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Graves' Disease: "Unusual Presentation"

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***Abstract*— Hyperthyroidism is known to cause derangement in liver function. However, hyperthyroidism presenting solely with jaundice and no other symptoms is a rare occurrence. We report a patient who presented to the hospital with severe itching and jaundice. Liver function tests done initially showed a conjugated hyperbilirubinemia and elevation in liver enzymes. Imaging studies, auto immune workup for liver diseases, hepatitis serology were all negative. Thyroid function test revealed a picture of hyperthyroidism with strongly positive anti thyroid peroxidase antibodies.This case highlights the importance of considering thyroid diseases in cases of jaundice where no obvious causes can be identified. Treatment with anti-thyroid medications can provide significant relief.**

***Index Terms*— Abnormal Liver Function Test, Cholestasis, Graves' Disease.**

I. INTRODUCTION

Jaundice in patient with thyrotoxicosis is rare presentation and it could have different etiology. Hyperthyroidism itself can cause jaundice by unclear mechanism. Also drug treatment of hyperthyroidism might complicated by jaundice. Jaundice in thyrotoxicosis could be due to conditions associated with autoimmune thyroid disease like autoimmune hepatitis or could be due to unrelated conditions like sepsis or viral hepatitis.

II. CASE PRESENTATION

31 year old Burmese male with no medical history of note presented with complaints of 3 day history of severe itching all over the body and a feeling of heat over his chest for 2 days. He also complained of loose pale stools 5-6 times per dayin the past 2 days.

He was a non-smoker, teetotaler, and worked on a gas field off shore. He had no recent travel history and gave no history of exposure to hepatitis or hepatotoxic drugs. He had not received any blood transfusions in the past or experienced any previous episodes of jaundice. He had one tattoo on his right hand which he had got in childhood.

On clinical examination, he was icteric. There was no cyanosis, lymphadenopathy, pallor or edema. He had regular heart rate of 82/minute, respiratory rate of 16/minute and blood pressure of 110/60 mm Hg. There were no signs of chronic liver disease. Other systems examination was unremarkable.

Results of full blood count, urea electrolytes and random glucose readings were normal. Results of Liver function tests showed total bilirubin of 160 umol/L (Normal range 3.5-24 umol/L) with direct bilirubin of 136.9 umol/L (0-5.1 umol/L). ALT was 253 U/L (0-40 U/L) AST was 178 u/L(0-37 U/L), ALP was 171 U/L (40-129 U/L), GGT was normal 47 U/L (15-85 U/L). Coagulation profile, hepatitis serology , auto immune workup including anti-smooth muscle antibody, antinuclear, antineutrophil cytoplasmic, anti mitochondrial antibodies were all normal.

Abdominal ultrasonography showed fatty liver with normal biliary tree and gall bladder with no evidence of biliary obstruction; Computerized tomography also showed incidental right renal cysts with normal liver. Magnetic resonance cholangiopancreatography (MRCP) also showed no evidence of any obstruction in the biliary tree (Fig 2).

Due to persistent itching and "feeling of hotness" as described by the patient, thyroid function test was requested which showed TSH of 0.01 mIU/L (0.45-4.50 mIU/L) with elevated Free T4 26.87 pmol/L (9-20 pmol/L) and elevated FT3 of 8.94 pmol/L (2.6-5.70 pmol/L).

Ultrasound of the thyroid gland revealed increased vascularity of the gland suggestive of thyroiditis Vs Graves disease; and his anti-thyroid peroxidase antibody was strongly positive (>1000 units).further step was taken and isotope scanning (Fig 1)was ordered and the diagnosis is confirmed as a case of Graves` disease. He was started on Carbimazole and he made significant improvement in his symptoms of itching and liver function also improved with bilirubin falling back to normal within two weeks.

III. DISCUSSION

In our case surgical causes of cholestatic jaundice were ruled out first then we thought about other hepatic pathology like viral hepatitis and auto-immune hepatitis and screen for that came negative. After few days thyroid function test was ordered and came positive for hyperthyroidism and diagnosis of Graves was confirmed by radioactive iodine scan.

Hepatic manifestation of hyperthyroidism range from mild elevation of liver enzymes to severe hepatic impairment. How hyperthyroidism affects the liver is not clear but could be because of direct toxic effect of thyroxin on hepatic tissue [1] or might be due to hypoxic injury secondary to increased metabolic rate which lead to relative decrease in blood flow to certain areas of the liver [2].

Hepatic impairment in hyperthyroidism can be mainly subdivided into either hepatatic(hepatocellular pattern), or cholestatic[3].An increase in the aspartate aminotransferase (AST) and alanine aminotransferase (ALT) was reported in 27% and 37% of patients respectively,although the majority

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of these patients showed no other clinical or biochemical features of liver impairment [2].

