



Restoring Kidney Vitality: A Case Study On Integrated *Ayurvedic* Management Of Ckd With Hypertension And Type 2 Diabetes

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ABSTRACT

Chronic kidney disease (CKD), type 2 diabetes mellitus (T2DM), and hypertension are interconnected disorders that adversely affect health and substantially raise the risk of cardiovascular disease. CKD often arises as a consequence of T2DM and hypertension, leading to progressive renal dysfunction. Conventional management includes pharmacological interventions, but alternative approaches, such as *Ayurveda*, offer promising complementary therapies. This case study evaluates the impact of *Ayurvedic* interventions on CKD with coexisting hypertension and T2DM in a 69-year-old male patient at Jeena Sikho Lifecare Limited Hospital, Derabassi, India. The patient, with a long-standing history of hypertension for 10 years and T2DM for 20 years, presented with symptomatology of CKD, including pedal oedema, burning sensation, general weakness, insomnia raised serum creatinine, and anemia. A 12-day inpatient *Ayurvedic* treatment regimen, including *Panchkarma* therapies and *Ayurvedic* formulations, resulted in significant symptom relief. Laboratory investigations revealed improvements in renal function, with reductions in serum creatinine and urea levels. These findings highlight the potential of *Ayurvedic* treatments in CKD management. However, further large-scale clinical trials are necessary to validate their efficacy and establish standardized protocols for integrated *Ayurvedic* care in CKD treatment.

KEYWORDS: *Ayurveda*, Chronic Kidney Disease, Hypertension, *Madhumeh*, *Panchkarma*, Type II Diabetes Mellitus, *Vataj Pandu*, *Mutraghata*

INTRODUCTION

Chronic kidney disease (CKD), type 2 diabetes mellitus (T2DM) and hypertension are interrelated conditions that significantly impact patient health outcomes. The interplay among these diseases exacerbates their progression and increases the risk of cardiovascular complications, making their combined effects a crucial area of focus for effective management and treatment strategies ^[1]. CKD often develops as a complication of T2DM and hypertension, with diabetes being a leading cause of end-stage renal disease (ESRD) ^[2]. Stage V CKD, also known as end-stage kidney disease (ESKD), is the most severe stage, where kidney function declines to less than 15% of normal capacity. This results in the inability to effectively filter waste and excess fluids from blood, leading to toxin accumulation in the body. Moreover, the coexistence of hypertension and diabetes mellitus significantly raises the risk of CKD, with studies indicating a detrimental effect on patient's health ^[3]. Patients with these comorbidities also face a heightened risk of cardiovascular disease, the leading cause of mortality in CKD patients ^[4].

Previous studies have explored the complex relationship between CKD, T2DM and hypertension. Research indicates that diabetes and high blood pressure are the most significant contributors to CKD progression, with diabetic nephropathy being a major driver of kidney failure. Studies have shown that individuals with both conditions are at a substantially higher risk of developing CKD compared to those with either condition alone ^[3]. Additionally, early detection through monitoring estimated glomerular filtration rate (eGFR) is essential for timely intervention ^[4].

From a modern medical perspective, the management of CKD with coexisting diabetes and hypertension requires an integrated treatment approach. Controlling blood pressure and glucose levels is crucial, and medications such as SGLT-2 inhibitors and ACE inhibitors have demonstrated benefits in slowing CKD progression ^[2,5]. Despite advancements in pharmacological treatments, managing CKD remains a complex challenge that requires personalized and interdisciplinary approaches to improve patient outcomes and reduce disease burden.

The *Ayurvedic* perspective being more observational evaluates diseases differently. Various symptoms of anemia arising from degenerative disorders, for example are categorized as *Vataj pandu* ^[6]. This is how we can review a CKD case with anemia due to lowered erythropoietin levels. At the same time impaired eGFR resulting in oliguria/anuria can be likened to *mutraghata* ^[7]. The *Ayurvedic* approach to manage CKD alongside T2DM and hypertension emphasizes upon holistic treatment strategies that address underlying imbalances while promoting renal health. This approach integrates various *Ayurvedic* formulations and therapies aimed at improving kidney function, regulating blood sugar levels and managing blood pressure. *Ayurvedic* interventions for CKD include *Shodhan* and *Shaman Chikitsa*, where techniques like *Basti* (therapeutic enema) and *Ayurvedic* herbo-mineral formulations have shown reno-protective effects by improving hematological parameters in CKD patients ^[8]. Specific *Ayurvedic* formulations, are utilized for their diuretic, anti-inflammatory and detoxifying properties, supporting kidney function and alleviating symptoms ^[9,10]. Case studies indicate significant improvements in serum creatinine and urea levels, as well as symptom relief in patients with CKD and associated conditions ^[11,12].

Samprapti (Pathogenesis) and Chikitsa (Treatment) from Ayurvedic perspective

Ghataka	Details
Dosha (Bodily Humors or Three Energies of Body)	Predominantly <i>Vata</i> -type <i>Tridosha</i> imbalance (<i>Vata</i> > <i>Kapha</i> , <i>Pitta</i> in later stages)
Dushya (Tissues)	Plasma (<i>Rasa</i>), Blood (<i>Rakta</i>), Muscle (<i>Mamsa</i>), Fat (<i>Meda</i>), Bone marrow (<i>Majja</i>), Reproductive tissue (<i>Shukra</i>), Urinary tract (<i>Mutravaha srotas</i>)
Srotas (Affected channels)	Urinary (<i>Mutravaha</i>), Blood (<i>Raktavaha</i>), Fat (<i>Medovaha</i>), Plasma (<i>Rasavaha</i>), Water regulation (<i>Udakavaha</i>)
Srotodushti (Channel pathology)	Obstruction (<i>Sanga</i>), Abnormal pathways (<i>Vimarga gamana</i>), Nodular formations (<i>Granthi</i>)
Udbhava Sthana (Origin site of disease)	Digestive tract (<i>Amashaya</i>)
Agni (Impaired digestion/metabolism)	Weak digestive fire (<i>Jatharagni mandya</i>), Tissue metabolic disturbance (<i>Dhatvagni dushti</i>), especially of <i>Rasa</i> and <i>Meda dhatus</i>
Ama (Toxins)	Present (especially in early/ <i>sama</i> stages)
Adhithana (Site of disease manifestation)	<i>Vrikka</i> (Urinary tract)
Vyadhi Swabhava (Nature of disease)	Palliable but not fully curable (<i>Yapya</i>), Difficult to cure (<i>Krichchhra sadhya</i>)

Ayurvedic treatments along with ongoing essential western medications focus on controlling blood sugar and blood pressure through dietary modifications and specific treatment, which can help to mitigate CKD progression ^[10,12]. The Ayurvedic perspective considers the balance of *Doshas* and the elimination of *Ama*, which is crucial for overall health and the effective management of chronic conditions ^[1].

OBJECTIVE

To assess the impact of Ayurvedic interventions integrated with ongoing modern medicine management for *Vrikki Rog* (CKD) with hypertension and T2DM.

CASE REPORT

One 69-year-old male with the history of hypertension for 10 years and Type 2 diabetes mellitus for 20 years visited Jeena Sikho Lifecare Limited Hospital in Derabassi, India, on February 06, 2025. The patient was a known case of CKD stage IV. A comprehensive medical history, family history, physical examination and diagnostic evaluations were included in the clinical evaluation. He experienced insomnia, burning sensation over feet, mild pedal oedema, general weakness and dryness of mouth and throat. The vital signs during the treatment are mentioned in **Table 1** and *Asthvidha Pariksha* (Eight-fold examination) report during the treatment are detailed in **Table 2**. The laboratory investigation reports during the treatment period are mentioned in **Table 3**. The hypertension chart during the IPD is mentioned in **Table 4**.

