Othman Toulan S, et al., J Nephrol Renal Ther 2024, 10: 095
DOI: 10.24966/NRT-7313/100095

HSOA Journal of Nephrology & Renal Therapy

Case Report

A very early Presentation of Wilson disease

Safwa Othman Toulan[1], Ibrahim El-Sayed Omar[2]*, Ahmed Abdel-Galil Helmy[2], Khalid Aly Ahmed Abou-Zaid[3], Aboalnaga Abdelrady Abdelrahim Hamed[4] and Ahmed Gado Nabih[4]

[1]*Lecturer of Internal Medicine, Menofia University, Egypt*

[2]*Nephrology consultant, Egypt*

[3]*Nephrology consultant, Saudi Arabia*

[4]*Lecturer of Internal medicine, Luxor University, Egypt*

Abstract

Male patient, aged 13 years, developed recurrent monthly attacks of fever, abdominal pain, vomiting, diarrhea, and occasional oligo-arthritis. Each attack persisted for 5-7 days that resolved spontaneously. His laboratory tests revealed mild elevation of liver enzymes & bilirubin, moderate leukopenia and thrombocytopenia. Thorough investigations were done including viral markers, auto-immune screen, cupper studies, bone marrow examination, and liver biopsy as well as hepatic copper content. However, nothing was diagnostic. Nevertheless, Wilson disease was still considered and helpfully there was a dramatic response to D-Penicillamine therapy. After several months, the cupper studies turned to be positive and finally the patient was diagnosed as Wilson disease.

Introduction

Wilson disease should be included in the differential diagnosis for patients with abnormal liver function tests, chronic hepatitis, cirrhosis, or acute liver failure [1,2]. The spectrum of presentation also includes isolated neuropsychiatric symptoms and asymptomatic patients. Some patients present with a combination of hepatic and extrahepatic symptoms. A non-immune hemolytic anemia is common in patients with acute liver failure caused by Wilson disease, but it may also occur in the absence of acute liver failure. The rates of organ-specific manifestations at the time of presentation vary widely, as following [3-6]:

1. Liver disease: 18 - 84 %
2. Neurologic symptoms: 18 – 73 %
3. Psychiatric symptoms: 10 - 100 %

Furthermore, patients usually develop organ-specific manifestations as the disease progresses (eg, patients who present with liver disease may subsequently develop neurologic or psychiatric symptoms and vice versa).

Case presentation

Male patient, aged 13 years, Yemeni, developed recurrent monthly attacks of fever (39-40 C), upper abdominal pain, nausea, vomiting and occasional diarrhea. Each attack had lasted for 5-7 days, for which recurrent hospital admissions were done with conservative treatment (IV fluids, Ranitidine, Hyoscine, Metronidazole). In between these attacks, the patient was completely asymptomatic. During the last 3 attacks, he developed associated arthritis of the Left ankle & Right elbow that partially resolved spontaneously with the attacks. His routine laboratory tests during these attacks revealed mild elevation of liver enzymes and bilirubin associated with moderate leukopenia and thrombocytopenia (Tables 1,2). His Abdomen US was unremarkable.

General examination revealed only irregular pulse with some dropped beats. ECG revealed only slightly irregular rhythm. There was no a definite diagnosis. A list of DD was considered including viral hepatitis, Malaria, FMF, porphyria, autoimmune disorders, cyclical neutropenia,….etc.

Investigations: (Tables 3-7).

1. Viral markers: negative.
2. Markers of auto-immune hepatitis: negative.
3. Cupper studies:

a. Normal results but after some months they were abnormal.

4. Liver biopsy revealed:

a. Hepatic focal necrosis.

b. Normal cupper content

Learning points

Recurrent acute self-limiting hepatitis can be a serious early presentation of Wilson disease. Cupper studies are usually inconclusive in such earlier cases. However, the diagnosis should be still considered and a therapeutic test of D-Penicillamine can be helpfully tried, based on the clinical suspicion together with regular follow-up of cupper studies. At a certain time later on, the diagnosis can be confirmed.