Jaundice due to intrahepatic cholestasis may be a prominent symptom in Graves' disease patients, and very occasionally it is the presenting manifestation of thyrotoxicosis [4]. Very high-serum bilirubin levels (up to 581 µmol/L) were occasionally noted in patients with hyperthyroidism [5]. The presentation of Graves' disease for the first time with jaundice may lead to unnecessary investigations and a delay in management [6],[7].

IV. CONCLUSION

This case shows that jaundice may be the only presenting symptom in a case of thyrotoxicosis due to Grave's disease. In such a case, crucial time may be wasted in looking for other causes of jaundice if thyroid disease is not considered as part of the initial differential diagnosis. Therefore, it is important to consider thyroid disease as a probable cause of liver dysfunction if the other usual causeswere ruled out. It may save crucial time and help relieve the patient's distress.

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CONFLICTS OF INTEREST

The authors declares that there is no conflict of interest regarding the publication of this paper.

CONSENT

Informed consent was obtained from the patient.

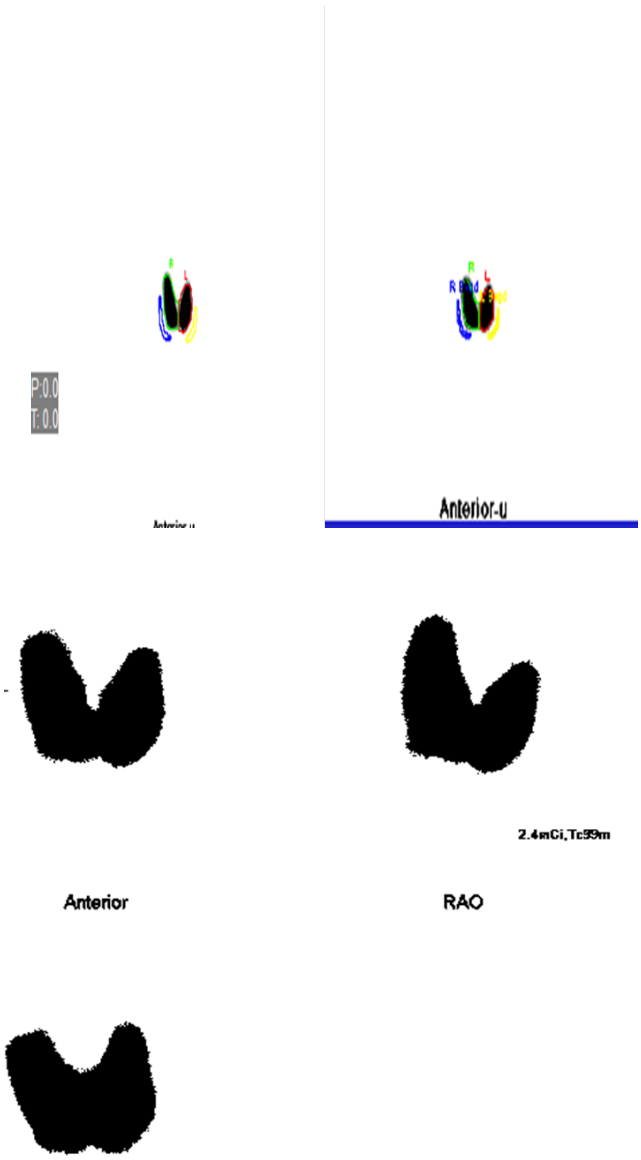

Fig 1: Thyroid Scintography (Isotope Scaning Of Thyroid Gland)

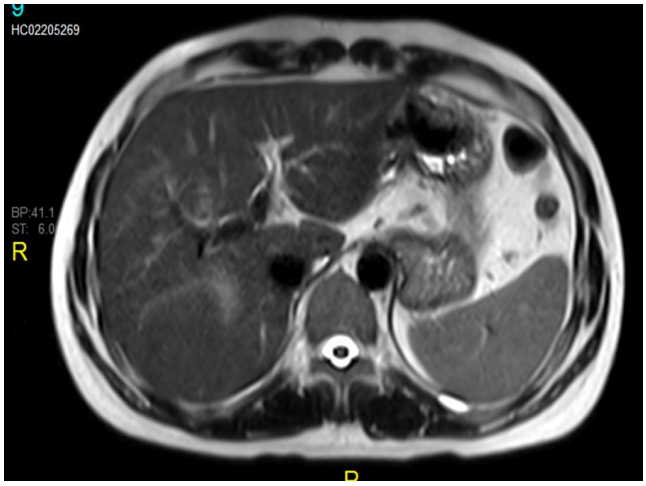

Fig 2: MRI Abdomen