Table 1 Vitals during the treatment period

Parameter	Findings		
Date	06-02-2025	09-02-2025	20-02-2025
Blood Pressure	140/90 mm of Hg	150/90 mm of Hg	140/90 mm of Hg
Pulse Rate	88/min	72/min	66/min
Weight	61 Kg	61 Kg	60 Kg
Blood Sugar	R-201 mg/dl	R-152 mg/dl	R-150 mg/dl

Table 2 Asthvidha Pariksha (examination) report during the treatment period

Parameter	Findings		
Date	06-02-2025	09-02-2025	20-02-2025
Naadi (Pulse)	Vataj pittaj	Vataj Pittaj	Vataj Pittaj
Mutra (Urine)	Safena (Frothy)	Safena (Frothy)	Avikrit (Normal)
Mala (Stool)	Saam (Mucus mixed)	Avikrit (Normal)	Avikrit (Normal)
Jiwha (Tongue)	Saam (Coated)	Saam (Coated)	Niram (Normal)
Shabda (Voice)	Spashta (Normal)	Spashta (Normal)	Spashta (Normal)
Sparsh (Touch)	Anushna Sheeta (Normal)	Anushna Sheeta (Normal)	Anushna Sheeta (Normal)
Drik (Eye)	Avikrit (Normal)	Avikrit (Normal)	Avikrit (Normal)
Akriti (Physique)	Madhyam	Madhyam	Madhyam

Table 3. The laboratory investigation reports during the treatment period (Fig 1)

Parameter	Findings		
Date	09-02-2025	14-02-2025	18-02-2025
Hemoglobin	7.0 gm/dl	6.3 gm/dl	6.1 gm/dl
Blood urea	154.29 mg/dL	150.36 mg/dL	125.35 mg/dL
Serum creatinine	7.15 mg/dL	7.0 mg/dL	6.22 mg/dL
BUN	72 mg/dl	70.17 mg/dl	58.50 mg/dl

Table 4. The hypertension chart during the IPD during 8 AM

Date	Blood pressure (mmHg)
10-02-2025	150/80 mmHg
11-02-2025	150/80 mmHg
12-02-2025	170/80 mmHg
13-02-2025	170/90 mmHg
14-02-2025	160/80 mmHg
15-02-2025	150/80 mmHg
16-02-2025	170/80 mmHg
17-02-2025	150/80 mmHg
18-02-2025	130/70 mmHg
19-02-2025	120/70 mmHg
20-02-2025	120/80 mmHg

The patient was admitted for IPD on February 09, 2025 with the complaints of dyspnea on exertion, loss of appetite, constipation, B/L pedal oedema, burning sensation on soles and insomnia. The patient was already taking previously prescribed necessary allopathic medicines. The patient underwent consolidated *Panchkarma* therapies like *Awagah Swedan*, *Punarnava* and *Gokshur Tail (Anuvasan) Basti*, *Punarnava* and *Gokshur Kashay (Niruha) Basti* and *Shirodhara* with *Brahmi* oil during the IPD. The patient was discharged after 12 days of IPD on February 20, 2025.

A Disciplined & Intelligent Person's (DIP) Diet and *Ayurvedic* Diet were provided to the patient to complement the *Ayurvedic* treatments administered for CKD ^[13,14,19].

Treatment Plan

I. Diet Plan:

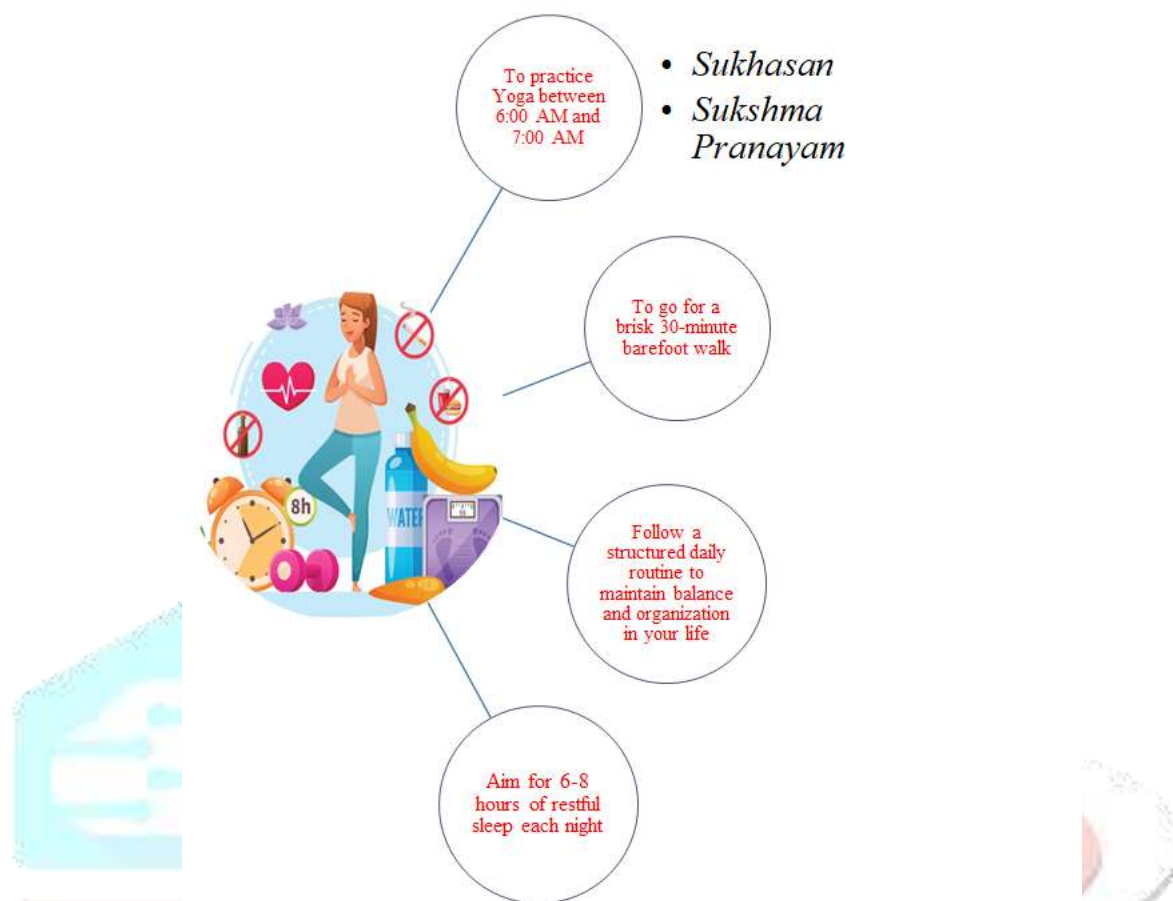
Dietary Guidelines from Jeena Sikho Lifecare Limited Hospital:

The dietary recommendations advised for the patient with CKD are depicted in **Fig 2**. The life style recommendations are illustrated in **Fig 3**.

Fig 2 The dietary recommendations



II Fig 3 Lifestyle Recommendations



III. Panchkarma procedures administered to the patient

1. *Awagah Swedan* ^[14]

- The patient was submerged up to the navel in a tub of warm water.
- The temperature of water was maintained at 42°C.
- The patient spent 40 minutes under the conditions provided.

