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Erythema Induratum of Bazin, a Rare Manifestation of Cutaneous Tuberculosis: A Case Report

SK Jakaria Been Sayeed[1*], Md. Alamgir Hossain[2], Md. Moniruzzaman[1], Ali Shahzad Malik[3], Sabrina Rahman[4]

Abstract

Background: *Erythema induratum of Bazin is a rare manifestation of cutaneous tuberculosis. It may mimic some systemic disorders like sarcoidosis, poly arteritis nodosa, lymphoproliferative disorder, Histoplasmosis, and lupus profundus.*

Case Presentation: *A 38-year young female, diabetic, and hypertensive presented with multiple painful skin lesion over anterior part of her leg for 3 months. These skin lesion used to appear as painful erythematous nodules of variable size and shape over the anterior and lateral aspects of both legs that became ulcerate, healed with hyperpigmentation. On examinations, all of her systemic examinations revealed unremarkable except skin lesion. Punch biopsy from skin lesion revealed lobular panniculitis with granuloma suggestive of erythema induratum and MTB gene Xpert from skin lesion found positive. Thereafter, she was put on anti TB therapy six-month regimens according to the national TB guideline, Bangladesh. After 2 and half months of treatment, her skin lesion disappeared.*

Conclusion: *In a TB prevalent country, erythema induratum should be kept in differential diagnosis along with others. As it is usually underdiagnosed or misdiagnosed because of the absence of typical clinical features of TB, therefore comprehensive investigations like skin biopsy with histopathology, detecting DNA of Mycobacterium tuberculosis by PCR, positive Mantoux test are the cornerstone for confirmatory diagnosis.*

Key words: *Erythema induratum of Bazin, Cutaneous Tuberculosis, lobular panniculitis*

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Introduction

Erythema induratum of Bazin is a form of lobular panniculitis, rare manifestations of cutaneous tuberculosis affecting legs of young to middle age females[1]. It is characterized by recurrent clusters of painful, erythematous, violaceous, subcutaneous nodules with or without ulceration that heals with hyperpigmentation or sometimes scarring. EIB may present as panniculitis with varying combinations of granulomatous inflammation, primary vasculitis, and sometimes necrosis. Etiologically Mycobacterium tuberculosis (M. TB*)* is to be linked to EIB skin lesions although the DNA of Mycobacterium tuberculosis (M. TB*)* is not commonly found in all skin biopsies[2]. Misdiagnosis or underdiagnosis is common as some other diseases like poly arteritis nodosa, erythema nodosum, nodular vasculitis, deep morphea, and lupus profundus have similar presentations[3]. Bangladesh is an endemic area of tuberculosis but EIB is very rare. As erythema induratum of Bazin is a potentially curable disease, so early diagnosis by comprehensive investigations like skin biopsy with histopathology, detecting DNA of Mycobacterium tuberculosis by PCR, positive Mantoux test are the cornerstone for confirmatory diagnosis and prompt anti TB medication initiation is of paramount importance. As far as we know, this is the first case of EIB due to tuberculosis that is going to be reported from Bangladesh.

1. Clinical Neurology, National Institute of Neurosciences & Hospital, Dhaka, Bangladesh.
2. Department of Medicine, Shaheed Suhrawardy Medical College Hospital, Dhaka, Bangladesh.
3. Department of Medicine, AL Nahdha Hospital, Muscat, Oman.
4. Department of Medicine, Dhaka Medical College Hospital, Dhaka

† These authors contributed equally to this work.

* These authors contributed equally to this work.

¶ First & Corresponding author

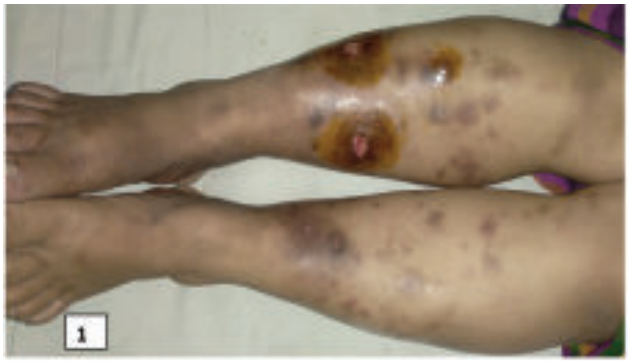
Corresponding author: Dr. S.K. Jakaria Been Sayeed, EULAR Certified Rheumatologist, Medicine & Rheumatology specialist National Institute of Neurosciences & Hospital, Dhaka. Email- skjakaria1@gmail.com. Phone no: +8801783335147, ORCID ID: https://orcid.org/0000-0002-9427-1746

