

A Case of Primary Adrenal Tuberculosis- An Autopsy Report

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Abstract

Tuberculosis (TB) is a common infectious disease in developing countries like India. A relatively uncommon site of involvement of TB is adrenal gland, which is an important cause of chronic adrenal insufficiency. Here we present a case of a 45-year-old male with no known pulmonary tuberculosis involving the adrenal glands. In the past, *Mycobacterium tuberculosis* (TB) infection was a major cause of adrenal failure and was associated primarily with early co-pulmonary infection. In the present era however, Addison's disease secondary to primary adrenal TB infection is somewhat rare. We describe a patient who was admitted to our hospital and was diagnosed incidentally with TB proven only following autopsy.

Keywords: Adrenal gland, Tuberculosis, Adrenal tuberculosis

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Introduction

Tuberculosis (TB) may affect many of the endocrine glands including the hypothalamus, pituitary, thyroid and adrenals. The most involved endocrine organ in TB is the adrenal gland. Tuberculous Addison's disease is an important cause of primary adrenocortical insufficiency particularly in the developing countries. In the past, *Mycobacterium tuberculosis* (MTB) infection was a major cause of adrenal failure. In the present era however, Addison's disease secondary to primary adrenal TB infection is somewhat rare.⁽¹⁾ We describe a patient who was admitted to our hospital and was diagnosed incidentally with TB proven only following autopsy.

Case Report

A 45-year-old male presented to his physician with a 1-month history of swelling over left limb which was gradually progressive. Then he also reported a non-healing ulcer over posterior

aspect of knee. He was hypertensive since 2 years and was not on medication and had history of surgery due to obstruction. He denied exposure to tuberculosis, smoking, alcohol consumption, or the use of illicit substances. There was no evidence of pulmonary tuberculosis on a chest radiograph, USG abdomen shows no abnormality. Physical examination revealed wound over left dorsum aspect of leg with slough over the wound. On investigation all haematological and hormonal studies are in normal range while culture shows *Citrobacter koseri* which is sensitive to ciprofloxacin. He was treated with 6 cycle of Hyperbaric oxygen therapy and ulcer was converted healing ulcer. After 6th HBOT patient had sudden collapse and autopsy was performed. At autopsy external and in situ examination was normal. In left adrenal there is seen a mass measuring 5x5 cm, which is whitish on cut section with no areas of haemorrhage and necrosis. On histopathology of left adrenal mass there is seen epitheloid cell granuloma as shown in figure.

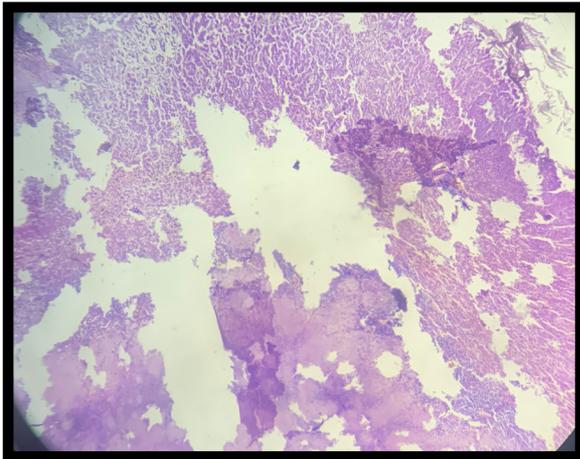


Fig 1: Normal Adrenal Along with Areas of Necrosis (10X)

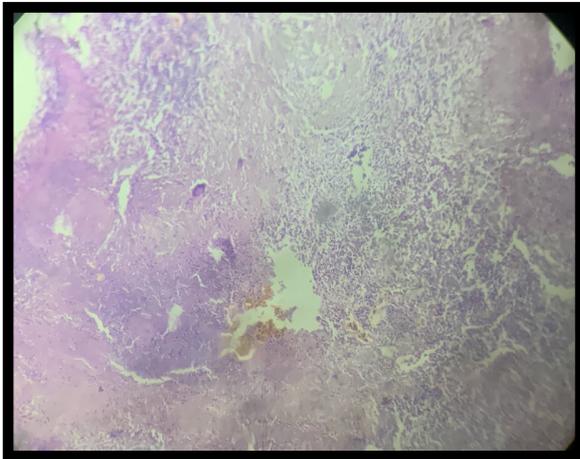


Fig 2: Adrenal showing Epithelioid Cell Granuloma, Necrosis with Langerhan's Type of Giant Cell (10X).

