



Hyperthyroidism Manifesting as Clinical Jaundice: A Report of a Rare Case

Klinik Sarılık Olarak Prezente Olan Hipertiroidizm: Nadir Bir Olgu Sunumu

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Abstract

Thyroxine and triiodothyronine regulate the basal metabolic rate of all cells, including hepatocytes, and thereby, modulate hepatic function. Thus, thyroid dysfunction may perturb liver function. Though a wide spectrum of hepatic abnormalities has been attributed to hyperthyroidism with or without complications, such abnormalities are rare to be found and require high index of suspicion. In this case report, we present a female patient who was admitted with the complaints of generalised weakness, jaundice and shortness of breath. She initially had clinical presentation similar to that of congestive cirrhosis, but eventually proved to be a case of hyperthyroidism leading to hepatic dysfunction. *Turk Jem 2015; 19: 76-78*

Key words: Hyperthyroidism, jaundice, hepatic dysfunction

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Özet

Tiroidin ve triiyodotironin tüm hücrelerde olduğu gibi hepatositlerin de bazal metabolik aktivitelerini düzenler. Bu nedenle, tiroid disfonksiyonu karaciğer fonksiyonlarını da bozabilir. Komplikasyon eşlik etsin veya etmesin, çok sayıda hepatik problem hipertiroidi ile ilişkilendirilmiştir. Ancak bu problemler nadirdir ve tanıyabilmek için kuşkulananmak gerekir. Bu olgu sunumunda, genel zayıflık, sarılık, nefes darlığı, konjestif siroz olan bir hasta sunulmuştur. Bu durumun hipertiroidi ilişkili hepatik disfonksiyon olduğu gösterilmiştir. *Turk Jem 2015; 19: 76-78*

Anahtar kelimeler: Hipertiroidi, sarılık, hepatik disfonksiyon

Çıkar Çatışması: Yazarlar bu makale ile ilgili olarak herhangi bir çıkar çatışması bildirmemiştir.

Introduction

Thyroxine and tri-iodothyronine are essential for normal organ growth, and development and function of human body. These hormones regulate the basal metabolic rate of all the cells, including hepatocytes, and thereby, modulate hepatic functions. Thus, thyroid dysfunction may perturb liver function (1). Though a wide spectrum of hepatic abnormalities have been attributed to hyperthyroidism with or without complications, such abnormalities are infrequently found and require high index of suspicion. Spectrum of liver involvement ranges from steatosis to cirrhosis (2). In this case report, we present a female patient who was admitted with the complaints of generalised weakness, jaundice and shortness of breath. She eventually proved to be a case of hyperthyroidism leading to hepatic dysfunction.

Case Report

A 55-year-old female housewife presented with a 10-month history of generalized weakness which was gradually progressive

and was associated with significant weight loss of 9 kg. She had a history of multiple episodes of loose stools that were not associated with mucus or blood and used to get relieved without any treatment. The patient had an episode of fever 3 weeks before admission, associated with myalgia and petechial spots all over the body which was followed by shortness of breath NYHA class II, not associated with orthopnoea and paroxysmal nocturnal dyspnea (PND). There was a history of swelling in both feet and facial puffiness. The patient developed yellow discoloration of sclera with high coloured urine. She was initially managed conservatively in a private hospital for 7 days with minimal improvement and then was referred to our institution for further management. A thorough history was taken to rule out use of indigenous drugs and other chronic illness. The patient was a nonsmoker and nonalcoholic.

On examination, she was conscious, oriented to time, place and person, had regular pulse of 110 per minute with water hammer characteristic and blood pressure of 120/60 mms Hg. Pallor and icterus were present and jugular venous pressure

was raised (10 cms). Fine tremors were observed in hands. Air entry was decreased in the right infrascapular region. Apex beat was hyperdynamic with a parasternal heave and a pansystolic murmur in tricuspid and apical area and, an ejection systolic murmur in the pulmonary area was present. On central nervous system (CNS) examination, higher mental functions (HMF), cranial nerves, sensory system and cerebellar examination were within normal limits. Muscle bulk was reduced and reflexes were brisk with rest of motor system examination being within normal limits. On investigation, blood examination revealed Hb of 9.7 gm/dl; TLC of 2700 cells /mm³; DLC was P 46 L 46 M 4 E 4 with absolute platelet count of 64.000 platelets/mm³. AST and ALT were 62 and 48 IU/l, respectively. GGT was 38 IU/l. Persistent direct hyperbilirubinemia was observed with a total bilirubin level of 10.5 mgs/dl with direct fraction of (8.0 mgs/dl). Serum protein and albumin to globulin (A/G) ratio were normal. Coagulation profile, renal function tests and lipid profile were within normal limits. Kayser-Fleischer rings were absent on slit lamp examination. Serum ferritin and serum copper were normal.

Patient was negative for all hepatic viral markers (HBsAg, anti HCV, IgM anti HAV, and HEV). Anti-mitochondrial, antinuclear, anti-neutrophil cytoplasmic antibodies and IgA anti-transglutaminases were also found to be negative. Thyroid function tests were performed by ultra-sensitive enhanced chemiluminescence (4th generation), and FT³ was 8.41 pg/ml, FT⁴-10.67 ng/dl and TSH was 0.001 mIU/ml. These values were suggestive of hyperthyroidism. Anti-thyroid peroxidase antibody (anti TPO Ab) was positive-1300 U/l (normal value: <9.0). TSH receptor antibody was positive -2.2 IU/L (normal value: <1.5 IU/L).