2. *Punarnava Gokshuru Basti plan*

- a. *Punarnava Gokshuru Anuvasan* (oil) *Basti* on days 1, 2, 4, 6, 8 ^[20,21]

Quantity: 80 ml *Punarnava Gokshuru* oil

Procedure: *Abhyanga swedana* given for 1 hour followed by a small meal, followed by *Anuvasan Basti*

- b. *Punarnava Gokshuru Niruha* (decoction) *Basti* given on days 3, 5 and 7. ^[22]

Quantity and composition: *Punarnava Gokshuru* oil 30 ml, *Sendha* salt 10 grams, honey 30 ml and decoction of *Punarnava* and *Gokshuru* 250 ml

Procedure: 30 grams each of the roots of *Punarnava* and *Gokshuru* were taken and boiled in 1 litre of water, reduced to 250 ml. This was filtered and 30 ml *Punarnava Gokshuru* oil mixed. In mortar and pestle, 30 ml of honey was mixed with 10 grams of rock salt for 5 minutes to obtain a frothy whitish mixture. The honey-salt combination was mixed in the decoction-oil combination and mixed well. The

patient was given *Abhyanga* and *Swedana* for an hour, empty stomach followed by administration of *Punarnava Gokshuru Niruha Basti*.

The patient was instructed to retain both the *Basti* 's as long as possible. The average expulsion time for the *Anuvasan Basti* in this patient was 8 hours and for the *Niruha Basti* the retaining time was 10 minutes. The patient was instructed to stay indoors, away from cold wind and water for 30 minutes.

3. *Shirodhara with Brahmi oil* ^[23,24]

- The patient laid down supine on the *Abhyanga* table.
- Warm (45°C) *Brahmi oil* (1 liter) was poured as continuous stream over the forehead, for 30 minutes while the patient relaxed.
- After completing the therapy, the patient's forehead and scalp were gently wiped.
- The patient rested for a 30 minutes before being given a warm water bath, using green gram powder to remove excess oil
- A light diet and rest were advised, with instructions to avoid cold exposure or exertion.

Medicinal Interventions

1. *Ayurvedic medications*

The *Ayurvedic* treatment employed in this case included Divya Shakti Powder, Dr. CKD Tablet, GFR Powder, Mutavardhak vati, Renal Support Syrup, Dr.Sukoon tablet, Fe-Capsule, Blood purifier syrup, Kidney Shuddhi ark, Dr BP Tablet and CKD Syrup, along with *Panchkarma* therapies. The *Ayurvedic* medications advised during the treatment period is mentioned in **Table 5**. The details of the medicines are described in **Table 6**.

2. *Allopathic interventions*

The patient was previously taking Erythropoietin subcutaneously weekly, and amlodipine 5 mg BD which he continued during treatment.

Table 5 The *Ayurvedic* medications advised during the treatment period

Date	Medicines	Dosage with Anupana
06-02-2025	GFR Powder	A teaspoon BD (<i>Adhobhakta</i> with <i>koshna jala</i> - After food with lukewarm water)
	Dr. CKD Tablet	1 TAB TDS (<i>Adhobhakta</i> with <i>koshna jala</i>)
	CKD Syrup	15 ml BD (<i>Adhobhakta</i> with <i>sama matra kosha jala</i>)
	Divya Shakti Powder	Half a teaspoon HS (<i>Nishikal</i> with <i>koshna jala</i> - At night with lukewarm water)
	Mutravardhak vati	2 TAB BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
	Renal support syrup	15 ml BD (<i>Adhobhakta</i> with <i>sama matra kosha jala</i> - After food with equal amount of lukewarm water)
09-02-2025 (IPD)	GFR Powder	A teaspoon BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
	CKD Syrup	15 ml BD (<i>Adhobhakta</i> with <i>sama matra kosha jala</i>)
	Dr. CKD Tablet	1 TAB TDS (<i>Adhobhakta</i> with <i>koshna jala</i>)
	Divya Shakti Powder	Half a teaspoon HS (<i>Nishikal</i> with <i>koshna jala</i>)
	Mutravardhak vati	2 TAB BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
	Renal support syrup	15 ml BD (<i>Adhobhakta</i> with <i>sama matra kosha jala</i>)
	DR. Sukoon Tablet	2 TAB HS (<i>Adhobhakta</i> with <i>koshna jala</i>)
	Fe-Capsule	2 CAP BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
20-02-2025	Blood purifier syrup	15 ml BD (<i>Adhobhakta</i> with <i>sama matra kosha jala</i>) for 3 days
	Dr. CKD Tablet	1 TAB TDS (<i>Adhobhakta</i> with <i>koshna jala</i>)
	Mutravardhak vati	2 TAB BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
	Fe-Capsule	2 CAP BD (<i>Adhobhakta</i> with <i>koshna jala</i>)
	Kidney Shuddhi Ark	15 ml BD (<i>Adhobhakta</i> with <i>sama matra kosha jala</i>) for 3 days
	Dr. BP	2 TAB BD (<i>Adhobhakta</i> with <i>koshna jala</i>)