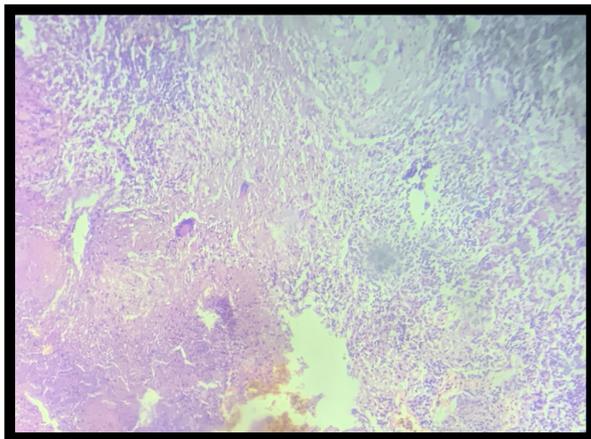


Fig 3: Adrenal showing Epithelioid Cell Granuloma, Necrosis with Langerhan's Type of Giant Cell (20X).

Discussion

The most involved endocrine organ in tuberculosis is the adrenal gland ⁽²⁾. Adrenal

glands may be directly or indirectly affected by tuberculosis. Tuberculous Addison's disease is still an important cause of primary adrenocortical insufficiency, particularly in the developing countries. ⁽²⁾ The prevalence of permanent adrenal insufficiency is 5 in 10 000 ⁽³⁾. A hypothalamic-pituitary origin of disease is most frequent, with a prevalence of 3 in 10 000, whereas primary adrenal insufficiency has a prevalence of 2 in 10 000. ⁽³⁾ Adrenal insufficiency arising from suppression of the hypothalamo hypophysial pituitary axis as a consequence of glucocorticoid treatment occurs in 0.5–2% of the population in developed countries. ⁽³⁾ More than 90% of the gland must be destroyed before insufficiency appears. The majority of patients with active or recently acquired disease (<2 years) have bilateral adrenal enlargement, while calcification and atrophy are the norm with more remote infection or inactive disease ^(2, 4). Rare causes of adrenal insufficiency involve destruction of the adrenal gland, such as a consequence of infection, hemorrhage or infiltration. Other infections responsible may be HIV, cytomegalovirus, cryptococcosis, histoplasmosis and coccidioidomycosis. ⁽³⁾ Chronic adrenal insufficiency manifests with relatively non-specific symptoms such as fatigue and loss of energy, often resulting in delayed or missed diagnosis. Adrenal tuberculosis, a manifestation of disseminated disease, presents rarely as adrenal insufficiency. ⁽⁵⁾ Adrenal tuberculosis was seen in 6% of the 871 patients with active tuberculosis at autopsy and in 3 patients at adrenalectomy. A study performed by Lam KY et al shows that the adrenal gland was the only organ involved by active tuberculosis in 14 of these 55 patients (25%; 35 men, 20 women) is seen. ⁽⁶⁾ In Past tuberculosis was responsible for 70–90% of cases, but the most frequent cause now is idiopathic atrophy and an autoimmune mechanism is probably responsible ⁽⁷⁾ A distinguishing factor of primary adrenal insufficiency is hyperpigmentation, which is caused by excess ACTH stimulation of the melanocyte. Hyperpigmentation is most pronounced in skin areas exposed to increased friction or sheer stress and is increased by sunlight. Conversely, in secondary adrenal insufficiency, the skin has alabaster-like paleness due to lack of ACTH secretion. ⁽³⁾

Adrenal tuberculosis, a manifestation of disseminated disease, presents rarely as adrenal insufficiency. (6, 5) Adrenal Tuberculosis may present as above signs and symptoms of adrenal insufficiency which was not seen in our patient.

Conclusion

Adrenal tuberculosis, a manifestation of disseminated disease, presenting as adrenal insufficiency, is rare. Tuberculous Addison's disease is still an important cause of primary adreno-cortical insufficiency, particularly in developing countries. A high index of suspicion is required for early diagnosis of the disease to avoid delay in initiation of treatment and to minimize high mortality associated with the illness. Though adrenal TB is a rare but important disease entity that must be identified early and treated promptly and aggressively.

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