***Corresponding author:** Ibrahim El-Sayed Ibrahim Omar, Nephrology consultant, Egypt, E-mail: ibr.omar@yahoo.com

Citation: Othman Toulan S, Ibrahim Omar, Ahmed Abdel-Galil H, Khalid Abou-Zaid, Ahmed Abdel-Galil H, Abdelrahim Hamed AA and Ahmed Gado N. (2024) A very early Presentation of Wilson disease. J Nephrol Renal Ther 10: 095.

Received: July 25, 2024; **Accepted:** August 20, 2024; **Published:** August 27, 2024

Discussion

This patient has recurrent attacks of fever, abdominal pain, transaminitis,.....etc. Collectively, this patient has recurrent similar attacks of acute & self-limited hepatitis. The approach was to search for the possible causes of acute hepatitis. All viral markers were done then autoimmune screen including ALKM, anti- smooth muscle antibodies. All were negative, even ESR was normal. There was a remaining metabolic cause for acute hepatitis. In this age, Wilson disease should be considered. Liver biopsy was done. It revealed hepatic focal necrosis. Copper content was also measured in dry hepatic tissue and it was on the upper limit of normal. Slit lamp examination for possible Kayser-Fleischer ring was done several times but there was a controversy about its presence.

Regarding Urinary cupper

(Normal range is 10-30 ug/day)

5. If > 40 ug/day ⟹ suspect the diagnosis.
6. If > 100 ug/day ⟹ confirm the diagnosis.
7. All should be doubled in cholestasis.

Regarding cupper content in dry liver tissue

1. It is a highly specific test for diagnosis but not sensitive.
2. Wilson disease can still be considered in normal results.
3. Total body copper scan can be used for quantification.

D-Penicillamine was given as a therapeutic test. Helpfully, the patient didn't develop the same attacks for 2 months. The medicine was then changed to steroids by his referring physician as the diagnosis was not yet confirmed. However, after few days, the patient developed another severe attack with the same previous picture.

An expert opinion was asked and the diagnosis of Wilson disease then re-considered. Additionally, He advised to repeat cupper studies every 2 months, while the patient is off treatment (both steroid & penicillamine).

After one month, the patient developed another similar attack and was re-admitted to the hospital. On repeating cupper studies, the results were significantly higher than previous ones. The patient was re- started on Penicillamine and there was no more attacks of hepatitis. Finally, the patient was diagnosed as Wison disease. For ankle & elbow arthritis, it was due to pseudogout, caused by Wilson disease. For irregular pulse, it can be due to excess cupper effect on the conductive system of the heart. For transient thrombocytopenia and leukopenia, they remained unexplained. However, some papers about Wilson disease mentioned some associations with these disorders, related to excess cupper.

Some golden rules in medicine for Wilson disease

1. Any patient presenting with unexplained chronic liver disease, should be considered as Wilson disease until proved otherwise. Any young patient presenting with unexplained abnormal involuntary movements, not responding to treatment, should be considered as Wilson disease until proved otherwise. These considerations for Wilson disease, are not due to being common but being TREATABLE, so there will be an excellent response even reversing of some pathologies with early treatment.
2. Common presentations of uncommon diseases is more common than uncommon presentations of common diseases. However, this case was somewhat different. He was uncommon presentation of uncommon disease.
3. The presentations of Wilson disease are sometimes as following: hepatic … 40%, neuro/psychiatry ...40%, Renal ...20%.
4. For KF ring, it is present in 100% of patients with neurological/psychiatric presentation but in only 50% of patients with hepatic presentation. However, sometimes it needs a highly skillful ophthalmologist to detect it, as written in some textbooks.
5. Ceruloplasmin, even if increased during the acute phase, it will not be more than 30 mg/dl, in patients with Wilson disease.
6. The treatment of choice is D- Penicillamine. If intolerable, Trientine is the alternative. Zinc oxide and Zinc acetate are not effective treatment for Wilson disease but it should be an adjuvant therapy.

Treatment

The patient was treated empirically by D-Penicillamine for the suspected diagnosis.

Outcome and follow-up

There was a dramatic response to the chelation therapy of Wilson's disease. Additionally, his cupper studies turned to be positive at later times.

Funding statement

No funding for the case report.

Declaration of interest

There is no conflict of interest.

