, it is important to note that MMS is not considered the standard of care for invasive melanoma

Melanoma in situ

- The use of Mohs surgery for treatment of melanoma remains controversial. There are no clinical trials comparing WLE with MMS.
- In a consecutive series of 625 patients with head and neck melanoma treated with MMS and followed up for a mean of 58 months, recurrence, metastasis, and disease-specific survival rates were similar or better than historical controls treated with WLE
- In a study of 167 patients with melanoma in situ or lentigo maligna, approximately 5 percent of samples with negative margins on frozen sections were positive on permanent sections
- To overcome the limitations of frozen sections, some Mohs surgeons excise and map lentigo maligna with the Mohs technique but process the tissue with paraffin-embedded permanent sections ("slow" MMS).
  - The primary cost of a Mohs surgery is the surgical procedure itself, including the removal of tissue layers and the microscopic examination of those samples to confirm cancer removal.

Case 29

- This 48 yo male presents with a slightly itchy rash on his face that is worse when working outdoors.

Cutaneous Lupus Erythematosus

- Cutaneous lupus erythematosus (cutaneous LE) includes three categories of LE-specific skin diseases:
  - acute cutaneous lupus erythematosus (ACLE)
  - subacute cutaneous lupus erythematosus (SCLE)
  - chronic cutaneous lupus erythematosus (CCLE)
- Cutaneous LE (CLE) presents as an exclusive cutaneous disease or comprises one of the multiple manifestations of systemic LE (SLE)

Exclusive cutaneous lupus

- Exclusive CLE is two to three times more frequent than SLE
- exclusive CLE is more common between the ages of 20 and 40 years, with a mean age at onset of 43 years
- Patients with CLE with the potential to develop SLE are more likely to have ANA at high titers, compared to those with exclusive CLE
- Diagnostic criteria for defining the different subtypes of CLE are still incipient
- Photoprotection, topical corticosteroids and antimalarials are still the first lines of treatment for CLE.
- Alternative medications for systemic use include methotrexate, oral retinoids, dapsone, and thalidomide, among others.

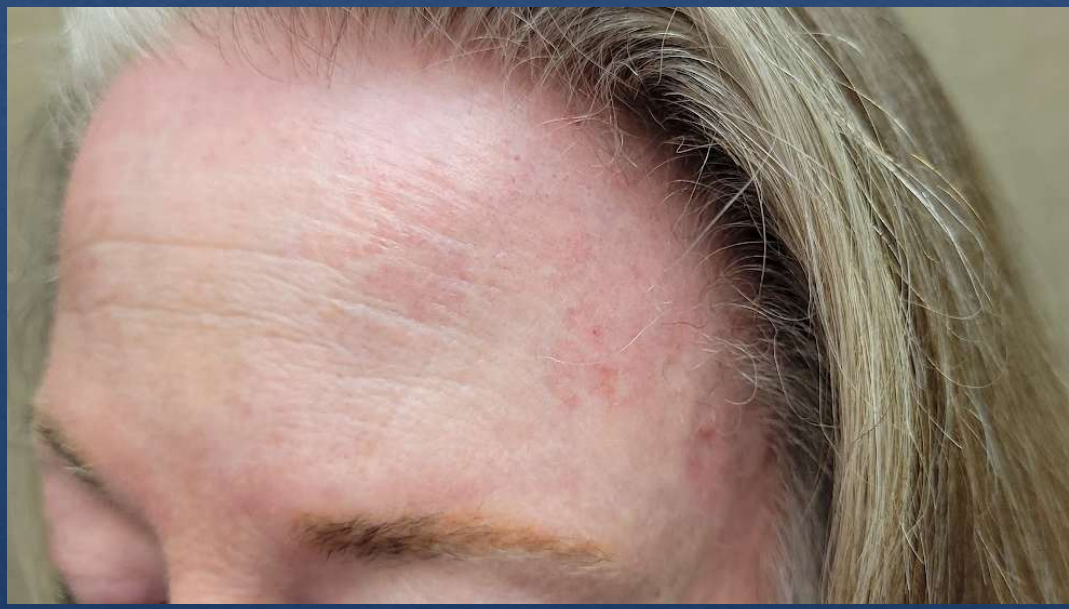
Persistent Facial Oedema and Erythema in a Woman, An Uncommon Manifestation of Chronic Cutaneous Lupus Erythematosus

Eur J Case Rep Intern Med. 2020 Feb 12;7(3):001462

- A 48-year-old Caucasian woman was referred to the Department of Dermatology in September 2018 from another hospital.
- She presented with a 16-year history of asymptomatic swelling with erythema of her face.
- The erythema and swelling worsened after sun exposure.
- Initially, it occurred intermittently, but after 2 years it became permanent.
- No systemic symptoms, aphthae, arthritis, Raynaud's or muscle weakness were present Her past medical and family history was unremarkable.

