Case Report

Diagnosis of Papulonecrotic Tuberculid with chronic kidney disease- A rare Case Report.

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Abstract

Papulonecrotic Tuberculid is a rare cutaneous manifestation of tuberculosis occurring in less than 5% of active TB cases. A 56-year old male with pulmonary tuberculosis and non-compliant to anti-tuberculosis therapy presented with multiple skin eruptions over the shins and hands in September, 2021 at Central Park Teaching Hospital, Lahore. Clinical features and skin biopsy were indicative of Papulonecrotic tuberculid, hence, he was put on renal adjusted anti tuberculous treatment due to his worsening serum creatinine, which eventually lead to his death. Although papulonecrotic tuberculids are rarely reported, a strong clinical suspicion and understanding of the disease is required to timely and effectively recognize and treat it.

Keywords: Papulonecrotic tuberculid, skin eruptions, serum creatinine, case report.

Introduction

Tuberculosis is still one of the major causes of morbidity in developing countries in the 21st century. Pakistan is a highly endemic area for tuberculosis (TB) bearing the 5th greatest burden of TB in the world. In 2018 alone, approximately 370,000 cases were reported in Pakistan.[1] Papulonecrotic Tuberculid is a rare cutaneous manifestation of tuberculosis occurring in less than 5% of active TB cases.[2] This study is a report of such a rare case.

Patient Information

A 56 year old male, a known smoker for 10 years, presented at Central Park Teaching Hospital (CPTH) in the month of September, 2021, with history of bilateral leg swelling and skin eruptions over the shins and back of hands for 2 months. The bilateral leg swelling was present till mid-shin and it was progressively increasing. There was no associated pain on walking or otherwise but patient did notice shortness of breath on exertion during this time. The skin lesions erupted suddenly over the shins first, they were 5 in number which healed over time and then erupted again over the shins since one month with involvement of hands as well.

Previously, patient was admitted in a pulmonology ward of another hospital, 3 months back in June 2021, where he was diagnosed as a case of pulmonary tuberculosis, after which he was started on the regimen of rifampicin, ethambutol, pyrazinamide and isoniazid and later discharged after 3 days. After discharge, patient was not following the regimen as prescribed, reason being subjective misconception by patient that these medications will do more harm than good to him. He admitted to taking the medication every third day. The medical record of his stay at the previous hospital was partially available. The discharge slip mentioned patient suffering from acute kidney injury on stay with creatinine of 1.46mg/dl which was treated and his creatinine on discharge was 0.86mg/dl.

Diagnostic Assessment

In view of this, he was admitted through outpatient department for complete workup and treatment 3 months after discharge from the previous hospital. Upon examination, his vitals were as follows: blood pressure 100/60mmHg, pulse was regular 80 beats per minute, room air saturation was 88% and respiratory rate was 20/min. General outlook of the patient was sickly with temporal recession and weight loss. He had no leukonychia, kilonychia, erythema, pallor, sweating of palms, small muscle wasting of hands, cyanosis or jaundice. His jugular venous pressure was normal and no lymph nodes were palpable in cervical or axillary area. On chest examination he had normal vesicular breathing with no added sounds. Other systemic examinations yielded no findings as well. The lesions on his hands and shin were rounded with raised margins measuring approximately 2mm x 2mm with the largest being on the shin measuring 3mm x 4mm. The previous lesions healed with scarring.

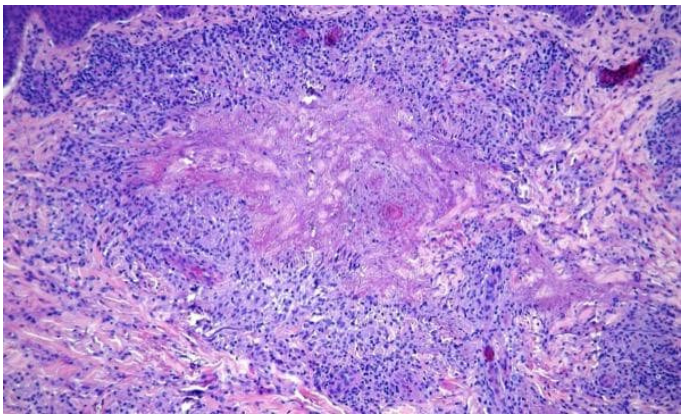
His baseline investigations showed hemoglobin of 10.6g/dl, platelets 478 thousand per microliter, TLC count of 9.9 thousand cells per microliter. His LFTs were deranged as well with Aspartate transaminase (AST) and Alanine transaminase (ALT) being twice the normal value. Renal function tests were done as well and his creatinine came out to be 2.43mg/dl with urea 89mg/dl and blood

Tuberculid lesion bilaterally on lower limbs.

urea nitrogen 67mg/dl. His chest X-ray was apparently normal with no apical consolidation or cavity formation visible. His ESR was raised at 55mm/hr. After these basic investigations, he was screened for HIV and HCV for which he was negative. His abdominal and kidney ureter bladder ultrasound was normal as well. Genexpert for mycobacterium tuberculosis was sent after sputum induction with nebulization of hypertonic normal saline which came back negative as well.

