

Supplementary Material 1

CHATGPT 3.5 – RESPONSES

EAI from Heating Pad

A 15-year-old adolescent with ulcerative colitis (UC) is evaluated for an unusual rash on the abdomen. The patient was admitted to the hospital for management of pain related to UC. The patient reports that she noticed the rash developing slowly over the last few weeks. Over time it has darkened and started to develop open sores. On examination, hyperpigmented and erythematous reticulated patches with scattered erosions are present on the central and lower abdomen. Upon further questioning, the patient reports that for several months she has regularly applied a heating pad to her abdomen to alleviate pain. What is your diagnosis? Cutis Marmorata Livedo reticularis Erythema ab igne Cutaneous COVID-19

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The patient's history of using a heating pad on the abdomen and the characteristic findings of hyperpigmented and erythematous reticulated patches with scattered erosions are consistent with erythema ab igne.

Erythema ab igne is a skin condition caused by chronic exposure to low levels of infrared radiation. In this case, the repeated use of a heating pad on the abdomen has led to the development of this condition. The hyperpigmented and erythematous reticulated patches are characteristic of erythema ab igne.

Cutis marmorata and livedo reticularis are vascular patterns that can present as a reticulated or mottled appearance on the skin, but they are not typically associated with the use of heating pads.

Cutaneous COVID-19 refers to skin manifestations associated with COVID-19 infection, and the description of the rash in the case does not align with the typical presentation of COVID-19-related skin findings.

Therefore, in this case, the most likely diagnosis is erythema ab igne. It's important for the patient to discontinue the use of the heating pad to prevent further progression of the condition. Additionally, managing the underlying ulcerative colitis is crucial for overall health and well-being. The patient should be evaluated and treated by a healthcare professional.

Photodermatosis: PMLE Explanation

A 38-year-old black woman presents with a history of relapsing rash. The patient reports experiencing 2 to 3 flares of the rash per year, generally in the summertime, over the past 20 years. The rash is extremely pruritic, involves the face and extremities but tends to spare the trunk. The rash resolves with administration of oral steroids. Extensive rheumatologic serologic workup evaluating

for systemic lupus erythematosus and dermatomyositis has been negative. Physical examination reveals annular erythematous plaques on the face and extremities, with each plaque studded with a single central small flaccid bulla. What is the most likely diagnosis? Polymorphous light eruption Contact dermatitis Solar urticaria Erythropoietic porphyria

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The patient's history of a relapsing rash, occurring in the summertime, involving the face and extremities but sparing the trunk, along with the presence of annular erythematous plaques with central small flaccid bullae, is suggestive of a photodermatosis known as polymorphous light eruption (PMLE). PMLE is a common photodermatosis characterized by a rash that occurs after exposure to sunlight, particularly in the spring or summer months. It often presents with pruritic erythematous plaques and may have central vesicles or bullae.

The other options can be ruled out based on the clinical presentation:

1. **Contact dermatitis:** Contact dermatitis typically occurs in areas of exposure to an allergen or irritant, and the distribution may not be limited to sun-exposed areas. Also, contact dermatitis is not usually associated with central bullae.
2. **Solar urticaria:** Solar urticaria presents with urticarial lesions rather than annular erythematous plaques with central bullae.
3. **Erythropoietic porphyria:** Erythropoietic porphyria can present with photosensitivity, but it is associated with other features such as skin fragility, blistering, and scarring. The central small flaccid bullae seen in this case are not typical for erythropoietic porphyria.

Therefore, the most likely diagnosis in this case is **polymorphous light eruption (PMLE)**.

Ecthyma Diagnosis

A 24-year-old woman presents with a spreading rash on her arms. A single patch first appeared approximately 2 weeks ago. The patient reports that the rash was somewhat itchy and continued to enlarge despite application of 1% hydrocortisone. Subsequently, new patches arose on both arms. The patient exercises at a local gym at least 3 days each week and is in good health. Examination reveals multiple erythematous patches with crusting. Removal of a crust by curettage revealed slight purulence. What is the likely diagnosis? Psoriasis Sweet's syndrome Ecthyma Tinea incogniti

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The likely diagnosis in this case is **Ecthyma**.