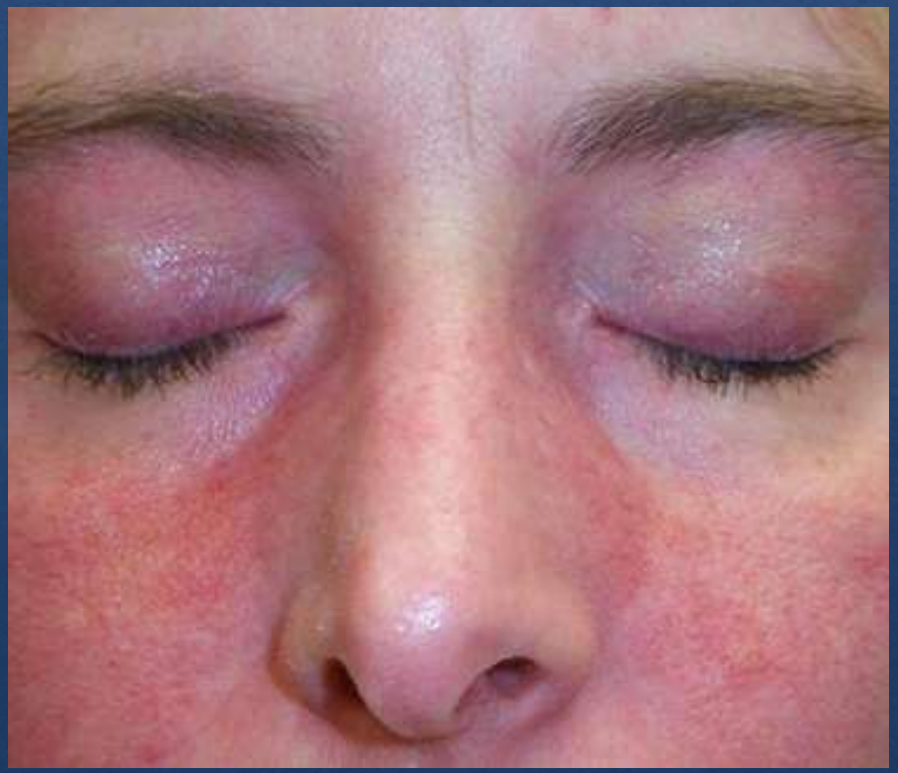
Case 30

- This 60 yo female presents with a persistent reddish rash that gets worse in the sun.