Subsequently, dermatology department was involved for consultation and after their evaluation of the patient and his skin lesions, they suspected drug induced lupus, vasculitic lesion or papulonecrotic tuberculid. Antinuclear Antibody Test was advised which came out negative as well in addition to anti-histone antibodies.

Till now, except for his raised ESR and deteriorating Renal Function Tests, no clinical or laboratory findings were leading to a concrete diagnosis, hence a bronchoscopy was planned after a High Resolution Computed Tomography (HRCT) chest and Extractable Nuclear Antibodies (ENA) profile. The patient's HRCT chest showed a small cavitation in the left apical lung field and ENA profile led nowhere. Hence, we proceeded forward with the bronchoscopy and a sample was sent for culture. The report of bronchoalveolar lavage demonstrated Mycobacterium Tuberculosis and diagnosis of pulmonary tuberculosis was confirmed. Following this, decision was made to biopsy the skin lesion which showed leukocytoclastosis with fibrinoid necrosis of the vessel wall and perivascular edema and these findings were consistent with the histological findings of a study published previously.[3] These findings were consistent with papulonecrotic tuberculid.



Histology of papulonecrotic tuberculid lesion under a microscope.

Concurrently, the patient creatinine was worsening still and it rose up to 5.68mg/dl, therefore, a nephrology consultation was taken. Patient's serum calcium was low at 6.7mg/dl and his intact parathyroid hormone was raised above 300 pg/ml. Considering pre-renal and post-renal causes were ruled out, renal cause was suspected and a renal biopsy was planned once the patient was stable enough for the procedure. In the meantime, the patient needed dialysis as his creatinine shot up to 8.5mg/dl with conservative management.

Outcome

On discharge, he was put on renal friendly regimen of anti-tuberculous therapy Rifampicin 600mg and Isoniazid 300mg daily with Pyrazinamide 1.5g on alternating days for 2 months. Patient was undergoing dialysis twice-weekly as well. On follow up, after 2 weeks, his skin lesions had started healing with no new eruptions. After 3 weeks, the skin lesions had completely settled but the patient was admitted again due to respiratory distress and pulmonary edema and subsequently, the patient died due to acute myocardial infarction in-hospital 4 weeks post-discharge.

Discussion

Tuberculosis is one of the commonest infective diseases in the developing world but cutaneous manifestations such as papulonecrotic tuberculid is seen in less than 5% of active tuberculosis cases. A study conducted in 2011 in Annals of Saudi Medicine concluded an overall incidence of cutaneous tuberculosis to be 0.7% from which only 3.8% of positive cases were papulonecrotic tuberculids.[4]

Tuberculids are cutaneous eruptions that emerge from another focus of infection from within the body, some of the commonest sites reported are shins, thighs, elbows, although rare involvement of scalp[5] and penis[6] is also reported. The diagnosis is based on clinical features a positive Purified Protein Derivative skin test which we were unable to do. Apart from that biopsy and histology of the lesion is extremely beneficial showing signs of vasculitis that include fibrinoid necrosis of the vessel wall and perivascular edema. Rapid response to anti tuberculosis therapy is the characteristic feature of these lesions.

In this patient, initially it was suspected that a vasculitic or drug induced pathology is resulting in the dermal lesions of the patient and workup was done accordingly. As the patient had partially been on antituberculosis treatment, his Genexpert was negative and only on culture of bronchoalveolar lavage were we able to isolate Mycobacterium Tuberculosis. Hence, it is essential to be vigilant in patients presenting with systemic tuberculosis and dermal lesions as prompt recognition and treatment with antituberculosis treatment leads to fruitful results. Furthermore, in patients with papulonecrotic tuberculids, a primary focus of infection should always be investigated and this case shows how difficult it can be to find the primary infective site in patients with papulonecrotic tuberculids.

Conclusion

Although papulonecrotic tuberculids are rarely reported, a strong clinical suspicion and understanding of the disease is required to timely and effectively recognize and treat it. A primary foci of infection should be thoroughly sought after if papulonecrotic tuberculids are suspected.

Footnotes

An informed consent was taken from the patient for the purpose of this case report, without revealing his identity

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