Table 6 The details of the medicines advised during the treatment period

Medicine name	Ingredients	Therapeutic Effects
Dr. CKD Tablet	Apamarg (<i>Achyranthes aspera</i>), Gokshur (<i>Tribulus terrestris</i>), Punarnava (<i>Boerhavia diffusa</i>), Varun Chhaal (<i>Crataeva nurvala</i>), Mulethi (<i>Glycyrrhiza glabra</i>), Sheetal Chini (<i>Stevia rebaudiana</i>).	<i>Mutravirechaka</i> (Diuretic), <i>Shothahara</i> (Anti-inflammatory), <i>Lekhana</i> (Scraping), <i>Balya</i> (Tonic), <i>Ojavardhaka</i> (Immunomodulator), <i>Deepan</i> (Appetizer), <i>Pachan</i> (Digestive)
GFR Powder	Bhoomi Amla (<i>Phyllanthus niruri</i>), Badi Harad (<i>Terminalia chebula</i>), Bahera (<i>Terminalia bellirica</i>), Kasni (<i>Cichorium intybus</i>), Makoy (<i>Zea mays</i>), Punarnava (<i>Boerhavia diffusa</i>), Gokshur (<i>Tribulus terrestris</i>).	<i>Mutravirechaka</i> (Diuretic), <i>Shothahara</i> (Anti-inflammatory), <i>Lekhana</i> (Scraping), <i>Balya</i> (Tonic), <i>Deepan-pachan</i> (Appetizer and Digestive)
Divya Shakti Powder	Trikatu (<i>Piper nigrum</i> , <i>Piper longum</i> , <i>Zingiber officinale</i>), Triphala (<i>Phyllanthus emblica</i> , <i>Terminalia chebula</i> , <i>Terminalia bellerica</i>), Nagarmotha (<i>Cyperus rotundus</i>), Vaya Vidang (<i>Embelia ribes</i>), Chhoti Elaichi (<i>Elettaria cardamomum</i>), Tej Patta (<i>Cinnamomum tamala</i>), Laung (<i>Syzygium aromaticum</i>), Nishoth (<i>Operculina turpethum</i>), Sendha Namak , Dhaniya (<i>Coriandrum sativum</i>), Pipla Mool (<i>Piper longum</i> root), Jeera (<i>Cuminum cyminum</i>), Nagkesar (<i>Mesua ferrea</i>), Amarvati (<i>Achyranthes aspera</i>), Anardana (<i>Punica granatum</i>), Badi Elaichi (<i>Amomum subulatum</i>), Hing (<i>Ferula assa-foetida</i>), Kachnar (<i>Bauhinia variegata</i>), Ajmod (<i>Trachyspermum ammi</i>), Sajjikshar , Pushkarmool (<i>Inula racemosa</i>), Mishri (<i>Saccharum officinarum</i>)	<i>Medhya</i> (Nootropic), <i>Rasayana</i> (Rejuvenator), <i>Ojavardhaka</i> (Immunomodulator), <i>Vata shamaka</i> (<i>Vata</i> -pacifying), <i>Deepan</i> (Appetizer), <i>Pachan</i> (Digestive)
CKD Syrup	Kasani (<i>Cichorium intybus</i>), Gokshur (<i>Tribulus terrestris</i>), Shatavari (<i>Asparagus racemosus</i>), Giloy (<i>Tinospora cordifolia</i>), Sorbitol , and Shuddh Shilajeet (<i>Asphaltum punjabianum</i>)	<i>Mutravirechaka</i> (Diuretic), <i>Shothahara</i> (Anti-inflammatory), <i>Rasayana</i> (Rejuvenator), <i>Balya</i> (Tonic), <i>Lekhana</i> (Scraping), <i>Deepan-Pachan</i> (Appetizer and Digestive)
Mutra Vardhak Vati	Gokshur (<i>Tribulus terrestris</i>), Guggul (<i>Commiphora wightii</i>), Sounth (<i>Zingiber officinale</i>), Kalimirch (<i>Piper nigrum</i>), Pippali (<i>Piper longum</i>), Bahera (<i>Terminalia bellerica</i>), Harad (<i>Terminalia chebula</i>), Amla (<i>Phyllanthus emblica</i>), Motha (<i>Cyperus rotundus</i>)	<i>Mutrasangrahani</i> (Urinary Retention), <i>Mutravardhaka</i> (Diuretic), <i>Shothahara</i> (Anti-inflammatory), <i>Rasayana</i> (Rejuvenator), <i>Deepan-Pachan</i> (Appetizer and Digestive)
Renal Support Syrup	Nimb (<i>Azadirachta indica</i>), Arjun (<i>Terminalia arjuna</i>), Gokshur (<i>Tribulus terrestris</i>), Hareetaki (<i>Terminalia chebula</i>), Ashwagandha (<i>Withania somnifera</i>), Karanj (<i>Pongamia pinnata</i>), Chiraita (<i>Swertia chirayita</i>).	<i>Mutravirechaka</i> (Diuretic), <i>Shothahara</i> (Anti-inflammatory), <i>Agnivardhaka</i> (Digestive Stimulant), <i>Rasayana</i> (Rejuvenator), <i>Balya</i> (Tonic), <i>Amapachana</i> (Ama Detoxifier)

Dr. Sukoon Tablet	Apamarg (<i>Achyranthes aspera</i>), Shatavari (<i>Asparagus racemosus</i>), Ashwagandha (<i>Withania somnifera</i>), Brahmi (<i>Bacopa monnieri</i>), Vacha (<i>Acorus calamus</i>), Shankhpushpi (<i>Convolvulus pluricaulis</i>), Calcium (<i>Calcium carbonate - CaCO₃</i>).	<i>Manas Shamak</i> (Mental Calming), <i>Nidrajanana</i> (Sleep Inducer), <i>Vata Shamaka</i> (Vata-Pacifying), <i>Medhya Rasayana</i> (Nootropic Rejuvenator)
FE Capsule	Makoy (<i>Solanum nigrum</i>), Shilajeet , Yashad Bhasm , Loh Bhasm , Swarn Makshik Bhasm , Mukta Shukti Pishti .	<i>Raktavardhaka</i> (Blood-Enhancing), <i>Rasayana</i> (Rejuvenator), <i>Balya</i> (Tonic), <i>Deepan</i> (Appetizer), <i>Pachan</i> (Digestive)
Blood Purifier Syrup	Khair Chhaal (<i>Acacia catechu</i>), Babchi (<i>Psoralea corylifolia</i>), Devdaru (<i>Cedrus deodara</i>), Daru Haldi (<i>Curcuma aromatica</i>), Haritaki (<i>Terminalia chebula</i>), Bahera (<i>Terminalia bellerica</i>), Amla (<i>Phyllanthus emblica</i>), Mahamajishtha (<i>Rubia cordifolia</i>), Dhamasa (<i>Gmelina arborea</i>), Sariva (<i>Hemidesmus indicus</i>), Amba Haldi (<i>Curcuma amada</i>), Kutaki (<i>Picrorhiza kurroa</i>), Chiraita (<i>Swertia chirata</i>), Rasont (<i>Ruta graveolens</i>), Satyanashi (<i>Cissampelos pareira</i>), Madhu (Honey), and Sharkara (<i>Saccharum officinarum</i>)	<i>Raktashodhaka</i> (Blood Purifier), <i>Pitta Shamana</i> (Pitta-Pacifying), <i>Krimighna</i> (Anthelmintic), <i>Shothahara</i> (Anti-inflammatory), <i>Rasayana</i> (Rejuvenator)
Kidney Shuddhi Ark	Punarnava (<i>Boerhavia diffusa</i>), Gokshur (<i>Tribulus terrestris</i>), Varuna (<i>Crataeva nurvala</i>), Bhumyamalaki (<i>Phyllanthus niruri</i>), Ashwagandha (<i>Withania somnifera</i>), Amla (<i>Emblica officinalis</i>), Shatavari (<i>Asparagus racemosus</i>), Turmeric (<i>Curcuma longa</i>), Saffron .	<i>Mutravirechaka</i> (Diuretic), <i>Shothahara</i> (Anti-inflammatory), <i>Lekhana</i> (Scraping), <i>Rasayana</i> (Rejuvenator), <i>Balya</i> (Tonic)
Dr. BP cure	Shankhpushpi (<i>Convolvulus pluricaulis</i>), Shatavari (<i>Asparagus racemosus</i>), Ashwagandha (<i>Withania somnifera</i>), Brahmi (<i>Bacopa monnieri</i>), Vacha (<i>Acorus calamus</i>), Sarpagandha (<i>Rauvolfia serpentina</i>), Jeera (<i>Cuminum cyminum</i>), Giloy (<i>Tinospora cordifolia</i>), Malabar Nut (<i>Justicia adhatoda</i>), Jatamansi (<i>Nardostachys jatamansi</i>), Mukta Pishti (Purified Pearl Calcium - <i>CaCO₃</i>).	<i>Raktashodhaka</i> (Blood Purifier), <i>Hridya</i> (Cardiac Tonic), <i>Vata Shamana</i> (Vata-Pacifying), <i>Deepana</i> (Appetizer), <i>Rasayana</i> (Rejuvenator)

RESULT

The patient underwent IPD treatment for 12 days, after the treatment he experienced noteworthy development in symptoms, which denotes the interventions used in the study are effective against CKD, hypertension and T2DM. At the time of discharge, the patient was well oriented and there was relief from pedal oedema, burning sensation, insomnia, loss of appetite and constipation which shows that the *Ayurvedic* interventions used in the case study are effective for CKD. The conditions during the admission and discharge are mentioned in **Table 7**. The DTPA scan before treatment is attached as **Fig 4**.

