



AYURVEDIC MANAGEMENT OF WILSON'S DISEASE: A CASE STUDY

Dr. Astha M. Goswami	3rd year PG Scholar, PG Department of Kayachikitsa, J.S. Ayurveda Mahavidyalaya, Nadiad, Gujarat, India
Dr. Sanket C. Kasundra	3rd year PG Scholar, PG Department of Kayachikitsa, J.S. Ayurveda Mahavidyalaya, Nadiad, Gujarat, India
Dr. Meghana R. Chaudhri	Associate Professor, PG Department of Kayachikitsa, J.S. Ayurveda Mahavidyalaya, Nadiad, Gujarat, India

ABSTRACT

Background: Wilson's disease (WD) is a rare autosomal recessive disorder caused by ATP7B mutations, leading to copper accumulation in the liver, cornea, brain, and kidneys. Treatment involves lifelong copper chelators or zinc salts, but tolerability and adherence remain challenging. **Case Presentation:** A 19-year-old male with WD diagnosed at age eight presented with recurrent scleral icterus and Kayser–Fleischer ring two years after stopping D-penicillamine. He was treated with oral Ayurvedic formulations based on Kapha–Pitta pacification and Rasayana, with monthly monitoring for four years. **Outcomes:** Scleral icterus and the KF ring resolved within four months of Ayurvedic therapy. Serum copper decreased markedly, while ceruloplasmin remained persistently low. The patient remained asymptomatic during four years of follow-up, with no reported adverse drug reactions. **Conclusion:** In this patient, individualised Ayurvedic therapy was associated with sustained clinical and biochemical improvement over four years without adverse effects. However, these findings are hypothesis-generating and require larger controlled studies to establish efficacy.

KEYWORDS : Wilson's Disease; Hepatolenticular Degeneration; Copper Metabolism Disorder; Kamala; Kumbha Kamala

INTRODUCTION

Wilson's disease (WD), or hepatolenticular degeneration, is a rare autosomal recessive disorder caused by ATP7B mutations. Impaired biliary copper excretion leads to progressive copper accumulation in the liver, cornea, CNS, and kidneys. Excess dietary copper is normally excreted in bile, but this pathway is defective in WD, causing copper accumulation in the eyes, liver, and brain. WD is rare, with an estimated incidence of 1 in 30,000 live births. Men may have later and more severe, predominantly neuropsychiatric presentations, while women more often present with hepatic disease. Diagnosis involves serum/urinary copper studies, ceruloplasmin measurement, slit-lamp examination for KF rings, and, when needed, liver biopsy or genetic testing. Treatment includes copper restriction, chelators such as D-penicillamine or trientine, zinc salts, and liver transplantation for severe disease..

In Ayurveda, jaundice-related hepatic disorders are described under *Kamala*, a disorder of *Raktavaha Srotas*, with *Yakrit* and *Pleeha* as its root structures.. When neglected or inadequately managed, *Kamala* may progress to the chronic, refractory condition known as *Kumbha Kamala*.. WD has no single, direct correlate in classical Ayurvedic nosology because of its varied clinical presentations; however, given this patient's chronic icterus and hepatic involvement, his presentation was considered analogous to *Kumbha Kamala* for the purpose of selecting an Ayurvedic treatment approach.

Rationale for the Report

Long-term data on outpatient Ayurvedic management of WD are limited. We report a patient treated exclusively with oral Ayurvedic medicines and monitored for four years, documenting symptom progression, biochemical trends, and disease course. The report follows CARE guidelines for transparent case reporting.

Patient Information

A 19-year-old male presented on 10 December 2021 with a two-year history of scleral icterus and corneal ring after discontinuing treatment for WD. Diagnosed at age eight, he had low ceruloplasmin (9.9 mg/dL) and elevated 24-hour

urinary copper (310.71 µg/day) and received D-penicillamine for approximately ten years. After stopping therapy in 2019, symptoms gradually recurred. Two of his three siblings had died, including one from jaundice and one from confirmed WD.