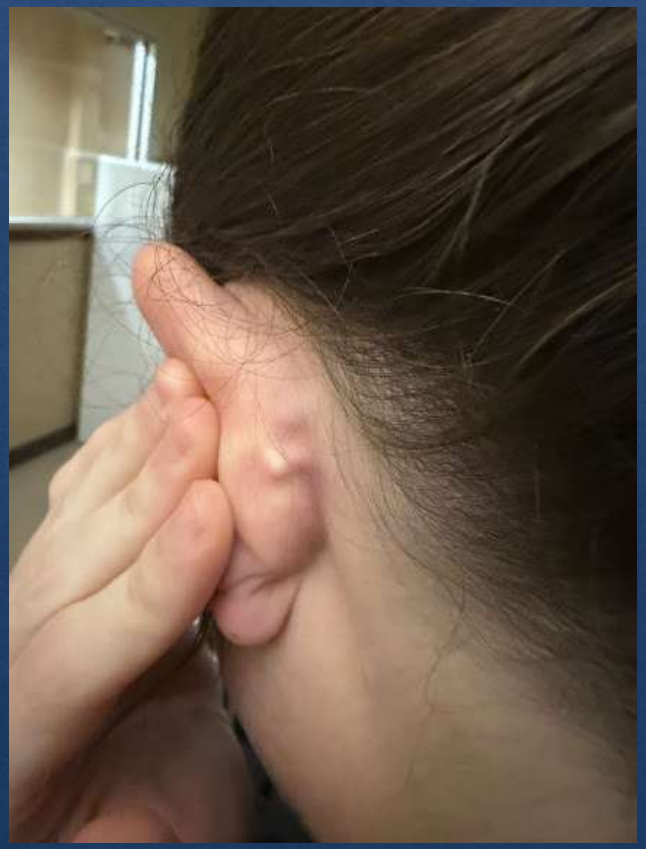


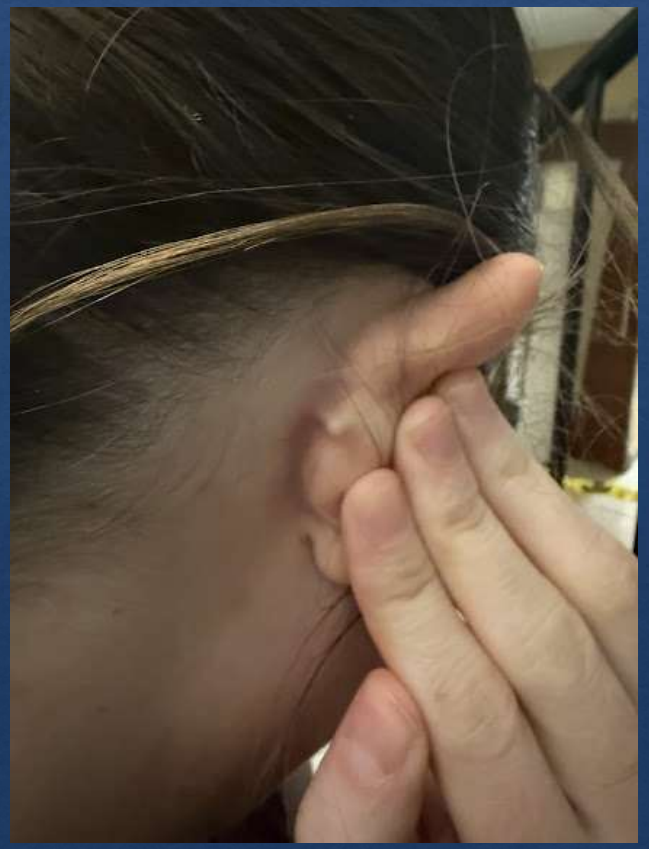
Dermatomyositis

- In addition to pathognomonic findings, such as Gottron's papules and the heliotrope eruption, DM often presents with intensely pruritic areas of confluent, violaceous erythema on the scalp, face, upper trunk, and upper extremities
- The heliotrope eruption is pink-violaceous erythema, with or without edema, involving the periorbital skin
- All patients newly diagnosed dermatomyositis (DM) should be evaluated for the possibility of an underlying malignancy. Most cancers will be found with a comprehensive history and physical examination, including a pelvic exam and labs:
  - Complete blood count, liver function tests, urinalysis
  - Fecal occult blood test, if screening colonoscopy not indicated
  - Chest radiograph
  - Age- and sex-appropriate Pap test, testicular self-examination, mammography, and colonoscopy



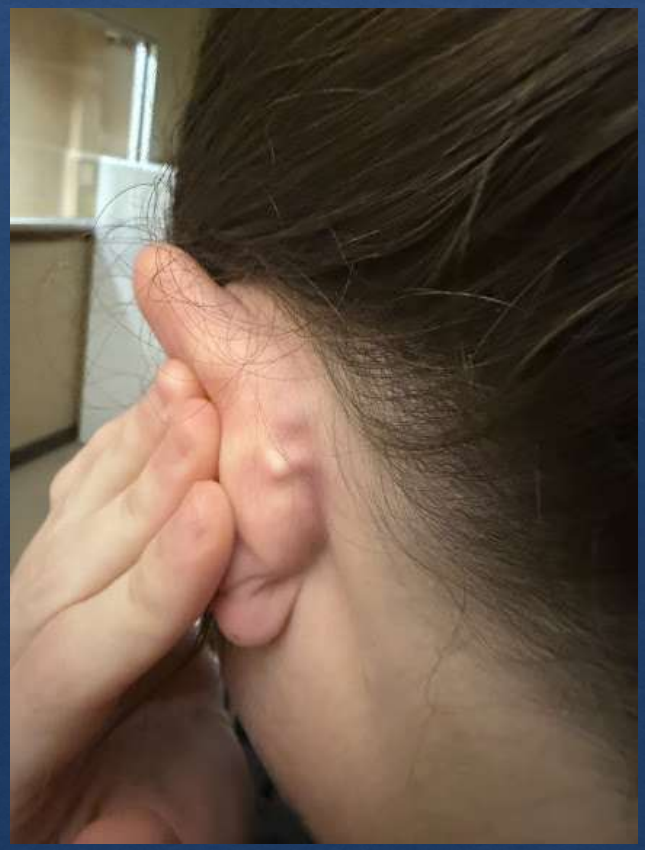
Final quiz:
what are these bumps called?





Quelprud nodule

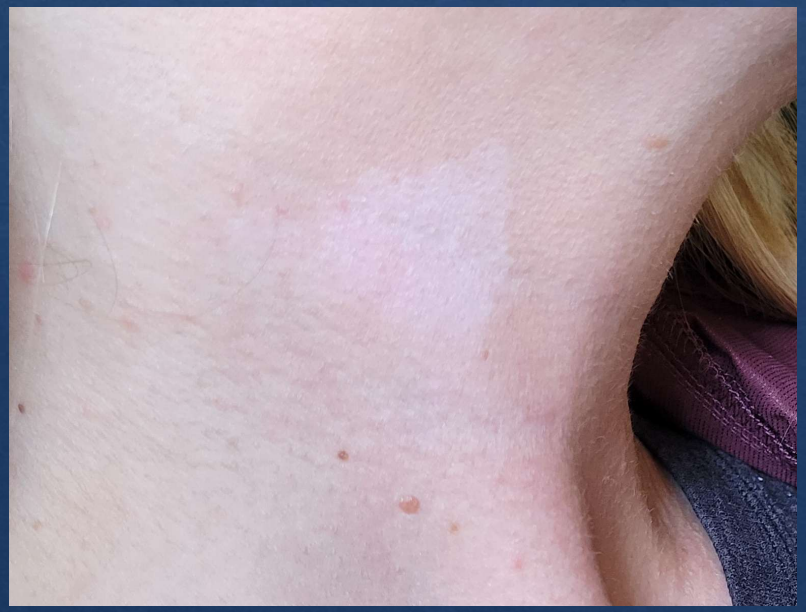
- Who was Quelprud and what is he noted for?
- Thordar Fladmoe Quelprud
  - Quelprud studied ear morphology and published several articles on anatomical variants.
  - He noticed that Quelprud nodules were present in families, and that the position and nature of the nodules were always identical between parents and children.
  - This led him to conclude that Quelprud nodules are inherited in an autosomal dominant mode
  - Norwegian who was a Nazi collaborator during WWII working on racial purity and was subsequently ostracized after WWII