Ecthyma is a skin condition characterized by an ulcerative, crusted rash. It typically occurs due to a bacterial infection, often caused by *Streptococcus* or *Staphylococcus* bacteria. Ecthyma can begin as a single patch, as described in the patient's case, and then spread to involve multiple areas. It is often associated with some degree of purulence (pus) when the crust is removed.

The patient's description of a spreading rash with crusting and purulence, along with the lack of improvement with hydrocortisone, is consistent with the presentation of ecthyma. Other conditions like psoriasis and Sweet's syndrome would present differently and are less likely in this case. Tinea incogniti refers to a fungal infection that has been altered or exacerbated by the inappropriate use

of steroids, which doesn't seem to be the case here. However, it's essential to confirm the diagnosis through appropriate clinical evaluation and laboratory tests if necessary.

SJS/TEN Diagnosis Discussion

A 45-year-old Black man presents to the emergency department with a painful blistering rash. He started taking an antibiotic 3 weeks ago and over the last several days he reports feeling feverish with joint pains and irritation in both eyes. Yesterday he developed purple marks on his lower abdomen that progressed to fragile blisters. The rash is rapidly spreading to his arms and legs and he now has sores in his mouth and bilateral eye redness. On physical examination, there are painful, dusky purpuric macules on the trunk, arms, legs, and abdomen with large areas of blistering with superficial erosions. What is the most likely diagnosis? Erythema multiforme Ataphylococcal scalded skin syndrome Generalized fixed bullous drug eruption Steven-Johnson syndrome/toxic epidermal necrolysis

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Based on the provided information, the most likely diagnosis is **Steven-Johnson syndrome/toxic epidermal necrolysis (SJS/TEN)**.

The key features in the patient's presentation that suggest SJS/TEN include the following:

1. **Blistering rash:** The patient has a painful blistering rash that has rapidly progressed, involving the trunk, arms, legs, and abdomen.
2. **Systemic symptoms:** The patient reports feeling feverish with joint pains and irritation in both eyes, indicating systemic involvement.
3. **Mucous membrane involvement:** The presence of sores in the mouth and bilateral eye redness suggests mucous membrane involvement, which is characteristic of SJS/TEN.
4. **Purple marks on lower abdomen:** The development of purple marks on the lower abdomen that progressed to fragile blisters is consistent with the characteristic skin findings in SJS/TEN.

SJS and TEN represent a spectrum of severe mucocutaneous reactions that are often triggered by medications, including antibiotics. It's crucial to identify and discontinue the causative drug promptly and provide supportive care in a hospital setting due to the potentially life-threatening nature of these conditions.

This patient's symptoms are not typical of erythema multiforme, staphylococcal scalded skin syndrome, or generalized fixed bullous drug eruption.

Wart Diagnosis in 60-Year-Old

A 60-year-old healthy Black man presents with a history of a lesion on his foot. He has no medical problems, takes no medications, and has no personal or family history of skin cancer. The lesion presented about 6 months ago, grew slowly, and is not currently bothersome for the patient. He does not have any similar lesions elsewhere on the body. On physical examination, an erythematous, smooth, dome-shaped papule is found on the plantar aspect of the right foot. What is your diagnosis? Hidradenoma Pyogenic granuloma Verruca vulgaris Poroma

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Based on the provided information, the most likely diagnosis for the lesion on the plantar aspect of the right foot in a healthy 60-year-old Black man is verruca vulgaris, commonly known as a common wart.

Warts are caused by human papillomavirus (HPV) infection, and verruca vulgaris is a specific type of wart that often appears as a rough, raised lesion with a cauliflower-like appearance. In this case, the description of an erythematous, smooth, dome-shaped papule on the foot is consistent with the features of a wart.