No abnormality was detectable on chest X-ray postero-anterior view. Abdominal and thoracic ultrasound (USG) showed a liver of 15 cm with normal echo-texture and dilatation of the inferior vena cava and hepatic veins with no other significant findings. Thyroid USG showed an enlarged gland with a homogeneously distributed increased tracer uptake on thyroid scan which was suggestive of Graves' disease. On echocardiography, both atria were dilated with left ventricular diastolic dysfunction, mitral and tricuspid regurgitation. There was increased turbulence to blood flow across the aortic and pulmonary valves. These findings were suggestive of hyperdynamic circulation.

A liver biopsy was performed which was stained with H&E, PAS, Masson's Trichrome, reticulin and iron stains. It showed normal hepatocytes with focal and complete cholestasis (Figure 1a). Portal tracts showed mild lymphocytic infiltration and bile ductular proliferation (Figure 1b), but overt bile duct damage or duct loss was not seen.

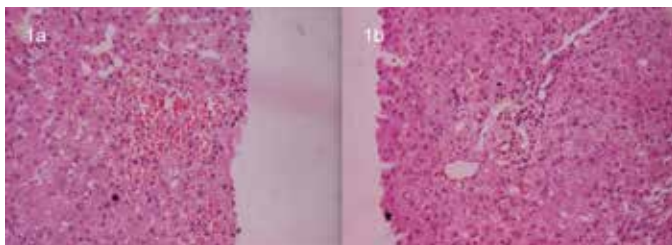


Figure 1A-B. Shows the H&E stained liver biopsy tissue of the patient showing marked cholestasis and ductular proliferation

The clinical findings along with biochemical, radiological and pathological investigations led us to the diagnosis of cardiac failure with direct hepatic injury along with hyperthyroidism due to Graves' disease. With this clinical scenario, the patient was started on tablet carbimazole 10 mg TDS and tablet propranolol 40 mg TDS. After 3 weeks of follow-up the patient showed improvement in her symptoms as well as a reduction in serum bilirubin levels (Table 1).

Discussion

Thyroid disease is being increasingly diagnosed with greater awareness and is one of the chronic non communicable diseases affecting women more, though male population is not spared of the ailment. Hyperthyroidism is the clinical syndrome caused by an excess of circulating free thyroxine, free triiodothyronine, or both. It is a common disorder that affects approximately 2% of women and 0.2% of men (3). Thyroid hormones are universal determinants of organ function.

The spectrum of clinical manifestations of hyperthyroidism though is varied, but clinical icterus in the absence of any cardiac failure is a rare presentation. Our patient presented with the complaints of jaundice, generalized weakness and palpitations which suggested hepatic or cardiac involvement. All the conventional investigations for cardiac involvement were done including an echocardiography which suggested a state of hyperdynamic circulation not leading to any of the clinical manifestations except for palpitations and hemic murmurs present all over the precordium. Only mild elevation of liver enzymes and cholestatic pattern on biopsy virtually ruled out cardiac failure as a prime cause of hepatic injury (4). Other aetiologies for hepatic involvement were ruled out including autoimmune and viral pathologies. State of hyperdynamicity along with palpitations and history of frequent loose stools clinically hinted to hyperthyroidism which was further supported by the thyroid profile and increased uptake on thyroid scan of the patient. A liver biopsy was performed which revealed mild lymphocytic infiltration and bile ductular reaction suggestive of direct hepatic injury.

Table 1. Biochemical investigation of patient before treatment and at 3 week follow up

	Before treatment	Follow up after 3 weeks
S. Bilirubin		
Total	10.0 mg/dl	1.3 mg/dl
Direct	08.0 mg/dl	0.5 mg/dl
Indirect	02.0 mg/dl	0.8 mg/dl
FT ³	8.41 pg/ml	1.88pg/dl (1.71-3.71 pg/ml)
FT ⁴	10.67 ng/dl	6 ng/dl (0.7-1.51 ng/dl)
TSH	0.001 mIU/ml	0.1 mIU/ml (0.3-5 mIU/ml)
S. Alkaline Phosphatase	128 IU/L	85 IU/L (40-90 IU/L)
AST/ALT	62/48 IU/L	38/24 IU/L (up to 40IU/L)

Mainly two patterns of hepatic injuries are known with thyroxicosis; hepatitic type and cholestatic type (1,5). In hepatitis pattern of injury relative hypoxia in the perivenular regions, due to an increase in oxygen demand without an appropriate increase in blood flow, seems to be the most probable mechanism which can lead to centrilobular necrosis and perivenular fibrosis in most severe cases which is evident by increase in transaminase levels (1). In cholestatic type of injury, the most probable mechanism includes the hyper metabolic state in hyperthyroidism which increases the enzyme induction and, the role of venous congestion due to heart failure are stipulated (6). Another proposed hypothesis is that excess thyroid hormones can produce direct toxic effect on hepatocytes. This patient was found to have a cholestatic pattern which was supported by the liver biopsy. The patient was started on antithyroid treatment and improved symptomatically with gradual normalization in clinical and biochemical profile which was consistent with those seen by Chawla et al. (7).

Conclusion

In our patient, clinical, biochemical, radiological and pathological parameters and improvement on institution of thionamide suggest

that hepatic dysfunction was primarily due to hyperthyroidism. Although rare, hyperthyroidism should be considered as a differential diagnosis in patients with hyperbilirubinemia as early institution of thionamide can reverse this potentially life-threatening condition.

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