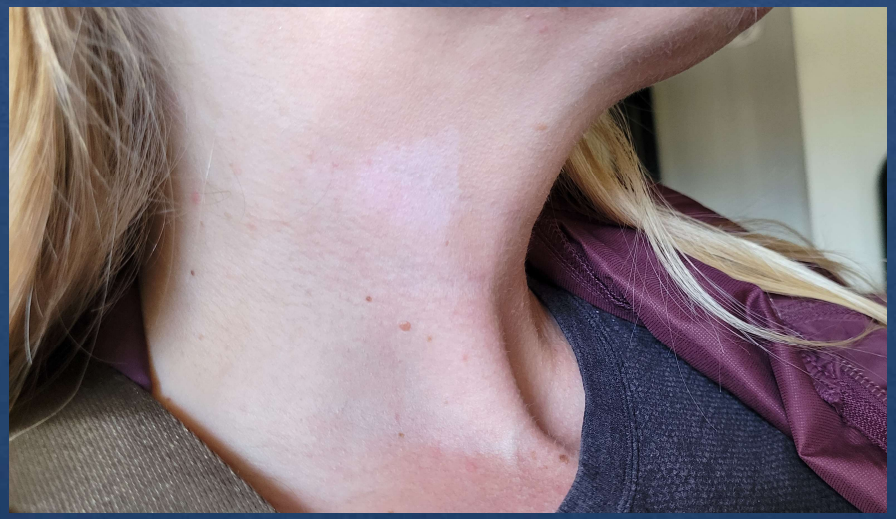


The best way to end

Challenges

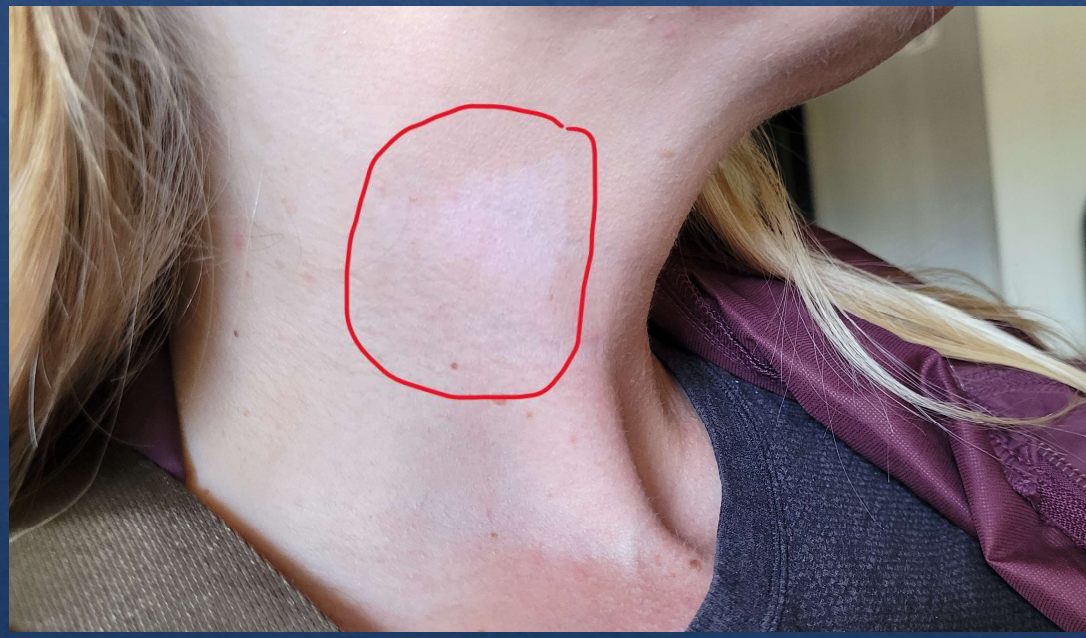
- On a trip to Alaska, I notice this light-colored area on a 29 yo person's neck.





Subtle

- This 29 year old female was noted to have this white spot on her neck over the last year. She went to her dermatologist in Seattle who said it was benign. It is asymptomatic and has not changed since it appeared.
- Fortunately she was wearing short sleeves so the melanoma could be identified on her left forearm.



