

CASE REPORT

Non-tuberculous Erythema Induratum in a 90-year-old Caucasian Female

Robert R. Hoopes^{1*}, Karl K. Kellawan^{1,2}

¹Wright State University Boonshoft School of Medicine, Dayton, OH

²Forefront Dermatology, Dayton, OH

Introduction

Mycobacterium tuberculosis is a highly virulent bacterial species within the Mycobacteriaceae family. It is the pathogen responsible for pulmonary tuberculosis and its many extrapulmonary manifestations. Cutaneous expression of the disease occurs in about 1-2% of cases [1-3]. Erythema Induratum of Bazin (EIB) is an extrapulmonary, cutaneous manifestation of the disease, presenting with tender, violaceous nodules, predominantly on the lower extremities in those with underlying pulmonary tuberculoid infection [4, 5]. Gilchrist et al describes the evolution of terminology for erythema induratum (EI) and its association with tuberculoid, Erythema induratum of Bazin (EIB), and non-tuberculous infections. Stating that current literature uses the terms nodular vasculitis and erythema induratum interchangeably [6]. Some suggest the pathophysiology of this inflammatory process to be the result of a type III-hypersensitivity reaction of immune complex deposition [7], or a type IV hypersensitivity reaction against antigens of tuberculoid or non-tuberculoid origin [8]. Regardless of etiology, EI presents as tender lesions often involving the lower extremities with nodules progressing to focal ulcerations in a matter of days to weeks. Current literature is in disagreement over whether or not the presence of vasculitis must be a qualification for the diagnosis of erythema induratum [9]. Nonetheless, histopathology often shows a lobular panniculitis of predominate neutrophilic infiltration with variation in the dominant vessel involved [10, 11]. Patients presenting with suspected EI are evaluated for underlying tuberculosis infection. However, as evidenced by current literature [12-14], cases of patients with diagnosed EI without underlying tuberculosis infection have been reported, thought to be the result of other infectious or non-infectious etiologies. We report a case of a 90-year-old female presenting with suspected EI without underlying tuberculosis. An interesting aspect of our case report is our patient's history of temporal arteritis. Temporal arteritis or Giant Cell Arteritis (GCA) is the most common vasculitis in the western world in adults over 50-years-old [15]. It is an autoimmune inflammation of blood vessels, commonly involving the temporal artery. Quick identification of the disease is necessary to avoid possible vision loss and other complications [16].

Current literature does not detail and systemic manifestations of GCA confined to the lower extremities, however, we find it interesting that our 90-year-old patient with diagnosed EI also has a documented history of temporal arteritis controlled with corticosteroid treatment.

Case Report

A 90-year-old, Caucasian female presented to clinic with sores on her right distal leg for the past 5 months with mild swelling. The patient had taken a ten-day course of Bactrim prescribed by her primary care physician and topical Neosporin which resulted in minimal improvement. Upon initial exam, five tender subcutaneous nodules, two of which had developed central ulcerations, were found on her right lower extremity (Figure 1 and Figure 2). Subsequent chest x-ray and laboratory



Figure 1: Right lower extremity showing tender, erythematous subcutaneous nodules with central ulcerations.

Correspondence to: Robert R. Hoopes, Boonshoft School of Medicine, Dayton, Ohio, Tel: 937-371-4559; Email: robhoopes7[AT]gmail[DOT]com

Received: June 20, 2020; **Accepted:** June 24, 2020; **Published:** June 29, 2020

*This article is reviewed by "Liu Y"



Figure 2: Right distal medial leg demonstrating subcutaneous nodule with central ulceration.

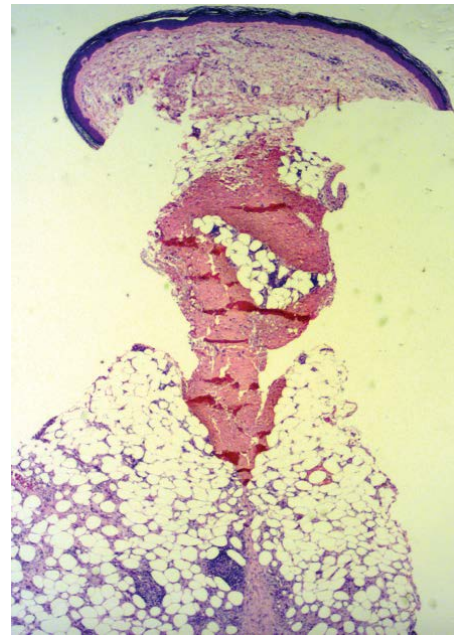


Figure 3: 25x magnification of biopsy taken from patients right distal leg showing involvement of the subcutis and lymphohistiocytic infiltration.