Case Presentation

A 38-year young female, diabetic, and hypertensive presented with multiple painful skin lesion over the anterior part of her leg for 3 months. These skin lesion used to appear as painful erythematous nodules of variable size and shape over the anterior and lateral aspects of both legs that became ulcerate, healed with hyperpigmentation [Figure 1]. On query, she gave the history of low-grade intermittent evening rise fever that subsided with antipyretic and sweating. There was no history of cough, weight loss, nasal crust formation, joint pain or swelling, oral ulceration, photosensitive skin rash, abdominal pain, tingling or numbness in any part of the body, hypertensive emergency, and history of contact with TB patient. She took the BCG vaccine during childhood. On examinations, all of her systemic examinations revealed unremarkable. Laboratory investigations reduced Hb (11.1 g/dl,[12-16], high ESR 67 mm in 1st hour [10-20 mm] and CRP 27 mg/L [up to 5 mg/L], urine examination, liver and renal function were normal. Blood sugar was raised (17.2 mmol/L [3.5-5.5 mmol/L], HbA1C 9/2% [Normal < 6.5%]). Immunological markers like ANA, Anti dsDNA, c and p ANCA, complement C3 and C4 were unremarkable. Chest x-ray, ultrasonogram of the abdomen revealed no abnormality [Table 1]. Duplex scan of both lower limbs revealed only varicose vein. Interestingly, the Mantoux test was positive

Table 1. Laboratory Findings of Patient on Admission

Trait	Value	Reference
Hemoglobin	11.1 g/dl	11.5-15.5 g/dl
White Blood Cell	5000 mm3	4-11000 mm3
Platelet	1,85000 mm3	1,50000-4,500000 mm3
ESR	67 mm	10-20 mm in 1st hour
CRP	27.2 mg/L	<6 mg/L
MCV	78 fL	76-96 fL
MCH	29 pg	27-32 pg
MCHC	30 g/dl	30-35 g/dl
PBF	Normocytic normochromic anaemia	
Urine R/E	Unremarkable	
S. Creatinine	0.66 mg/ dl	0.5-1.2 mg/dl
HbA1C	9.2%	< 6.5%
SGPT	23 IU	10-40 IU
ANA	Negative	
Anit-ds-DNA	12 Iu /ml (negative)	< 30 Iu /ml
Complement		
C3	1.2	0.9-1.8 g/ L
C4	0.9	0.2-0.5 g/L
p- ANCA	1.91 U/ml (negative)	< 5 U/ml
c- ANCA	2.32 U/ml (negative)	< 5 U/ml
S. TSH	1.98 ìIu/ ml	0.85-4.54 ìIu/ ml
FT4	1.12 ng/dl	0.7-1.48 ng/dl
HbsAg, Anti HCV	Negative	
S. electrolyte		
Na^+	137 mmol/l	135-145 mmol/l
K^+	3.9 mmol/l	3.5-5.5 mmol/l
Mg^{2+}	1.89 mmol/l	1.7-2.2 mmol/l
Ca^{2+}	10.2 mg/dl	9-11 mg/dl



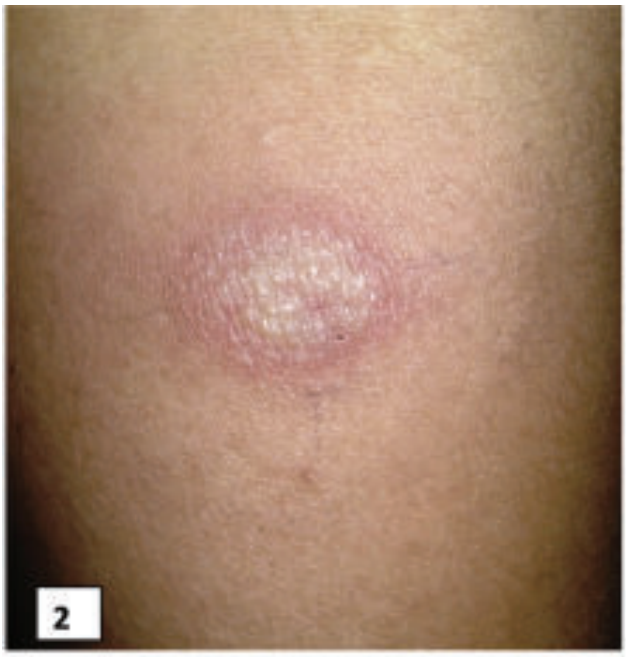


Figure 1. *Multiple painful erythematous nodules and ulcers of variable size and shape over the anterior and lateral aspects of both legs, some old lesions healed with hyperpigmentation. C) Figure 2. Palpable erythematous nodule (21 mm) after tuberculin sensitivity test.*