Clinical Findings:

- Lab investigations (dec 10,2021):
 - S. Copper - 0.29 mg/dl
 - S. Ceruloplasmin - <2.39 md/dl
- Systemic examination: -
 - R.S. - Bilateral air entry clear
 - C.V.S. - S1-S2 heard, no abnormal murmur heard
 - CNS - Conscious and oriented
- Physical examination: -
 - Slit lamp examination – KF ring present in cornea, yellowish discoloration present in sclera.

According to the signs, symptoms and clinical examinations; also, the history given by him, he clinically diagnosed with WD.

Ashtavidha Pariksha

Nadi was Vata–Pittaja. Mutra was passed 6–7 times per day and Mala was passed once daily. Jihva was Nirama. Shabda and Sparsha were Prakrita. On ocular examination, yellowish sclera with a Kayser–Fleischer ring was observed. The Akriti of the patient was Madhyama.

Laboratory investigations on 10 December 2021 are presented under Diagnostic Assessment below.

Clinical Course

14 Aug 2009: The patient was healthy until 8 years of age, when scleral icterus and a corneal ring developed. Investigations confirmed Wilson's disease (WD), with low ceruloplasmin (9.9 mg/dL) and increased urinary copper excretion (310.71 µg/day). D-penicillamine 500 mg TDS was initiated as lifelong therapy.

Aug 2009–Sep 2019: The patient became asymptomatic within six months and remained clinically well on regular follow-up while continuing D-penicillamine.

Sep 2019–Dec 2021: After discontinuing treatment for approximately two years, scleral icterus and Kayser–Fleischer (KF) ring recurred. The patient stopped conventional therapy completely.

Dec 2021–Apr 2022: At presentation, serum copper was 0.29 mg/dL and ceruloplasmin was <2.39 mg/dL. Two Ayurvedic medicines were started twice daily after meals, with monthly follow-up.

Apr–Nov 2022: After four months, scleral discoloration improved and the KF ring resolved. Serum copper decreased to 0.14 mg/dL. Medicine No. 2 was discontinued, while Medicine No. 1 was continued.

Nov 2022–Jul 2024: The patient remained asymptomatic and clinically stable. Serum copper was 0.002 mg/dL and ceruloplasmin <2.43 mg/dL. Medicine No. 1 was continued.

Jul 2024–Sep 2025: The patient remained asymptomatic, with serum copper <0.001 mg/dL and ceruloplasmin 3.02 mg/dL. Medicine No. 1 and monthly follow-up were continued.

Sep 2025–Present: The patient continues to remain asymptomatic on Medicine No. 1 with regular monthly follow-up. Latest serum copper was 0.52 mg/dL and ceruloplasmin <2.55 mg/dL.

Diagnostic Assessment

Therapeutic Intervention

Ayurvedic treatment was initiated on 10 December 2021 on an outpatient basis, with monthly clinical and biochemical follow-up. Two oral formulations were prescribed:

Ayurvedic Treatment

Medicine No. 1: A powder combination of Bhumi Amalaki (*Phyllanthus niruri*, 2 g) and Sharpunkha (*Tephrosia purpurea*, 1 g) was administered twice daily after meals with normal water and continued throughout the four-year follow-up.

Medicine No. 2: Gandhaka Rasayana (1 g powder) was administered twice daily after meals from December 2021 to April 2022. It was discontinued after four months following a reduction in serum copper below baseline levels.

The patient was counselled that WD has no definitive cure and that Ayurvedic management would need to be continued long-term, with regular monitoring of serum copper and ceruloplasmin to guide dose adjustment.

Dietary Advice

The patient was advised to include rice, barley, and wheat (cooked); bitter and leafy vegetables; carrots, cabbage, and cucumber; apple, pear, and pomegranate; mung bean; cow's milk and ghee; papaya; and dates, with plain water as the primary drinking fluid.

