Wilson Disease, Presenting as Recurrent Jaundice: A Case Report

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Abstract

Background: Wilson disease (WD) is a genetic disorder of copper metabolism that leads to copper accumulation in various organs, primarily the liver and brain. Untreated WD may lead to chronic liver disease/ cirrhosis of liver and ultimately death. In most cases it can be successfully treated with anti-copper agents, and both liver function and neuropsychiatric symptoms typically improve.

Case Report: Here we report a case of WD with cirrhosis of liver in a 12 years old girl. She was presenting to us as a case of recurrent jaundice. The diagnosis was missed initially. However the treatment produced good results.

Conclusion: This case serves as a reminder to suspect WD in a case of chronic liver disease of unknown etiology.

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Keywords: Wilson disease, Genetic disorder, Cirrhosis of liver

Introduction

Wilson disease is a rare inherited disorder of copper metabolism with an incidence of one in 30,000.[1] A mutation of the ATP7B gene on chromosome 13 results in impaired copper filtration and metabolism in the liver and, in turn, copper intoxication.[2] Initially there is deposition of the metal in the liver followed by its release into the circulation and thereafter chronic accumulation in extrahepatic tissues. Hepatic manifestations tend to occur in the first decade and neurological symptoms in the third decade.[3] Untreated Wilson disease has a progressive course and can be fatal. Liver cirrhosis occurs early.[4] The disease tends to be underdiagnosed[5] and timely diagnosis remains a challenge.

Case Report

A 12 year old school girl presented to us with history of abdominal pain and jaundice for three week and associated nausea, vomiting, loss of appetite. She gave history of jaundice for two episodes in last one year. She had no history of intake of any drug with known hepatotoxicity. She had no history of same kind of illness in her others sibling. She had history of consanguinous marriage between her parents.

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On physical examination, the patient was conscious, mildly icteric, pulse rate 80/min, blood pressure-100/60 mm of Hg, temperature-100^{o}F, respiratory rate was 16 breaths/min. Auscultation of heart and lungs were normal. Abdominal examination revealed soft, non tender abdomen with hepato-splenomegaly. There was no ascites.

Her laboratory investigations revealed haemoglobin, 9.8 g/dl (low); platelet count, 125000/cumm (low); SGPT, 65U/L(high); S. albumin, 3 gm/dl(low); 3 gm/dl(low); Prothrombin time, (30 sec) (high); Anti HBV (total), negative; Anti HCV,negative; ANA, negative; Anti-LKM, negative; Ceruloplasmin level, 10 mg/dl (low); 24 hours urinary copper excretion, 187 microgram/dl (high).

USG of whole abdomen suggested hepatomegaly and coarse echogenic liver with splenomegaly. Endoscopy of upper GIT revealed oesophageal varix grade-1. Slit lamp examination showed the presence of Kayser-fleischer ring.

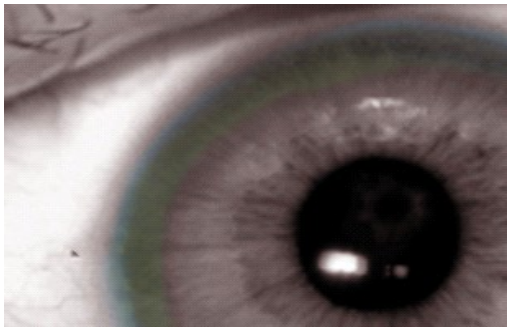

Figure 1. Kayser Flescher ring (Image courtesy O. Chaigasame)

Table I: The scoring system (Ferenci score) for the diagnosis of Wilson's disease

Clinical findings/Investigations may done	Points	Remarks/Points obtain in our case
K–F rings	Present (2 points), absent (0 points)	2
Neuropsychiatric symptoms suggest WD or typical brain MRI)	Yes (2 points), No (0 points)	0
Coombs negative hemolytic anemia	Yes (1 points), No (0 points)	not done
24 h urinary copper excretion (in the absence of acute hepatitis)	Normal (0 points), 1–2 × ULN (1 point), >2 × ULN, or normal, but >5 × ULN after challenge with 2 × 0.5 g D-penicillamine (2points)	1
Liver copper Quantitative	Normal(−1 point),<5 × ULN (1 point), >5 × ULN (2 points)	not done
Rhodanine-positive hepatocytes (only in case of lack of Cu quantitative assessment)	Absent (0 points), Present (1 point)	not done
Serum ceruloplasmin (nephelometric assay, normal >20 mg/dL)	Normal (0 points), 10–20 mg/dL (1 point), <10 mg/dL (2 points)	1
Mutation analysis	Disease causing mutations on both chromosomes (4 points), Disease causing mutations chromosome (1 point), No mutation detected (0 points)	not done

Assessment of the WD diagnosis score:
⩾4 points: diagnosis of WD highly likely.
2–3 points: diagnosis of WD probable, more investigations needed.
0–1 point: diagnosis of WD unlikely.
MRI, magnetic resonance imaging; ULN, upper limit of normal.

Diagnosis of WD done by the scoring system (Ferenci score) for the diagnosis of Wilson's disease developed at the 8th International Meeting on Wilson's Disease and Menkes Diseases, Leipzig 2002.[6] We got total 4 points in favour of diagnosis of our case (Shown at Table I).

The patient was started copper chelating therapy with oral penicillamine along with restriction of copper containing foods (eg: nut; seeds, chocolate, mushroom, liver, shell fish)[7].Patient was kept under regular follow up after starting cooper chelating therapy. CBC(to see the pancytopenia), Urine R/E done weekly (to see the proteinuria) for 2 months , then monthly for 6 months and 6 monthly for life long. Follow up endoscopy of upper GIT done which was found normal. The patient is stable now.

Discussion

Etiology of Chronic hepatitis is mostly unknown. Hepatitis B is the most common detectable cause of chronic liver disease in children. Other causes include Wilson disease and autoimmune hepatitis.[5,8] Wilson disease is an inherited autosomal recessive disease of copper metabolism and may be more common where consanguinity is prevalent.[9,10] In South Asian countries like Bangladesh consanguineous marriage is common here.[11] Our patient had history of consanguinity. She presented to us with history of recurrent jaundice. But viral markers for chronic liver diseases were negative. So in our settings we strongly suspect her a case of Wilson's disease. All investigations for diagnosis of etiology of chronic liver diseases not available in our district level hospital. We suspect our case as a Wilson disease and sent her to eye department for slit lamp examination. After the findings of KF ring by slit lamp examination of eye, we do the other possible investigation at Atomic energy commission, Dhaka. Finally she was diagnosed as a WD by the scoring system (Ferenci score) for the diagnosis of Wilson's disease.[6]

Conclusion

As Wilson disease is a rare disease, the diagnosis is likely to be missed. There should be a high index of suspicion in all cases of liver cirrhosis with no clear cut etiology. To avoid under diagnosis of Wilson disease, possible all clinical and laboratory investigations for the etiology of chronic liver disease should be done. It is also important to warn patients not to stop therapy.

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