Table 7 The conditions during the admission and discharge

Conditions	During Admission	During Discharge
Dyspnea	5/10	1/10
Pedal oedema	4°	1°
Sleep score	2/10	08/10
Pain score	1/10	0/10
Burning sensation	3+	1+

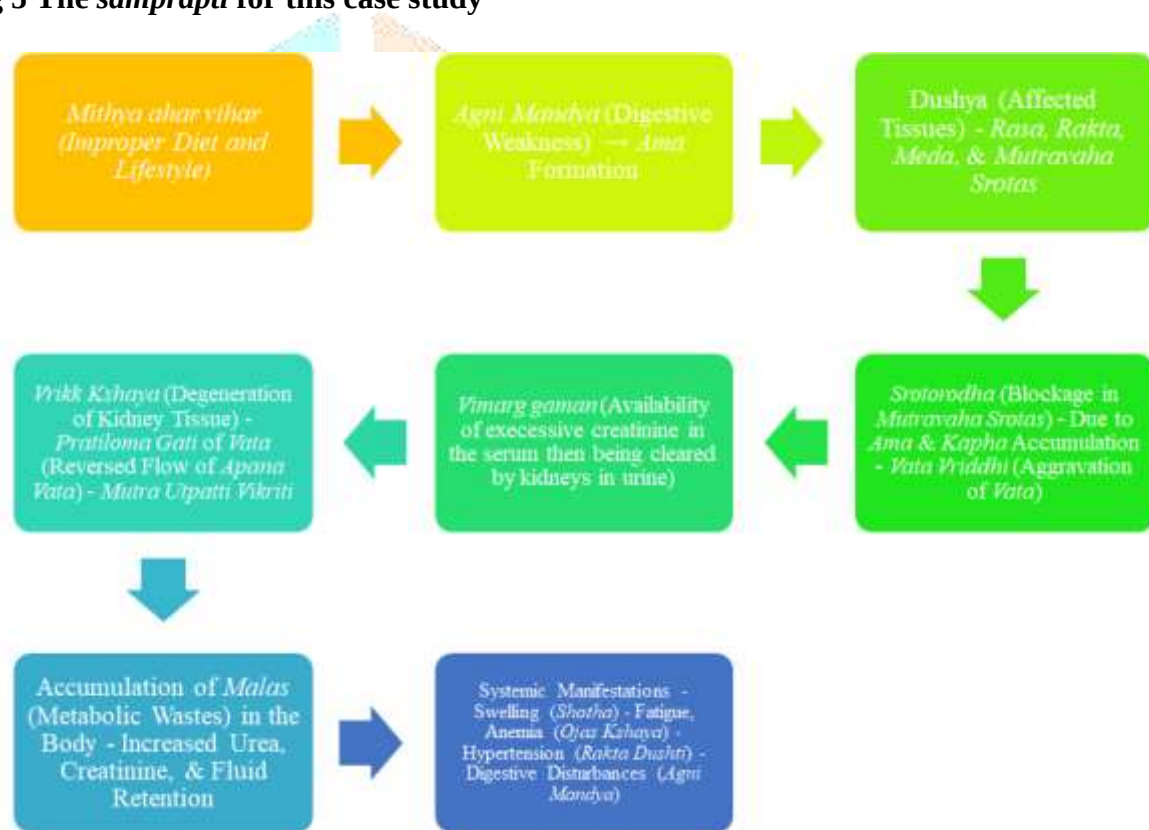
Implications for Future Research

The present study examined a CKD stage IV patient with hypertension and T2DM, yielding promising results. However, due to the limited sample size of a single case, a more comprehensive evaluation is required. Future research should incorporate randomized controlled trials with larger sample sizes to validate the safety, efficacy and reliability of integrated *Ayurvedic* treatments. Such studies will be crucial in establishing standardized therapeutic guidelines and protocols.

DISCUSSION

Ayurvedic treatment integration for CKD stage IV offers a significant support for conventional medical methods. This case study describes the application of several *Ayurvedic* treatments to a 69-year-old male who had been diagnosed with CKD with history of T2DM for 20 years and Hypertension for 10 years. The patient's symptoms including pedal oedema, burning sensation, insomnia, loss of appetite and constipation got relieved. The *samprapti* ^[25,26,27,28] for this case study is depicted in **Fig 5**.

Fig 5 The *samprapti* for this case study



1. *Samprapti*

The *Ayurvedic Samprapti* model of *Vataj Pandu*, and *Mutraghata* jointly reflect renal disorders, In *Vataj Pandu* and *Mutraghata*, the patient experiences pallor of skin, eyes, and nails due to *Rakta Dhatu Kshaya* (blood tissue depletion), along with fatigue, weakness, breathlessness, and palpitations. *Vata* dominance leads to *Angamarda* (body ache), *Manodaurbalya* (mental weakness), and lethargy, beginning with *Mithya Ahara-Vihara* (improper diet and lifestyle), which lead to *Agni Mandya* (improper metabolism) and the formation of *Ama* (toxins) ^[29,30]. This *Ama* vitiates *Dushyas*, specifically *Rasa*, *Rakta*, *Meda*, and *Mutravaha Srotas* (urinary channels), resulting in *Srotorodha* due to accumulated *Ama* and *Kapha*, ultimately causing *Vata Vriddhi*. The vitiated *Vata*, particularly *Apana Vata*, undergoes *Pratiloma Gati* (reversed flow), leading to *Vrikk Kshaya* and *Mutra Utpatti Vikriti* (abnormal urine formation and excretion). This dysfunction causes the accumulation of *Malas* (metabolic wastes) such as urea and creatinine, along with fluid retention. These pathological changes manifest systemically as *Shotha* (swelling), fatigue, anemia, hypertension (*Rakta Dushati*), and digestive disturbances (*Agni Mandya*).

Dushti), and further digestive disturbances, perpetuating a vicious cycle. This integrated model highlights the complex interplay of *doshas*, *dhatu*s, *malas*, and *srotas*, illustrating the chronic and progressive nature of renal pathology from an *Ayurvedic* perspective.

2. *Nidan*

The *Nidan* (etiology) of this renal disorder, as depicted in the diagram, primarily stems from *Mithya Ahara-Vihara* (inappropriate dietary habits and lifestyle choices), that disturb the balance of the body's internal systems^[31]. Consuming heavy, oily, incompatible, or processed foods, along with sedentary behavior, stress, and irregular routines, weakens the digestive fire (*Agni*) and leads to the formation of *Ama*^[32]. This *Ama* becomes the root cause of systemic imbalance, obstructing the normal functioning of *Srotas* (body channels), particularly the *Mutravaha Srotas* (urinary system)^[33]. Additionally, the excessive intake of *Guru* (heavy), *Snigdha* (unctuous), and *Kapha*-provoking substances contributes to *Kapha Dushti*, while lifestyle patterns that aggravate *Vata*, such as suppression of natural urges, late nights, or excessive travel, lead to *Vata Prakopa*^[34]. Together, these causative factors initiate a cascade of pathological changes affecting *Rasa*, *Rakta*, *Meda*, and *Mutra*, ultimately compromising renal function and setting the foundation for *Vrikk Kshaya*. Thus, improper diet and lifestyle are key *Nidanas* that trigger and perpetuate the progression of this disease.