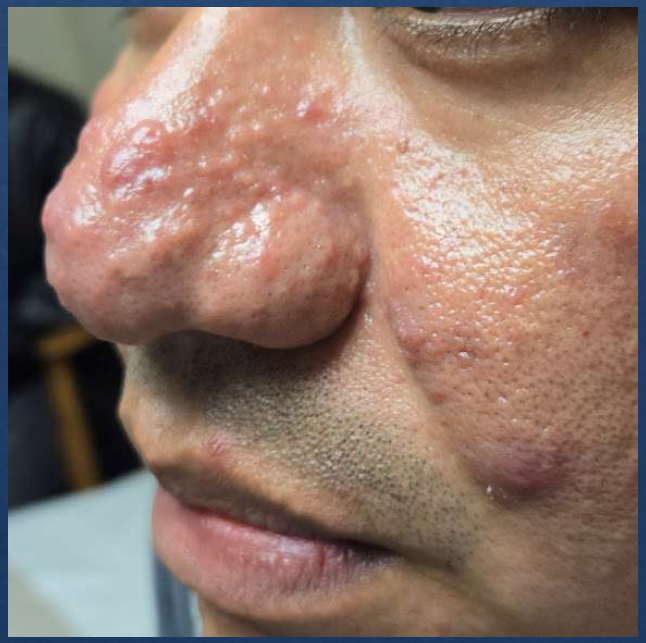
Subtle

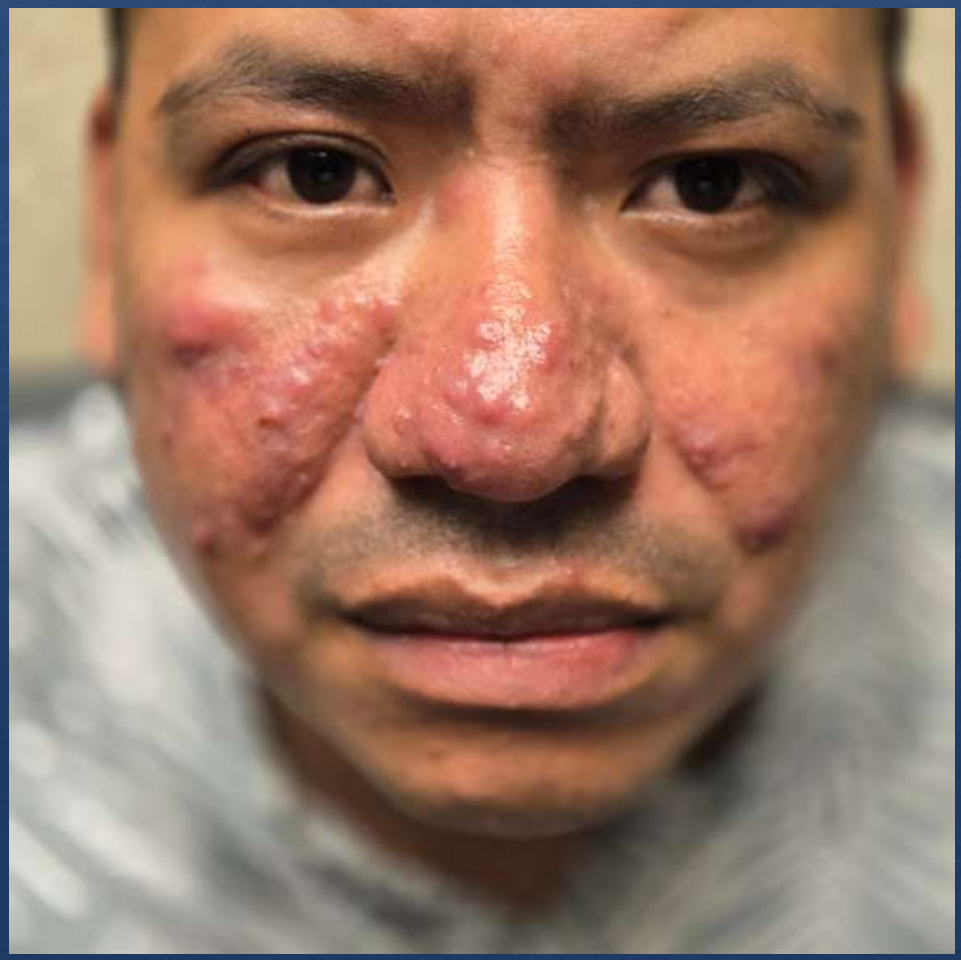
Paraneoplastic granulomatous dermatitis of eyelid

<u>Associated with metastatic breast cancer</u>

Not so subtle

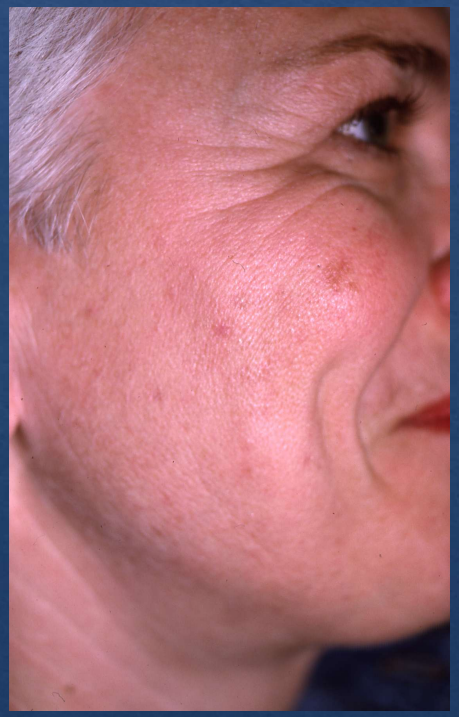
- This 35 year old male with no history of acne now presents with worsening breakouts on his face only. His health is otherwise excellent.





Rosacea fulminans/Pyoderma faciale

- An unusual eruption that is not officially recognized as a rosacea variant.
- The disorder is characterized by an abrupt onset of papules and suppurative nodules on the face
- Patients can be managed with a combination of prednisone and oral isotretinoin
  - Alternatives to the above regimen include initiation of doxycycline, minocycline, or tetracycline along with a prednisone taper.
  - Successful treatment with dapsone has also been reported



- This 55 year female comes wishing treatment of her acne which has been going on for several months.

