A RARE CASE OF ERYTHEMA ELEVATUM DIUTINUM

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Introduction:
Erythema elevatum diutinum (EED) is a rare chronic form of cutaneous leukocytoclastic vasculitis affecting small vessels with only a few hundred cases reported in the literature. The disease is commonly associated with various inflammatory and infectious diseases. Lesions are cutaneous and typically present on extensor surfaces as purple violaceous papules, plaques, and nodules. We report the case of a 60 year-old male patient with cutaneous lesions consistent with EED.

Case Report:
A 60 year old male presented to our dermatology clinic with a 2.5 year history of erythematous, raised, asymptomatic papules and plaques on the bilateral hands and elbows. (FIG 1, FIG 2) The lesions occur in flares and persist for months before slowly resolving. The patient never completely cleared the eruption since it started. He was previously diagnosed with granuloma annulare and was treated with topical class 1 steroids with no improvement. Based on the chronicity and appearance of the lesions, erythema elevatum diutinum was suspected and a biopsy was performed. The histopathology revealed a moderate infiltrate in the superficial to mid dermis consisting of numerous neutrophils, histiocytes, and scattered lymphocytes with prominent leukocytoclasia. (FIG 3, FIG 4) These findings were consistent with EED. A workup was performed to evaluate if there was an identifiable cause. A CBC, AST, ALT, SPECT, ANA, anti-histone and G6PD level was performed with no abnormalities observed. A thorough history with the patient identified no risk factors for HIV or viral hepatitis exposure so these labs were not performed. The patient was prescribed oral dapsone 100mg daily. He has been on this medication now for over two months and in a more recent follow up over the phone he reports he is doing well.

Discussion
Erythema elevatum diutinum (EED) was first described in the late 1800’s separately by Hutchinson1 and Bury2. It was not until 1882 that Crocker and Williams found similarities in their cases and those described by Hutchinson and Bury that they reclassified the condition as erythema elevatum diutinum3,4. The Latin name describes the characteristics of the lesions seen in EED: red (erythema), elevated (elevatum), and persistent (diutinum). EED is a rare dermatosis with only a few hundred cases reported in the literature. It affects both sexes with no known racial predilection5. It can occur at any age but most commonly affects adults in the age range 30 to 60 years6,7,8.

The lesions tend to occur in a symmetrical distribution on the extensor surfaces and skin overlies joints9. The lesions first manifest as red-brown, or purple papules, plaques or nodules that are soft lesions from edema and tissue destruction10. The lesions become firmer as they fibrose and turn a yellow to brownish hue with resolution10,11. EED cutaneous manifestations are generally asymptomatic but may be tender to touch, pruritic, burn or sting particularly in onset of new lesions. Other associated symptoms include arthralgia (40% of cases), fever, and other constitutional symptoms12,13. EED lesions tend to have a prolonged course with variable periods of flares or persistence with no change. The disease course has an average of 5-12 years before resolution. The lesions sometimes recur after treatment has been stopped5,14.

The etiology of EED is unknown, but it is believed to be a form of chronic recurrent leukocytoclastic vasculitis resulting from immune complex deposition in vessel walls15. The trigger to the immune reaction is theorized to be from an unknown antigen. EED has a strong association with certain autoimmune, neoplastic and infectious processes. Associated autoimmune diseases include celiac disease16, rheumatoid arthritis17, relapsing polychondritis18, and type I diabetes mellitus19. Neoplastic diseases that have been reported in association with EED include hematologic malignancies, prostate carcinoma, testicular lymphoma20, lung cancer21 and breast cancer22. Hematologic malignancies account for 30% of associated EED cases and include: myelodysplasia, myeloproliferative alterations, multiple myeloma, cryoglobulinemia and immunoglobulin G (IgG) or immunoglobulin A (IgA) paraproteinemias. 6,13,16,17,18. There are also some reported infectious associations including streptococcus19, hepatitis, tuberculosis and HIV 20,21.

Histopathologically acute lesions present with a wedge-shaped infiltrate of polymorphonuclear cells, leukocytoclastic debris, macrophages, histiocytes and rarely eosinophils surrounding blood vessels forming a leukocytoclastic vasculitis23. The proportion of histiocytes in the infiltrate increases and the appearance of a leukocytoclastic vasculitis diminishes as the course progresses. Chronic lesions show dermal fibrosis with a proliferation of dermal spindle cells and occasionally an increase of multinucleate giant cells and finally a granulation response with healing24. The histopathology is not pathognomonic but is highly suggestive of EED.

First-line treatment of EED is dapsone or sulfonamides25. Due to the disease’s chronic nature, stopping treatment may cause the skin lesions to recur. Therapy is found to be more effective in earlier lesions and less effective in chronic fibrotic lesions. In patients with an associated disease, treatment is more successful if the underlying disease is also targeted such as treating HIV with an antiretroviral, or celiac’s disease with a gluten free diet26.

Conclusion
EED is a chronic and recurrent leukocytoclastic vasculitis diagnosed by a combination of clinical and histopathologic findings. The disease etiology is thought to be due to immune-complex deposition in small vessels. EED is associated with many autoimmune disorders, infectious diseases and malignancies and thus effective treatment requires targeting both the underlying disorder and the lesions themselves.  

References:
17. Garcia, F., 2014
18. Garcia, F., 2014

FIGURE 1: Characteristic EED lesions on the hands bilaterally.

FIGURE 2: Lesions on the bilateral extensor elbows.

FIGURE 3: Histopathology of specimen at 4x demonstrating the superficial to mid dermal localization of the infiltrate.

FIGURE 4: Histopathology of specimen at 20x demonstrating the mixed infiltrate of histiocytes, lymphocytes and neutrophils with leukocytoclastic vasculitis.