Patient consent

The patient agreed for publication and a consent was done.

References

1. Lorincz MT (2010) Neurologic Wilson's disease. Ann N Y Acad Sci 1184:173.
2. Poujois A, Woimant F (2018) Wilson's disease: A 2017 update. Clin Res Hepatol Gastroenterol 42: 512.
3. Taly AB, Meenakshi-Sundaram S, Sinha S, Swamy HS, Arunodaya GR (2007) Wilson disease: description of 282 patients evaluated over 3 decades. Medicine (Baltimore) 86: 112.
4. Soltanzadeh A, Soltanzadeh P, Nafissi S, Ghorbani A, Sikaroodi H, et al. (2007) Wilson's disease: a great masquerader. Eur Neurol 57: 80.
5. Asadi Pooya AA, Eslami NS, Haghighat M (2005) Wilson disease in southern Iran. Turk J Gastroenterol 16:71.
6. Moores A, Fox S, Lang A, Hirschfield GM (2012) Wilson disease: Canadian perspectives on presentation and outcomes from an adult ambulatory setting. Can J Gastroenterol 26: 333.

Table 1: Lab tests.

Lab. test	Result
WBC	1.8
HB	13 g/dl
Platelets	86
Blood film	No abnormal cells
AST	460
ALT	348
Total bilirubin	3.03
Direct bilirubin	1.08
Urine analysis	unremarkable.
Renal functions	unremarkable.

Table 2: Lab tests.

Lab. test	Result
HCV-ab.	-ve
HBsAg	-ve
HIV-ab.	-ve
Dengue-abs	-ve
EBV-IgM	-ve
CMV-IgM	-ve
Blood film for malaria	-ve
ANA	-ve
Urine analysis	Albumin: trace RBCs : 10-15 WBC : > 50 Casts : Hyaline and granular

Table 3: Lab. Tests

Lab. test	Result
ESR	10 mm/h
Anti-LKM ab.	-ve
Anti-smooth muscle ab.	-ve
Anti-soluble liver antigen ab.	-ve

Table 4: Lab. Tests

Lab. Test	Result	Reference
S. ceruloplasmin	18	20-60 mg/dl
24 hour urine copper	10	<150 ug/day (Fatal lab. error as the normal reference range is 10-30 ug/day)

Table 5: Lab. Tests

Repeated Lab. Test	Result	Reference
S. ceruloplasmin	24	20-60 mg/dl
24 hour urine copper after penicillamine load	900	up to 1200 ug/day

Table 6: Lab. Tests

Lab. Test	Result	Normal	Wilson disease
Copper level in dry hepatic tissue	31 ug/g	10-35 ug/g	> 250 ug/g

Table 7: Lab. Tests

Lab. Test	Result	Reference
24 hour urinary copper.	67	10-30 ug/day
24 hour urine copper after penicillamin load	1100	up to 1200 ug/day