The other options listed (hidradenoma, pyogenic granuloma, and poroma) are less likely based on the provided information and are not commonly associated with the characteristics described. However, it's important to note that a definitive diagnosis should be made by a healthcare professional after a thorough examination and, if needed, a biopsy of the lesion.

Alopecia Areata Diagnosis

A 64-year-old woman with stable hypothyroidism presents to the clinic after experiencing sudden hair loss 2 weeks following a mild COVID-19 infection that was confirmed by a positive COVID-19 rapid antigen test. She had no prior history of hair loss and denies starting new medications, recent illnesses, or psychosocial stressors. The scalp shows enlarging circumscribed patches of nonscarring alopecia. Other findings included pitting on multiple fingernails. Laboratory blood work was normal, including complete blood counts, electrolytes, antinuclear antibodies, erythrocyte sedimentation rate, C-reactive protein, dehydroepiandrosterone-S, and thyroid stimulating hormone. What is the most likely diagnosis? Trichotillomania Tinea capitis Alopecia areata Secondary syphilis

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The most likely diagnosis in this case is "Alopecia areata."

Alopecia areata is an autoimmune condition that can result in sudden hair loss, often in small, round or oval patches on the scalp or other areas of the body. It can be triggered or exacerbated by various factors, including viral infections, and in this case, the patient experienced sudden hair loss following a mild COVID-19 infection. The presence of circumscribed patches of nonscarring alopecia on the scalp is a characteristic feature of alopecia areata. Additionally, the mention of pitting on multiple fingernails is consistent with the association of nail changes in some cases of alopecia areata.

Trichotillomania is a psychiatric disorder characterized by the compulsive pulling of one's hair, typically resulting in irregular and broken hair. Tinea capitis is a fungal infection of the scalp, which usually presents with scaling, itching, and hair loss. Secondary syphilis can lead to a variety of symptoms, but it typically doesn't present with circumscribed patches of alopecia.

Given the clinical presentation and the timing of hair loss following a viral infection, alopecia areata is the most likely diagnosis in this case. However, it's important to confirm the diagnosis through a dermatological evaluation and possibly a skin biopsy if needed.

Ganglion Cyst Diagnosis

A 61-year-old woman presents with a 7-month history of a bump on the front of her left knee. The lesion is slightly tender but otherwise is asymptomatic. She is concerned that the lesion may be cancerous. She has no other medical problems and takes vitamin D daily. On physical examination, a firm subcutaneous tumor is noted on the left knee measuring 8 cm without overlying skin changes. She has no other similar lesions elsewhere on her body. What is your diagnosis? Synovial cyst
Ganglion cyst Pigmented villonodular synovitis Lipoma

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Based on the information provided, the most likely diagnosis is a **Ganglion Cyst**.

Ganglion cysts are noncancerous, fluid-filled lumps that most commonly develop along the tendons or joints of your wrists or hands. However, they can also occur in other areas, including the knees. Ganglion cysts are typically round or oval and are filled with a jelly-like fluid.

The key features supporting this diagnosis in the scenario you described include:

1. **Location:** Ganglion cysts often appear near joints or tendons.
2. **Size:** The size of the lesion described (8 cm) is consistent with the size that ganglion cysts can attain.
3. **Tenderness:** Ganglion cysts can be slightly tender, especially when pressure is applied.

It's important to note that a definitive diagnosis would require further evaluation, such as imaging studies like ultrasound or MRI, and possibly aspiration of the cyst fluid for analysis. While this information is suggestive of a ganglion cyst, it's always recommended for individuals to consult with a healthcare professional for a thorough examination and accurate diagnosis

Tinea Versicolor Diagnosis

November 24, 2023

A 65-year-old man presents with a recurring rash on his back. He has had the rash several times before, most often during the summer, and it was treated successfully with an antifungal shampoo prescribed by a prior dermatologist. The rash is not itchy or painful. He has a history of depression

and hypertension. On physical examination, hyperpigmented macules coalescing into patches with very fine white scale are found. The lesions are scattered primarily on his upper chest and upper back. What is your diagnosis? Pityriasis rosea Tinea corporis Vitiligo Tinea versicolor

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Based on the provided information, the most likely diagnosis is **Tinea Versicolor**.

