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# Addison's Disease Secondary to Tuberculosis

## Tüberküloza İkincil Addison Hastalığı

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**ABSTRACT**

**Introduction:** Addison's disease occurs as a result of the lack of production of adrenocortical hormones, which is a rare but fatal disease if left untreated. In this paper, a case of a 21-year old patient admitted to the emergency department with compaints of weakness and headache, and subsequently diagnosed as Addison's disease is presented.

**Case Report:** On admission, the patient's vital signs were stable and there were no life-threatening symptoms. A cardiac and respiratory arrest developed in the patient during follow-up and was successfully managed with electrolyte abnormalities correction.

**Conclusion:** Addison's disease should be considered in the differential diagnosis of patients who complain of fatigue with electrolyte disturbance.

**Keywords:** Addison's disease, hyperkalemia, tuberculosis
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**ÖZET**

**Giriş:** Addison hastalığı adrenal bez hormon üretiminde eksiklikler sonucu görülen, nadir ancak tedavisiz bırakıldığı takdirde ölümcül olabilen bir hastalıktır. Bu yazıda, 21 yaşında başağrısı ve halsizlik şikayeti ile acil servise başvuran ve sonrasında Addison hastalığı tanısı konulan bir hasta sunuldu.

**Olgu Sunumu:** Hastanın ilk muayenesinde vital bulguları stabil ve hayati tehdit oluşturan bir semptomu bulunmamaktaydı. Hastanın takipleri esnasında gelişen kalp ve solunum durması başarılı bir şekilde yönetildi ve elektrolit bozukluğu düzeltildi.

**Sonuç:** Addison hastalığı halsizlik şikayeti ile başvuran ve elektrolit bozukluğu bulunan hastaların ayırıcı tanısında düşünülmelidir.

**Anahtar Kelimeler:** Addison hastalığı, hiperkalemi, tüberküloz
**Geliş Tarihi:** 29.10.2012 **Kabul Tarihi:** 14.02.2013

## Introduction

Addison's disease, first described in 1855, is an endocrine disease characterized by deficiency of glucocorticoid and mineralocorticoid production due to various reasons. With the prevalence of 1 in 800 people, it is a rare but potentially deadly disease if left untreated. The most distinct symptoms are malaise, muscle weakness, weight loss, hypotension, hyperpigmentation especially in sun-exposed regions and life-threatening electrolyte imbalance. Adrenal insufficiency can be studied in two types- primary and secondary. The female gender is dominant in both types; the incidence of primary adrenal insufficiency is high in the fortieth decade, while secondary insufficiency is more prevalent in the sixties (1, 2). In developed countries, autoimmune diseases are the most common causes of primary adrenal insufficiency, while in developing countries, infectious agents, with tuberculosis (TB) being the most common continues to be the major causes.

## Case Report

A 21-year-old male patient presented to the emergency department (ED) with complaints of headache and fatigue, which had been present for a week. He was 170 cm tall and weighed 60 kg and physical examination revealed a dark brown complexion with hyper-pigmented skin. He was well-oriented and cooperative; his vital signs such as blood pressure, heart rate and temperature were normal and a neurological examination revealed nothing pathologic. He had received anti-tuberculosis treatment one year previously. He expressed no complaint about it and was not taking any medication concerning TB. Persistent headache and malaise were his main complaints; a blood sample for electrolyte and other parameters was sent and the patient

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was admitted in order to observe and investigate the complaints. Ten minutes after the blood was drawn, sudden loss of consciousness occurred, followed by cardiopulmonary arrest. The necessary intervention was carried out immediately. Blood tests were normal except potassium (8.3 mEq/L) and sodium (130 mEq/L). Potassium-reducing therapy was initiated, and a femoral catheter was set up for emergency dialysis. About 20 minutes after the onset of the resuscitation, the patient's heart beat resumed and respiration returned to normal, and he was sent to emergency dialysis for proper treatment. Vital signs and general well-being improved gradually, and additional tests were performed to explore the etiology. His sputum was Acido-Resistance Bacilli (ARB) positive and the adrenal gland was found to be atrophic with some calcification. He was diagnosed with Addison's disease secondary to tuberculosis and admitted to the endocrinology in-patient ward.

## Discussion

Addison's disease has no specific symptoms, and the symptoms can mingle with other endocrine system diseases. Hence, diagnosis is relatively difficult. Hyperpigmentation, which develops gradually and is frequently noted by the people in the surroundings, is therefore an important factor for diagnosis. The most frequent cause of secondary adrenal insufficiency is considered to be glucocorticoid usage for therapeutic purpose (3). With the advance of effective treatment of tuberculosis, Addison's disease secondary to tuberculosis is less frequent nowadays than in the previous century (4, 5). Addison's disease due to the involvement of the adrenal gland is seen in five percent of TB-active patients (6). Diagnosis of TB-related Addison's disease includes history and imaging techniques of the case and defining the growth of the adrenal gland with or without calcification (7). In Addison's disease, life expectancy is reduced due to the probable adrenal crisis attacks and the underlying diseases. Even though sufficient glucocorticoid and mineralocorticoid supplementation is given, the quality of life is reduced in primary or secondary adrenal insufficiency patients (8). Since secondary adrenal insufficiency due to tuberculosis in developing countries is an important cause of Addison's disease, physicians should keep in mind that Addison's disease may develop in the follow-up of TB patients. In this way, diagnosis can be made before Addisonian crisis commences and hence sudden death can be prevented. However, Ragnhildur Bergthorsdottir et al. found in their study, carried out in the years 1987-2001, that cardiovascular events were the most frequent cause in early deaths of patients with Addison's disease (9). We expressed in our study that cardiovascular arrest developed due to hyperkalemia.

## Conclusion

This case shows that cardiovascular complications can prelude mortality not only in patients already diagnosed with the disease but also in patients presenting for the first time with Addisonian crisis. We herein, with our study, wish to emphasize that physicians should be cautious about the symptoms seen in the endocrine system diseases and that life-threatening Addisonian crisis should be in the differential diagnosis of patients with symptoms like malaise and headache.

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**Informed Consent:** Written informed consent was obtained from patients who participated in this case.

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