He was advised to avoid hot, spicy, and deep-fried foods; sour foods such as tamarind, pickles, vinegar, and fermented foods; yogurt and cheese; red meat and organ meats (liver, kidney); shellfish; nuts and seeds in excess (particularly peanuts, cashews, and almonds); and chocolate, cocoa, and alcohol.

Follow-Up and Outcomes

Laboratory Findings

At baseline on 10 Dec 2021, serum copper was 0.29 mg/dL and ceruloplasmin was <2.39 mg/dL. By 24 Nov 2022, serum copper had markedly decreased to 0.002 mg/dL, while ceruloplasmin remained <2.43 mg/dL. On 11 Sep 2025, serum copper was 0.52 mg/dL and ceruloplasmin remained low at <2.55 mg/dL.

Symptomatic Response

Before treatment, scleral icterus and Kayser–Fleischer (KF) ring were present. Following treatment, both findings resolved.



Before Treatment

After Treatment

Scleral icterus and the KF ring resolved within four months of Ayurvedic therapy, with decreased serum copper. Medicine No. 2 (*Gandhaka Rasayana*) was then stopped, while Medicine No. 1 was continued with monthly monitoring. The patient remained asymptomatic through September 2025, with persistently low serum copper and ceruloplasmin. No adverse drug reactions were reported during four years of treatment.

DISCUSSION

In Ayurvedic pathophysiology, this patient's presentation was understood as a predominantly *Pitta*-dominant disorder with secondary involvement of *Vata* and *Kapha*, centred on the *Yakrit*, described as the root structure of *Rakta Dhātu*. Icterus — yellow discoloration of the eyes, skin, and urine — is classically attributed to aggravated *Pitta*. This rationale guided selection of therapies with *Pittahara*, *Rasayana*, and *Rakta Shodhaka* properties.

Bhumi Amalaki (*Phyllanthus niruri*) is described in the *Bhavaprakasha Nighantu* as *Kaphaghna*, *Pittaghna*, and *Rakta Shodhaka*, with *Tikta* and *Sheeta* properties that, in classical terms, pacify aggravated *Pitta* in the liver and blood tissue. Pharmacological studies have reported antioxidant, anti-hepatotoxic, antiviral, antibacterial, and hepatoprotective activity for this herb, providing a plausible rationale in patient of WD.

Sharpunkha (*Tephrosia purpurea*), also known by the classical synonyms *Pleehashatru* and *Neelivrikshakriti*, is bitter and astringent in taste with a light quality, and is classically indicated for hepatosplenic disorders, wounds, toxin exposure, cough, fever, and blood disorders. It has been reported to show hepatoprotective, blood-purifying, anticholestatic, and diuretic activity, along with antioxidant activity that may protect the liver against oxidative stress.

Gandhaka, also known as *Shulvari* ("enemy of copper"), has a traditional anti-copper association. *Yogaratanakara* describes *Gandhaka Rasayana* as detoxifying, blood-purifying, rejuvenative, and *Vata*-pacifying. Given copper toxicity in WD, the attributed anti-copper and rejuvenative properties supported initial use of *Gandhaka Rasayana*. It was discontinued after serum copper decreased, with improvement sustained on *Bhumi Amalaki* and *Sharpunkha* alone.

Sustained resolution of icterus and the KF ring was observed, but several limitations exist. This single, unblinded, non-comparative case cannot establish efficacy, and effects of prior chelation therapy cannot be excluded. Serum copper is an indirect marker of copper burden, and its recent rise warrants monitoring. Lack of genetic, imaging, and hepatic assessment further limits interpretation; therefore, findings remain hypothesis-generating.

CONCLUSION

In this patient with confirmed WD who discontinued conventional chelation, individualized oral Ayurvedic therapy with *Bhumi Amalaki*, *Sharpunkha*, and initially *Gandhaka*

Rasayana was associated with resolution of icterus and KF ring, sustained low serum copper, and a four-year uneventful outpatient course. However, this single case cannot establish efficacy; larger controlled studies are needed.

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