3. *Ayurvedic* medications

The *Ayurvedic* regimen, consisting of Divya Shakti Powder, Dr. CKD Tablet, GFR Powder, Mutra Vardhak Vati, Renal Support Syrup, Dr. Sukoon Tablet, Fe-Capsule, Blood Purifier Syrup, Kidney Shuddhi Ark, Dr. BP and CKD Syrup, and complemented by *Panchakarma* therapies, effectively addresses the *Samprapti* of CKD, T2DM, and Hypertension. These formulations work to streamline the renal functions by *Srotoshodhana*. They reduce *Ama* accumulation and *Avarana* (Obstruction) in the *Srotas*, while alleviating *Utklesha* (Agitation). Dr. CKD Tablet and GFR Powder nourish the kidneys by enhancing *Mutra Vahini Srotas* and *Shukra Dhatu* (Reproductive Tissue). Mutra Vardhak Vati and Renal Support Syrup promote *Mutravirechana*, helping eliminate toxins and excess fluids, while Divya Shakti Powder and Dr. Sukoon Tablet enhance *Ojas*, pacify *Vata* and *Pitta*, and improve *Dhi* (Intellect) and *Smriti* (Memory). *Panchakarma* therapies aid in *Ama Pachana*, *Raktashodhana*, and the rejuvenation of *Dhatu*s, improving microcirculation and strengthening *Sattva*. This holistic approach restores homeostasis by strengthening immunity, balancing the *Doshas*, and promoting long-term kidney and metabolic health.

Table 8. Therapeutic effects according to the *Ras panchaka* of the ingredients

Ingredient	Ras Panchaka	Therapeutic Effects	Medicines Present In
Gokshur	<i>Tikta, Madhura Rasa; Sheeta Virya; Madhura Vipaka</i>	<i>Mutravirechaka (Diuretic), Shothahara (Anti-inflammatory), Lekhana, Balya (Tonic)</i>	Dr. CKD Tablet, GFR Powder, CKD Syrup, Mutra Vardhak Vati, Renal Support Syrup, Kidney Shuddhi Ark
Punarnava	<i>Tikta, Madhura Rasa; Sheeta Virya; Madhura Vipaka</i>	<i>Mutravirechaka, Shothahara, Lekhana, Rasayana, Balya</i>	Dr. CKD Tablet, GFR Powder, Kidney Shuddhi Ark
Apamarg	<i>Tikta, Kashaya Rasa; Sheeta Virya; Madhura Vipaka</i>	<i>Mutravirechaka, Shothahara, Lekhana, Balya, Ojovardhaka, Deepan, Pachan</i>	Dr. CKD Tablet, Divya Shakti Powder, Dr. Sukoon Tablet
Shatavari	<i>Madhura Rasa; Sheeta Virya; Madhura Vipaka</i>	<i>Mutravirechaka, Rasayana, Balya, Medhya, Nidrajanana</i>	CKD Syrup, Dr. Sukoon Tablet, Kidney Shuddhi Ark, Dr. BP Cure
Ashwagandha	<i>Katu, Tikta Rasa; Ushna Virya; Katu Vipaka</i>	<i>Rasayana, Balya, Medhya, Vata Shamaka, Nidrajanana</i>	Renal Support Syrup, Dr. Sukoon Tablet, Kidney Shuddhi Ark, Dr. BP Cure
Bahera	<i>Tikta, Kashaya Rasa; Sheeta Virya; Madhura Vipaka</i>	<i>Mutravirechaka, Shothahara, Raktashodhaka, Pitta Shamana</i>	GFR Powder, Mutra Vardhak Vati, Blood Purifier Syrup
Harad	<i>Tikta, Kashaya Rasa; Sheeta Virya; Madhura Vipaka</i>	<i>Mutravirechaka, Shothahara, Rasayana</i>	GFR Powder, Mutra Vardhak Vati
Amla	<i>Madhura, Tikta Rasa; Sheeta Virya; Madhura Vipaka</i>	<i>Rasayana, Balya, Raktavardhaka, Shothahara</i>	Mutra Vardhak Vati, Blood Purifier Syrup, Kidney Shuddhi Ark
Kasni	<i>Tikta, Kashaya Rasa; Sheeta Virya; Madhura Vipaka</i>	<i>Mutravirechaka, Shothahara, Deepan-Pachan</i>	GFR Powder, CKD Syrup
Shilajeet	<i>Tikta, Katu Rasa; Ushna Virya; Katu Vipaka</i>	<i>Rasayana, Balya, Deepan, Pachan</i>	CKD Syrup, FE Capsule
Brahmi	<i>Madhura, Tikta Rasa; Sheeta Virya; Madhura Vipaka</i>	<i>Medhya (Nootropic), Rasayana, Manas Shamak</i>	Dr. Sukoon Tablet, Dr. BP Cure
Vacha	<i>Katu, Tikta Rasa; Ushna Virya; Katu Vipaka</i>	<i>Medhya, Vata Shamaka, Nidrajanana</i>	Dr. Sukoon Tablet, Dr. BP Cure
Shankhpushpi	<i>Madhura, Tikta Rasa; Sheeta Virya; Madhura Vipaka</i>	<i>Medhya, Nidrajanana, Vata Shamaka</i>	Dr. Sukoon Tablet, Dr. BP Cure
Giloy	<i>Tikta, Katu Rasa; Ushna Virya; Katu Vipaka</i>	<i>Mutravirechaka, Shothahara, Rasayana</i>	CKD Syrup, Dr. BP Cure
Jeera	<i>Katu, Tikta Rasa; Ushna Virya; Katu Vipaka</i>	<i>Deepan, Pachan, Hridya</i>	Divya Shakti Powder, Dr. BP Cure

Several common ingredients recur in multiple kidney-supportive Ayurvedic formulations, each characterized by specific *Ras Panchaka* and *Karma* (therapeutic actions). *Gokshur*, possessing *Tikta-Madhura Rasa*, *Sheeta Virya*, and *Madhura Vipaka*, is widely used for its *Mutravirechaka*, *Shothahara*, *Lekhana* (scraping), and *Balya* (tonic) properties ^[35]. *Punarnava*, with similar *Rasa* and *Virya*, acts as a potent *Mutravirechaka* and *Rasayana* (rejuvenator) ^[36]. *Apamarg*, known for *Mutravirechaka*, *Shothahara*, *Ojavardhaka* (immunomodulator), and *Deepan-Pachan* (appetizer-digestive) effects ^[37]. *Shatavari*, with *Madhura Rasa* and *Sheeta Virya*, offers *Balya*, *Medhya* (nootropic), and *Nidrajanana* (sleep-inducing) effects ^[38]. *Ashwagandha*, possessing *Katu Rasa* and *Ushna Virya*, provides *Rasayana*, *Vata Shamaka*, and *Balya* actions in multiple formulations ^[39]. Terminalia species, *Bahera* and *Harad*, serve as *Mutravirechaka* and *Raktashodhaka* (blood purifiers), while *Amla* acts as a potent *Rasayana*, *Shothahara*, and *Balya* ^[40]. Ingredients like *Kasni*, *Shilajeet*, *Brahmi*, *Vacha*, and *Giloy* further enhance *Deepan-Pachan*, *Medhya*, and

Rasayana effects ^[41,42,43,44]. Collectively, these herbs synergize to balance *Doshas*, promote *Agni* (digestive fire), and support kidney function through multifaceted *Ayurvedic* actions.

4. Effects of Ahara-Vihara

The holistic routine provided supports CKD management through both diet and lifestyle interventions. Starting the day with herbal tea and raw ginger-turmeric reduces inflammation and boosts metabolism ^[45]. Meals include steamed fruits, *mudga yusha*, red juice, almonds, and millet-based dishes that are easy to digest, anti-inflammatory, and kidney-friendly. Fermented millets support gut health, reducing toxin buildup, while green juice and alkaline water aid hydration and pH balance ^[16,17,18]. Lifestyle practices enhance these effects, early rising, yoga, and a brisk barefoot walk improve circulation and lymphatic drainage. Practicing *Vajrasana* and walking after meals support digestion. A structured daily routine and 6–8 hours of restful sleep help regulate stress and hormonal balance, both vital in CKD. Avoiding refined foods, wheat, dairy, caffeine, and late-night meals minimizes renal burden ^[46,47,48,49,50]. Collectively, this integrative plan aligns with *Ayurvedic* and modern principles, supporting gut-kidney health, reducing disease progression, and improving overall well-being.