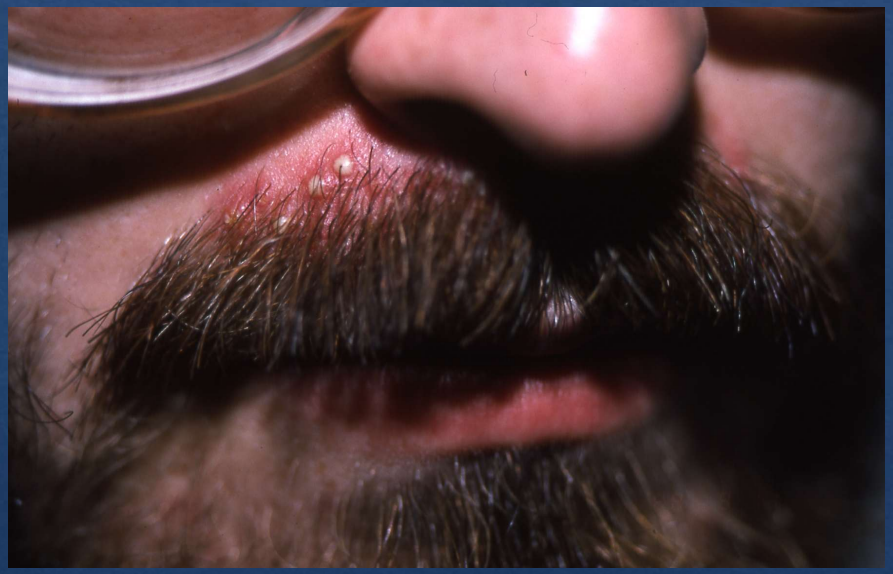
Hormone replacement therapy induced acne

- HRT is associated with increased for acne, hirsutism, and hair loss in women (androgen driven) that can usually be addressed without discontinuation
- Recommend hormonal level monitoring throughout treatment

- For HRT for menopause, blood tests may include: levels of
- Estradiol
- follicle-stimulating hormone (FSH)
- Progesterone
- dehydroepiandrosterone sulfate (DHEA-S)
- thyroid stimulating hormone (TSH).
- For transgender HRT, blood tests may include levels of testosterone, prolactin, and other hormones

SHBG

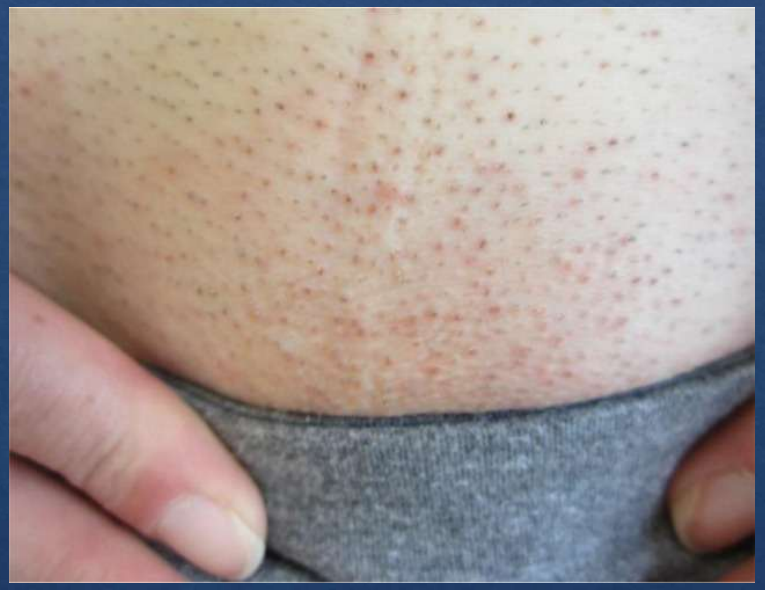
- You should check your sex hormone binding globulin (SHBG) levels when you have symptoms suggestive of abnormal testosterone levels, particularly if your total testosterone test results don't seem to match your clinical signs, like experiencing infertility, irregular periods, low sex drive, erectile dysfunction, or excessive facial hair
- High sex hormone binding globulin (SHBG) levels can be caused by conditions like hyperthyroidism (overactive thyroid), liver disease, certain medications like estrogen-based birth control pills or antiepileptics, eating disorders, and in some cases, aging, particularly in elderly men
- **If you're female**, you may need this test if you have symptoms of high testosterone, including:
  - Too much hair growth on the face and body
  - Deepening of voice
  - Having menstrual periods that aren't regular or no periods at all
  - Acne
  - Weight gain
  - Fertility problems



- This 35 year old presents for treatment of the acne in his mustache that has not responded to topical antibiotics. He has a history of seasonal allergies and will use certirizine and fluticasone inhaler as needed,