(21 mm) [figure 2]. However, sputum for AFB and gene Xpert was negative. Punch biopsy from skin lesion revealed lobular panniculitis with granuloma with presence of chronic inflammatory cell in and around blood vessels suggestive of erythema induratum and MTB gene Xpert from skin lesion found positive. Thereafter, she was put on anti TB therapy six-month regimens according to the national TB guideline, Bangladesh. After 2 and half months of the treatment her skin lesion disappeared.

Discussion

Erythema iduratum of Bazin, is caused by tuberculin hypersensitivity although common clinical features of active tuberculosis and organism (Mycobacterium tuberculosis) are hardly found from affected tissue[4]. That's why some authors raise the argument about tuberculosis as the cause of erythema induratum. It may present with fever, organomegaly, lymphadenopathy, cutaneous nodules that mimic systemic disorders like sarcoidosis, vasculitis like poly arteritis nodosa, lymphoproliferative disorder, Histoplasmosis, and lupus profundus[5]. Erythema nodosum has similar presentations but is non-ulcerating. Behchet disease can present like this however, lesions are widespread, affecting arm and limbs, with oral or genital ulceration. Cutaneous poly arteritis nodosa usually presented with livedo reticularis, tender subcutaneous nodule, cutaneous ulceration sometimes associated with muscle wasting, peripheral neuropathy, and presence of characteristic histologic features of leukocytoclastic vasculitis. Lupus profundus commonly presented with tender, subcutaneous nodules involving the proximal extremities, trunk, face, and scalp. EIB is prevalent in adult females with 9:1 female-to-male ratio. It is strongly associated with obesity and chronic venous insufficiency[6]. Our patients was diabetic, overweight and had multiple painful cutaneous nodules in the distal part of the anterior and lateral surface of both legs that usually ulcerate along with superficial varicose vein with low - grade fever. Therefore, we thought about nodular vasculitis and erythema induratum as our differential diagnosis. We went for punch biopsy followed by histopathology from the ulcerated lesion and found lobular panniculitis and granuloma with caseation and presence of chronic inflammatory cells in and around blood vessels suggestive of erythema induratum.

The histopathological features of EIB include lobular or diffuse septolobular panniculitis, vasculitis, as well as granulomatous inflammation with caseous necrosis, epithelioid cells, and multinucleated giant cells[6]. To detect MTB from skin lesions by identifying MTB DNA by PCR and positive Mantoux test (> 15 mm) are also needed to confirm the diagnosis[7,8]. In our case, MTB DNA was detected from skin lesions by PCR along with a positive Mantoux test (21mm). Thereafter, anti-tuberculous medications were started promptly. After 2 and half months of treatment, the skin lesion improved and disappeared. In a nutshell, to diagnose erythema induratum of Bazin, painful nodule with or without ulceration, features of active TB, positive Mantoux test, characteristic histopathological features, detection of MTB gene by PCR, and responsiveness of anti TB medications can be considered for the diagnostic criteria.

Conclusion

For painful ulcerated nodular skin lesion over in front of leg especially in females in an endemic zone of tuberculosis, one should consider erythema induratum as a differential

diagnosis. Early diagnosis and initiation of anti-tuberculosis medication can cure the disease.

Abbreviation

ANA- Anti nuclear antibody, Anti ds DNA- Anti double stranded DNA, ANCA- Anti neutrophil cytoplasmic antibody, EIB- Erythema induratum of Bazin, M. TB- Mycobacterium tuberculosis, PCR- Polymerase chain reaction.

Declaration Section

Ethics Approval and Consent to Participate

Written informed consent was obtained from the patient.

Consent for Publications

Written informed consent was obtained from the patient for publication of this case report and any accompanying images. Ethical copy of the written consent is available for review by the Editor-in-Chief of this journal.

Availability of data and material

Not applicable until published.

Competing interests

The authors declare no competing interests.

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Declaration of Interest

None of the authors have any conflict of interest including financial support and the manuscript represents original and valid work. Neither this manuscript nor one with substantially similar content under my authorship has been published or is being considered for publication elsewhere, except as described in an attachment, and copies of closely related manuscripts are provided. To reproduce the article in any form, prior permission from the Chief Editor of this journal will be obtained.

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