panels were obtained including QuantiFERON Gold testing. Chest X-ray revealed left basilar airspace disease but no concerns for active or latent tuberculosis infection and a negative QuantiFERON test. Cultures of right leg ulcerations were negative for acid-fast bacilli. Two 4-mm punch biopsies were taken from the patient’s right distal medial leg; one at initial presentation with repeat biopsy 3 weeks later. Biopsy results were sent for pathological examination and results were consistent, revealing a large zone of necrosis involving most of the subcutis and a dense dermal lymphohistiocytic infiltrate and foci of vasculitis (Figures 3, 4 and 5). Erythema induratum was the favored diagnosis given the patients clinical appearance and five-month duration of symptomatic nodules. The patient was started on prednisone 7.5 mg daily at the initial clinic visit. At the second clinic visit three weeks later, the patient received 2cc intralesional Kenalog 2.5 mg/cc injections into each of the five lesions and started on prednisone 40 mg to be taken daily with breakfast. At follow-up one week later, the patient reported less pain and physical examination revealed less swelling of the right distal leg with well healing biopsy sites and 2 more subcutaneous nodules that have ulcerated to the surface. The patient was instructed to reduce prednisone to 20 mg daily for two weeks, then 10 mg daily for another two weeks. Routine cleaning and Vaseline were used on ulcerated lesions.

The patient returned to clinic approximately 2 months after initial presentation for her fourth clinic visit. Physical examination was notable for four 0.2 – 2.5 cm clean ulcers and one 1 cm subcutaneous nodule on the right distal leg. Patient was instructed to reduce prednisone to 5 mg daily. At patient’s fifth clinic visit 1 month later, patient reported improved pain and continued cleaning of ulcers with slow healing. Physical examination revealed three 1.4 – 2 cm clean ulcers with no

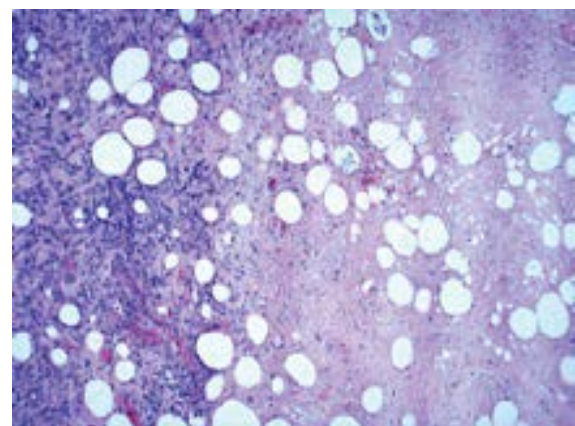


Figure 4: 200x magnification of biopsy taken from right distal leg displaying necrosis of adipose cells and lymphohistiocytic infiltration.

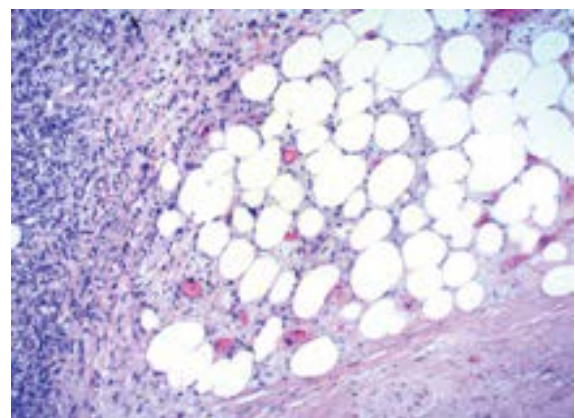


Figure 5: 400x magnification demonstrating lymphohistiocytic infiltration with foci of vasculitis.

induration. At four months after initial presentation, the patient returned for her fifth clinic visit which she reported continued cleaning of wounds and noticeable improvement. Physical examination revealed three 0.9 cm – 1.4 cm clean wounds on the right distal leg. At the time of this report, the patient is currently being seen in the clinic with noticeable improvement in right distal leg wounds with continued wound care consisting of dressing changes and application of Vaseline.