Tinea versicolor, also known as pityriasis versicolor, is a common fungal infection of the skin caused by the yeast *Malassezia*. The condition often presents with hyperpigmented macules that coalesce into patches with very fine white or light-colored scale. It is typically not itchy or painful. The rash is often more noticeable after sun exposure, and recurrence is common, especially during the summer months.

The fact that the patient had a prior successful treatment with an antifungal shampoo prescribed by a dermatologist further supports the likelihood of tinea versicolor. This condition is commonly treated with topical or oral antifungal medications.

While pityriasis rosea, tinea corporis, and vitiligo may also present with skin changes, the description provided, along with the history of successful treatment with an antifungal shampoo, is more indicative of tinea versicolor in this case. However, a definitive diagnosis should be made by a healthcare professional based on a thorough examination and, if necessary, additional tests.

PXE: Elastic Fiber Disorder

A 22-year-old woman presents for evaluation of progressive skin changes on her neck and arms beginning sometime around puberty. She tried various over-the-counter anti-itch, antiaging, and eczema creams that were ineffective. She has no personal or family history of skin conditions and is otherwise healthy. Review of systems is negative for skin laxity, joint hypermobility, or vision changes. Physical examination reveals numerous nontender, noninflammatory, yellow, 2- to 5-mm papules that coalesce into reticulated plaques on the nape of her neck and bilateral antecubital fossa. A punch biopsy demonstrates fragmentation and calcification of elastic fibers. What is your diagnosis GGXC-mediated coagulation factor deficiency ENPP1-mediated premature arterial calcification Pseudoxanthoma elasticum Ehlers-Danlos syndrome

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This patient's yellow, 2- to 5-mm papules that coalesce into reticulated plaques on the nape of her neck and bilateral antecubital fossa, along with the histopathologic findings of fragmentation and calcification of elastic fibers, are consistent with pseudoxanthoma elasticum (PXE). PXE is an inherited disorder characterized by progressive mineralization of elastic fibers in the skin, eyes, and cardiovascular system. The condition primarily affects the skin, eyes, and cardiovascular system. In the skin, elastic fibers become mineralized, leading to the development of yellow papules and plaques. PXE can also affect the eyes, causing angioid streaks, and the cardiovascular system, resulting in arterial calcifications.

The other options (GGXC-mediated coagulation factor deficiency, ENPP1-mediated premature arterial calcification, and Ehlers-Danlos syndrome) do not match the clinical and histopathologic findings described in the case.

Scleroderma Diagnosis: Systemic Sclerosis

A 47-year-old otherwise healthy woman presents to the clinic with several concerns. Over the past several months, she has experienced thickening of her skin around her hands, forearms, and face. Her fingers turn blue and then pale when she is exposed to cold. Additional recent symptoms include fatigue and gastroesophageal reflux. She takes no medications and has no family history of autoimmune disease. On physical examination, the patient has skin thickening on the hands, forearms, and face. She also has hypopigmented macules on the hands and lower legs. What is your diagnosis? Morphea Stiff-skin syndrome Systemic sclerosis Scleredema

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The patient's symptoms, including skin thickening, Raynaud phenomenon (fingers turning blue and pale in response to cold), fatigue, and gastroesophageal reflux, are suggestive of systemic sclerosis, also known as scleroderma. This autoimmune connective tissue disorder is characterized by excessive collagen deposition leading to fibrosis in the skin and internal organs. The presence of hypopigmented macules on the hands and lower legs is a common finding in systemic sclerosis.

Therefore, the most appropriate diagnosis among the options provided is **Systemic sclerosis**.