HERALD

Advances In Industrial Biotechnology | ISSN: 2639-5665

Advances In Microbiology Research | ISSN: 2689-694X

Archives Of Surgery And Surgical Education | ISSN: 2689-3126

Archives Of Urology

Archives Of Zoological Studies | ISSN: 2640-7779

Current Trends Medical And Biological Engineering

International Journal Of Case Reports And Therapeutic Studies | ISSN: 2689-310X

Journal Of Addiction & Addictive Disorders | ISSN: 2578-7276

Journal Of Agronomy & Agricultural Science | ISSN: 2689-8292

Journal Of AIDS Clinical Research & STDs | ISSN: 2572-7370

Journal Of Alcoholism Drug Abuse & Substance Dependence | ISSN: 2572-9594

Journal Of Allergy Disorders & Therapy | ISSN: 2470-749X

Journal Of Alternative Complementary & Integrative Medicine | ISSN: 2470-7562

Journal Of Alzheimers & Neurodegenerative Diseases | ISSN: 2572-9608

Journal Of Anesthesia & Clinical Care | ISSN: 2378-8879

Journal Of Angiology & Vascular Surgery | ISSN: 2572-7397

Journal Of Animal Research & Veterinary Science | ISSN: 2639-3751

Journal Of Aquaculture & Fisheries | ISSN: 2576-5523

Journal Of Atmospheric & Earth Sciences | ISSN: 2689-8780

Journal Of Biotech Research & Biochemistry

Journal Of Brain & Neuroscience Research

Journal Of Cancer Biology & Treatment | ISSN: 2470-7546

Journal Of Cardiology Study & Research | ISSN: 2640-768X

Journal Of Cell Biology & Cell Metabolism | ISSN: 2381-1943

Journal Of Clinical Dermatology & Therapy | ISSN: 2378-8771

Journal Of Clinical Immunology & Immunotherapy | ISSN: 2378-8844

Journal Of Clinical Studies & Medical Case Reports | ISSN: 2378-8801

Journal Of Community Medicine & Public Health Care | ISSN: 2381-1978

Journal Of Cytology & Tissue Biology | ISSN: 2378-9107

Journal Of Dairy Research & Technology | ISSN: 2688-9315

Journal Of Dentistry Oral Health & Cosmesis | ISSN: 2473-6783

Journal Of Diabetes & Metabolic Disorders | ISSN: 2381-201X

Journal Of Emergency Medicine Trauma & Surgical Care | ISSN: 2378-8798

Journal Of Environmental Science Current Research | ISSN: 2643-5020

Journal Of Food Science & Nutrition | ISSN: 2470-1076

Journal Of Forensic Legal & Investigative Sciences | ISSN: 2473-733X

Journal Of Gastroenterology & Hepatology Research | ISSN: 2574-2566

Journal Of Genetics & Genomic Sciences | ISSN: 2574-2485

Journal Of Gerontology & Geriatric Medicine | ISSN: 2381-8662

Journal Of Hematology Blood Transfusion & Disorders | ISSN: 2572-2999

Journal Of Hospice & Palliative Medical Care

Journal Of Human Endocrinology | ISSN: 2572-9640

Journal Of Infectious & Non Infectious Diseases | ISSN: 2381-8654

Journal Of Internal Medicine & Primary Healthcare | ISSN: 2574-2493

Journal Of Light & Laser Current Trends

Journal Of Medicine Study & Research | ISSN: 2639-5657

Journal Of Modern Chemical Sciences

Journal Of Nanotechnology Nanomedicine & Nanobiotechnology | ISSN: 2381-2044

Journal Of Neonatology & Clinical Pediatrics | ISSN: 2378-878X

Journal Of Nephrology & Renal Therapy | ISSN: 2473-7313

Journal Of Non Invasive Vascular Investigation | ISSN: 2572-7400

Journal Of Nuclear Medicine Radiology & Radiation Therapy | ISSN: 2572-7419

Journal Of Obesity & Weight Loss | ISSN: 2473-7372

Journal Of Ophthalmology & Clinical Research | ISSN: 2378-8887

Journal Of Orthopedic Research & Physiotherapy | ISSN: 2381-2052

Journal Of Otolaryngology Head & Neck Surgery | ISSN: 2573-010X

Journal Of Pathology Clinical & Medical Research

Journal Of Pharmacology Pharmaceutics & Pharmacovigilance | ISSN: 2639-5649

Journal Of Physical Medicine Rehabilitation & Disabilities | ISSN: 2381-8670

Journal Of Plant Science Current Research | ISSN: 2639-3743

Journal Of Practical & Professional Nursing | ISSN: 2639-5681

Journal Of Protein Research & Bioinformatics

Journal Of Psychiatry Depression & Anxiety | ISSN: 2573-0150

Journal Of Pulmonary Medicine & Respiratory Research | ISSN: 2573-0177

Journal Of Reproductive Medicine Gynaecology & Obstetrics | ISSN: 2574-2574

Journal Of Stem Cells Research Development & Therapy | ISSN: 2381-2060

Journal Of Surgery Current Trends & Innovations | ISSN: 2578-7284

Journal Of Toxicology Current Research | ISSN: 2639-3735

Journal Of Translational Science And Research

Journal Of Vaccines Research & Vaccination | ISSN: 2573-0193

Journal Of Virology & Antivirals

Sports Medicine And Injury Care Journal | ISSN: 2689-8829

Trends In Anatomy & Physiology | ISSN: 2640-7752