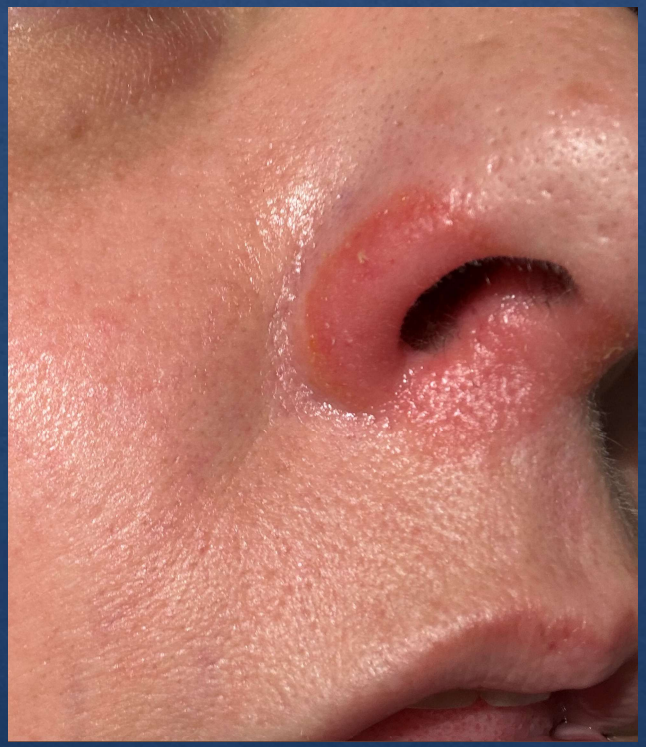
Candidal folliculitis

- Cutaneous *C. albicans* infection may cause fungal folliculitis.
- Major risk factors for folliculitis are medical conditions that reduce resistance to infection, diabetes mellitus, cancer including chronic leukemia, and/or immunosuppression like HIV/AIDS.
- Other risk factors include acne, dermatitis, topical steroids medications, and long-term antibiotic therapy for acne as well as frequent shaving, regularly wearing clothing that traps heat and sweat, un-sanitized hot tubs, waxing and wearing tight clothing

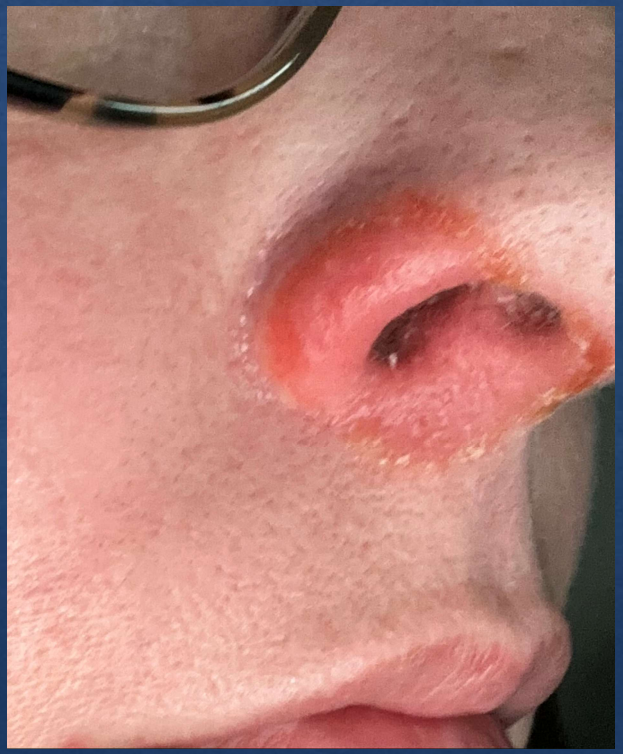


Diabetic patient with culture positive for Candida who responded to topical antifungal cream

This patient came to my office for a persistent rash on the right edge of the nares that started about 5 weeks. She was initially treated with oral cephalexin and topical mupirocin

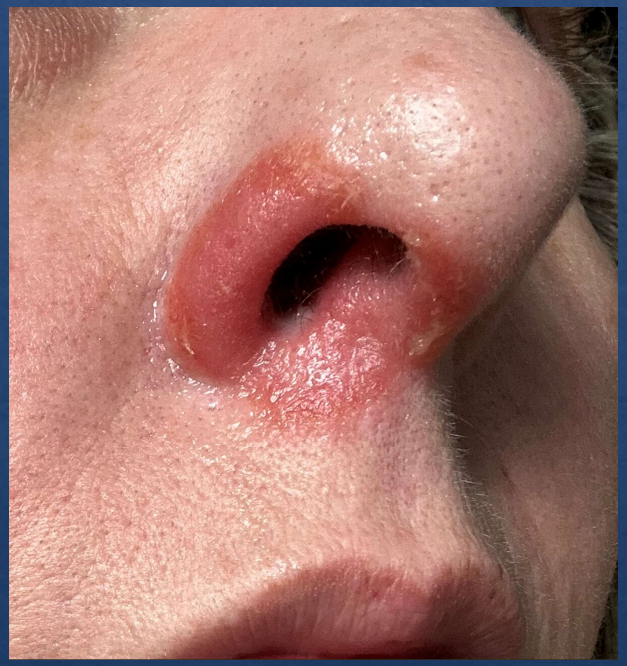


Week 1

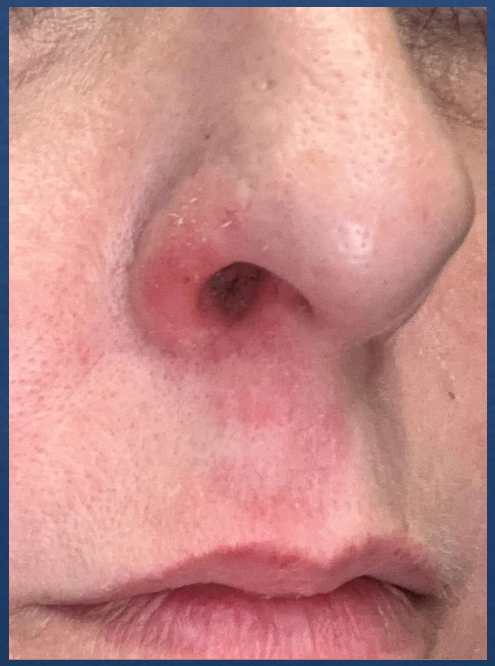


Week 2

When she went back to her physician the rash was no better. She was placed on TMP-SMX and prednisone taper