5. Panchkarma therapies

During his 12 days IPD admission, He underwent *Panchkarma* treatments as part of the *Ayurvedic* therapy regimen. CKD, T2DM and Hypertension share a common pathology of *Vata-Pitta-Kapha* imbalance, *Rakta Dushti*, *Srotorodh*, and *Agni Mandya*. The following therapies help in breaking this pathological cycle: The treatment protocol involving *Awagah Swedan*, *Punarnava* and *Gokshur Tail Basti* and *Shirodhara* with *Brahmi* Oil, works synergistically to address kidney and cardiovascular health, as well as stress-induced hypertension. *Awagah Swedan* induces Vasodilation, promotes *Swedana* (sweating), eliminates *Ama*, and activates the Parasympathetic Nervous System, helping lower *Rakta Vata* and reduce *Vata*-driven systemic inflammation. This is why some scholars agree skin to be the third kidney ^[51]. *Punarnava* and *Gokshur Tail (Anuvasan) Basti* pacify *Apana Vata*, enhance *Mutravirechana*, reduce *Shotha* in the kidneys, and improve *Prakriti*, facilitating kidney nourishment and supporting *Mutra Vahini Srotas* ^[20,21]. The lipid-soluble compounds in the oils are absorbed directly, nourishing *Shukra Dhatu* and promoting Urinary function. *Punarnava* and *Gokshur Kwath (Niruha) Basti* detoxifies the *Mutra Vahini Srotas*, enhances GFR, regulates Sodium-Potassium balance, and excess *Raktashodhaka*, which helps delay the progression of chronic kidney disease (*Vikriti*) ^[22]. *Shirodhara* with *Brahmi* Oil calms the nervous system by balancing *Prana Vata*, reducing cortisol levels, and regulating the HPA axis, preventing stress-induced hypertension and metabolic dysfunction ^[23,24]. This therapeutic approach enhances cerebral circulation and improves cognitive function (*Dhi*, *Smriti*), while promoting restful sleep (*Nidra*). It also indirectly supports kidney and cardiovascular health by pacifying *Vata* and promoting overall *Sattva*. These combined treatments focus on *Srotoshodhana*, *Dosha* balancing, *Shothahara*, enhancing kidney function, and promoting overall vitality and *Ojas*.

This case study underscores the potential of *Ayurvedic* treatments along with previously prescribed allopathic medicines in managing CKD. By addressing the root cause of imbalances, these therapies help to enhance renal function while simultaneously managing associated conditions like diabetes and hypertension. Additionally, *Ayurveda* provides a cost-effective and holistic approach to kidney health. However, further research is essential to validate its efficacy and safety in CKD management.

CONCLUSION

This case study evaluating the treatment of CKD with hypertension and T2DM through *Ayurvedic* interventions yields the following findings:

Symptoms: During the period of admission, the patient presented with burning sensation over feet, general weakness, dryness of mouth and throat, dyspnea on exertion, loss of appetite, constipation, pedal oedema, and insomnia. After IPD *Ayurvedic* treatment, significant improvements were observed. The patient reported relief

from pedal oedema, burning sensation, insomnia, loss of appetite and constipation with no new symptoms emerging, suggesting a marked improvement in kidney function and overall health.

Investigations: Laboratory tests conducted during the treatment showed significant improvements in renal function. Serum urea levels decreased gradually from 154.29 mg/dL to 125.35 mg/dL, indicating enhanced kidney function. Similarly, serum creatinine levels reduced from 7.15 mg/dL to 6.22 mg/dL. These results underscore the potential efficacy of *Ayurvedic* treatment in managing CKD.

The *Ayurvedic* treatment along with previously prescribed allopathic medicines for CKD yielded positive outcomes, reflected in improved laboratory parameters, vital signs and symptoms over span of 12 days. *Ayurvedic* interventions aimed to restore balance and correct underlying imbalances, thereby supporting renal health. However, further clinical trials are necessary to validate these findings and develop standardized treatment protocols for CKD management.

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Fig 1 The laboratory investigation reports of the patient

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 NABL-M[EL]T-02754
 CERTIFICATE No.: QMS-WCL-2209152

LABORATORY REPORT

Patient Name: [Redacted]
 Age / Sex : 69 years / Male
 UID No : 23472

Reference : Dr. JEENA SIKHO LIFECARE LTD
 Organization : WELLCARE PATH LAB PVT.LTD
 Org ID : WELLCARE PATH LAB

Registered On : FEB 09, 2025, 02:04 P.M.
 Collected On : FEB 09, 2025, 02:04 P.M.
 Reported On : FEB 09, 2025, 03:03 P.M.

Barcode: 65451

Test Description	Value(s)	Reference Range	
Complete Blood Count(CBC)			
Hemoglobin (HB) Method : Cynmeth Photometric Measurement	7.0	13.0 - 17.0	g/dL
Total Leucocytes Count (TLC) Method : Electrical Impedance	6400	4000 - 11000	/cmm
DIFFERENTIAL COUNT			
Neutrophils Method : VCSn Technology	72	40 - 75	%
Lymphocytes Method : VCSn Technology	21	20 - 45	%
Monocytes Method : VCSn Technology	04	2 - 10	%
Eosinophils Method : VCSn Technology	03	1 - 6	%
Basophils	00	0 - 1	%
Total RBC Count Method : Electrical Impedance	2.29	3.50 - 6.50	Mill/Cumm
Platelet Count Method : VCSn Technology	1.88	1.50 - 4.50	Lacs/Cumm
PCV/HCT Method : Calculated	22.2	35.0 - 47.0	%
Red cell distribution width (RDW) Method : Electrical Impedance	14.6	13.0 - 18.0	%
Mean corpuscular volume (MCV) Method : Electrical Impedance	96.9	76.0 - 96.0	f
Mean Corpuscular Hemoglobin (MCH) Method : Calculated	30.6	27.0 - 32.0	pg
Mean Corpuscular Hemoglobin Concentration(MCHC) Method : Calculated	31.5	30.0 - 35.0	%
Microscopy, Fully Automated Hematology Analyser alfa swelab double chamber 3 Part			
Liver Function Test (LFT)			
Total Bilirubin Method : Vanadate : oxidation	0.43	0.20 - 1.00	mg/dL
Direct Bilirubin Method : Vanadate : oxidation	0.21	0.00 - 0.80	mg/dL
Indirect Bilirubin Method : Derived	0.22	0.00 - 0.80	mg/dL



WELLCARE PATH LAB

SCO-80, Shri Bala Ji Complex, Old Ambala Road, Dhakoli,
Zirakpur (Pb) -160104, Contact No.: +91 98729 96010
Email : wellcarepathlab.pvt.ltd@gmail.com

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NABL-M(EL)T-02764



CERTIFICATE No.:
QMS-WCL-2209152

We are enrolled with CMC EQAS & AIIMS EQAS External Quality Assurance, We are running CMC EQAS & AIIMS Quality Controls daily a day

LABORATORY REPORT

Patient
Name

Age / Sex : 69 years / Male

UID No : 23472

Reference : Dr. JEENA SIKHO LIFECARE LTD

Organization : WELLCARE PATH LAB PVT.LTD

Org ID : WELLCARE PATH LAB

Registered

On : FEB 09, 2025, 02:04 P.M.