Discussion

Erythema induratum is a panniculitis that can be associated with various underlying pathologies, namely tuberculosis. Reports have been published of this vasculitis occurring in non-tuberculous infected patients, however, literature does not mandate the presence of vasculitis in order to make the diagnosis. Our patient had no underlying bacterial infection explaining the formation of these ulcerative nodules. Medical history of our patient was notable for temporal arteritis and rheumatoid arthritis for which she was taking prednisone 5 mg and methotrexate 2.5, respectively. While speculative, perhaps a patient with an underlying vasculitis may be susceptible to the development of other forms of vascular inflammation, although, at the time of this writing, literature does not report any cases of erythema induratum in patients with pre-existing vasculitides such as our patient with temporal arteritis. Immunosuppressed patients are at increased risk of acquiring tuberculosis possibly leading to EIB, however, our patient was not found to have any evidence of a tuberculous infection. In our patient, pathology reports identified large zones of necrotic subcutis with foci of vasculitis. With the ongoing controversy surrounding the presence or absence of vasculitis in histopathological examination, we report this case to demonstrate the uncertain etiology in which erythema induratum of a non-tuberculous infected patient may present.

References

- Magalhaes T, Dammert V, Samorano L, Litvoc M, Nico M et al. (2018) Erythema induratum of Bazin: Epidemiological, clinical and laboratorial profile of 54 patients. *J Dermatol* 45: 628-629. [[View Article](#)]
- Von Huth S, Ovrehus A, Lindahl K, Johansen I (2015) Two cases of erythema induratum of Bazin – a rare cutaneous manifestation of tuberculosis. *International J of Infectious Diseases* 38:121-124. [[View Article](#)]
- Franco-Paredes C, Marcos L, Henao-Martinez A (2018) Cutaneous Mycobacterial Infections. *Clin Microbiol Rev* 32. [[View Article](#)]
- Cribier B (1990) Erythema indure de Bazin. *Ann Dermatol Venereol* 117: 937-943. [[View Article](#)]
- Mann D, Sant'Anna F, Schmaltz C (2019) Cutaneous tuberculosis in Rio de Janeiro, Brazil: description of a series of 75 cases. *Int J Dermatol* 58:1451-1459. [[View Article](#)]
- Gilchrist H, Patterson J. Erythema nodosum (2010) erythema induratum (nodular vasculitis): diagnosis and management. *Dermatol Ther* 23: 320-327. [[View Article](#)]
- Schneider J, Jordaan H (1997) The Histopathologic Spectrum of Erythema Induratum of Bazin. *Am J Dermatopathol* 19: 323-333. [[View Article](#)]
- Ollert M (1993) Erythema induratum of Bazin. Evidence of T-lymphocyte hyperresponsiveness to purified protein derivative of tuberculin: report of two cases and treatment. *Arch Dermatol* 129: 469-473. [[View Article](#)]
- Segura S, Pujol R, Trindade F, Requena L (2008) Vasculitis in erythema induratum of Bazin: A histopathologic study of 101 biopsy specimens from 86 patients. *J Am Acad Dermatol* 59: 839-851. [[View Article](#)] doi:10.1016/j.jaad.2008.07.030
- Chen S, Chen J, Chen L, Zhang Q, Luo X et al. (2013) Mycobacterium tuberculosis Infection Is Associated with the Development of Erythema Nodosum and Nodular Vasculitis. *PLoS ONE* 8: e62653. [[View Article](#)]
- Baselga E (1997) Detection of Mycobacterium tuberculosis DNA in lobular granulomatous panniculitis (erythema induratum-nodular vasculitis). *Arch Dermatol* 133: 457-462. [[View Article](#)]
- Patterson J, Brown P, Broecker A (1989) Infection-induced panniculitis. *J Cutan Pathol* 16: 183-193. [[View Article](#)]
- Gimenez-Garcia R, Sanchez-Ramon S, Sanchez-Antolin G, Velasco Fernandez C (2003) Red fingers syndrome and recurrent panniculitis in a patient with chronic hepatitis C. *Journal of the European Academy of Dermatology and Venereology* 17: 692-694. [[View Article](#)]
- Park S, Chang I, Im M (2015) Nodular Vasculitis That Developed during Etanercept (Enbrel) Treatment in a Patient with Psoriasis. *Ann Dermatol* 27: 605. [[View Article](#)]
- Gonzalez-Gay M, Prieto-Pena D, Martinez-Rodriguez I (2019) Early large vessel systemic vasculitis in adults. *Best Practice & Research Clinical Rheumatology* 33: 101424. [[View Article](#)]
- Ing E, Pagnoux C, Torun N (2019) Advances in the diagnosis of giant cell arteritis. *Curr Opin Ophthalmol* 30: 407-411. [[View Article](#)]

Citation: Hoopes RR, Kellawan KK (2020) Non-tuberculous Erythema Induratum in a 90-year-old Caucasian Female. *Front Dermatol Cosmet* 1: 001-003.

Copyright: © 2020 Hoopes RR, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.