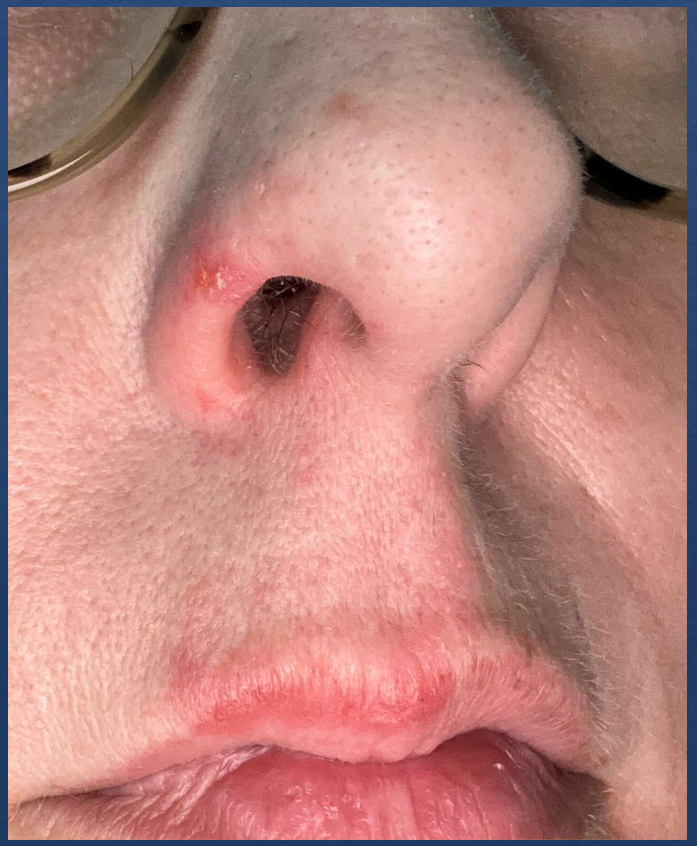


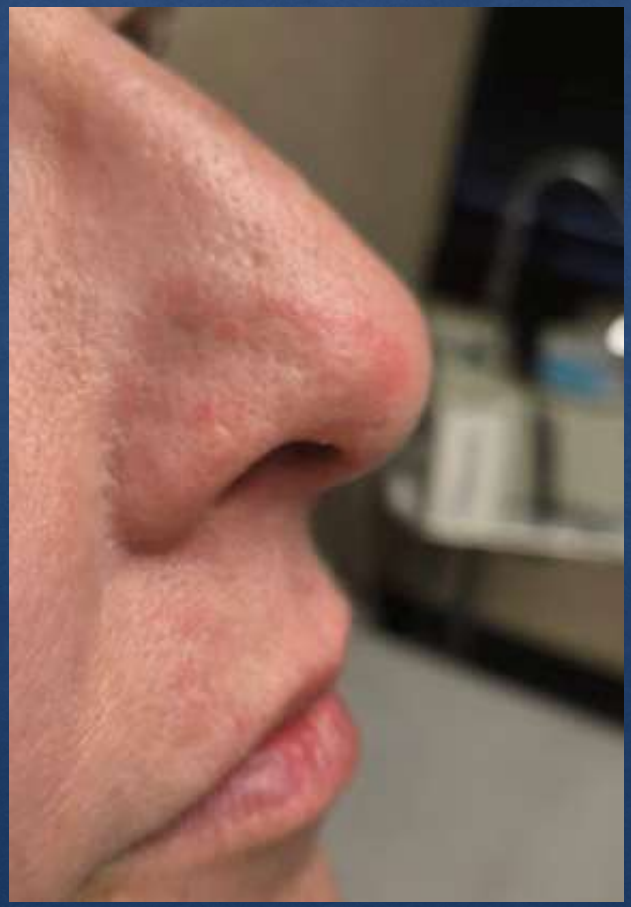
Week 3



Week 4

- By the time she came to me, she had been on three rounds of antibiotics and three Medrol dose paks as well as topical antibiotics with the rash extending down to the lower and medially.





- She comes in seeking second opinion before she proceeds with a biopsy of the nose as recommended by her dermatologist

Tinea incognito of nose

- Tinea incognito (TI), or incognita, are superficial fungal dermatophyte infections that are changed in shape, most frequently because of topical, systemic steroids use and other immunosuppressants.
- There are different clinical presentations depending on host factors and the species of dermatophyte causing the disorder.
- Diagnosis can be challenging and might need combined methods.
- If mismanaged and treated with steroids it can be a real challenge.
- It can present with ill-defined erythema mimicking rosacea, SLE, seborrheic dermatitis, polymorphous light eruption, granuloma faciale, contact dermatitis, psoriasis of the face, sarcoidosis, or tuberculosis granuloma annulare

Positively the end