Collected On : FEB 09, 2025, 02:04 P.M.

Reported On : FEB 09, 2025, 03:03 P.M.



45451

Test Description	Value(s)	Reference Range	
AST (SGOT) Method : IFCC* Without Pyridoxal Phosphate Activation	17.23	< 40.0	IU/L
ALT (SGPT) Method : IFCC* Without Pyridoxal Phosphate Activation	23.56	< 41.0	IU/L
Alkaline Phosphatase (ALP) Method : Modified IFCC	81.51	0.00 - 150.0	U/L
Total Protein Method : Biuret Method	6.00	6.4 - 8.2	g/dL
Albumin Method : Albumin Bogt	2.85	3.4 - 5.0	g/dL
Globulin Method : Derived	3.15	1.8 - 3.8	g/dL
A/G Ratio	0.90	0.9 - 1.8	

Interpretation:

Enhanced liver fibrosis (ELF) test is used to evaluate liver fibrosis in patients with suspected chronic liver disease due to Viral Hepatitis B & C, Alcoholic liver disease and Non alcoholic fatty liver disease

RENAL FUNCTION TEST (RFT)

BLOOD UREA Method : Urease/ UV	154.29	15.0 - 46.0	mg/dl
BLOOD UREA NITROGEN (BUN) Method : Kinetic UV Assay	72.00	7.0 - 25.0	mg/dl
CREATININE - SERUM Method : Modified jaffe method	7.15	0.70 - 1.40	mg/dl
BLOOD UREA NITROGEN / CREATININE RATIO Method : Derived	10.07	9.1 - 23.1	Ratio
URIC ACID Method : Uricase/ Peroxidase	8.87	3.0 - 7.2	mg/dL

Note:

Please correlate with clinical conditions.

Electrolytes

Sodium (NA+) Method : Method: ISE Direct	139.3	136.0 - 146.0	mEq/L
Potassium (K+) Method : Method: ISE Direct	4.75	3.50 - 5.50	mEq/L
Chloride (CL) Method : Method: ISE Direct	104.6	96.0 - 108.0	mEq/L

Method:

ISE Indirect

CONDITIONS OF LABORATORY TESTING & REPORTING

The reporting result are for the information and for interpretation of the referring doctor only. • If the result of the test (s) are alarming or unexpected, the patient is advised to contact the laboratory immediately for possible remedial advice. • This report is not valid for medico-legal purposes. • Wellcare Path Lab not its employees assume any liability to for any loss or damage that may be incurred by any person as a result of misreading the meaning or contents of the report. • It is Presumed that the tests performed on the specimen belong to the patient; names or identified. • Results of tests may vary from laboratory to laboratory and also in some parameter from time to time for the same patient. Only such medical professional who understand reporting units, reference ranges and limitations or technologies should interpret result. • Reports valid until stamped by lab's authorized signatory.

NOT VALID FOR MEDICO LEGAL PURPOSE | EMERGENCY 24 HOURS | TIMINGS : 8.00 AM TO 8.00 PM



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LABORATORY REPORT

Patient Name: [REDACTED] Reference : Dr. JEENA SIKHO LIFECARE LTD
 Age / Sex : 69 years / Male Organization : WELLCARE PATH LAB PVT.LTD
 UID No : 23472 Org ID : WELLCARE PATH LAB

Registered On : FEB 18, 2025, 10:02 A.M.
 Collected On : FEB 18, 2025, 10:02 A.M.
 Reported On : FEB 18, 2025, 10:03 A.M.



Test Description	Value(s)	Reference Range	
Complete Blood Count(CBC)			
Hemoglobin (HB)	6.1	13.0 - 17.0	g/dL
Method : Cymeth Photometric Measurement			
Total Leucocytes Count (TLC)	5000	4000 - 11000	/cmm
Method : Electrical Impedance			
DIFFERENTIAL COUNT			
Neutrophils	63	40 - 75	%
Method : VCSn Technology			
Lymphocytes	30	20 - 45	%
Method : VCSn Technology			
Monocytes	04	2 - 10	%
Method : VCSn Technology			
Eosinophils	03	1 - 6	%
Method : VCSn Technology			
Basophils	00	0 - 1	%
Total RBC Count	1.81	3.50 - 6.50	Mill/Cumm
Method : Electrical Impedance			
Platelet Count	0.95	1.50 - 4.50	Lacs/Cumm
Method : VCSn Technology			
PCV/HCT	17.9	35.0 - 47.0	%
Method : Calculated			
Red cell distribution width (RDW)	14.7	13.0 - 18.0	%
Method : Electrical Impedance			
Mean corpuscular volume (MCV)	99.2	76.0 - 96.0	fL
Method : Electrical Impedance			
Mean Corpuscular Hemoglobin (MCH)	33.6	27.0 - 32.0	pg
Method : Calculated			
Mean Corpuscular Hemoglobin Concentration(MCHC)	33.9	30.0 - 35.0	%
Method : Calculated			

Microscopy Fully Automated Hematology Analyser alfa aida double chamber 3 Part

RENAL FUNCTION TEST (RFT)

BLOOD UREA	125.35	15.0 - 46.0	mg/dl
Method : Uniaxial UV			
BLOOD UREA NITROGEN (BUN)	58.50	7.0 - 25.0	mg/dl
Method : Kinetic UV Assay			
CREATININE - SERUM	6.22	0.70 - 1.40	mg/dl
Method : Modified jaffe method			

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LABORATORY REPORT

Patient Name : Age / Sex : 69 years / Male UID No : 23472	Reference : Dr. JEENA SIKHO LIFECARE LTD Organization : WELLCARE PATH LAB PVT.LTD Org ID : WELLCARE PATH LAB	Registered On : FEB 18, 2025, 10:02 A.M. Collected On : FEB 18, 2025, 10:02 A.M. Reported On : FEB 18, 2025, 10:03 A.M. 
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Test Description	Value(s)	Reference Range	
BLOOD UREA NITROGEN / CREATININE RATIO Method : Derived	9.41	9.1 - 23.1	Ratio
URIC ACID Method : Urinase/ Peroxidase	9.51	3.0 - 7.2	mg/dL

Note:
Please correlate with clinical conditions.

Electrolytes

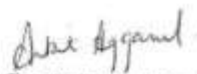
Sodium (NA ⁺) Method : Method: ISE Direct	140.9	136.0 - 146.0	mEq/L
Potassium (K ⁺) Method : Method: ISE Direct	4.77	3.50 - 5.50	mEq/L
Chloride (CL) Method : Method: ISE Direct	102.3	96.0 - 108.0	mEq/L

Method:
ISE Indirect

Interpretation

Sodium measurements are used in the diagnosis and treatment of aldosteronism (excessive secretion of the hormone aldosterone), diabetes insipidus (chronic excretion of large amounts of dilute urine, accompanied by extreme thirst), adrenal hypertension, Addison's disease (caused by destruction of the adrenal glands), dehydration, inappropriate antidiuretic hormone secretion, or other diseases involving electrolyte imbalance. Potassium measurements are used to monitor electrolyte balance in the diagnosis and treatment of disease conditions characterized by low or high blood potassium levels. Chloride measurements are used in the diagnosis and treatment of electrolyte and metabolic disorders such as cystic fibrosis and diabetic acidosis

END OF REPORT


Dr. Ankit Aggarwal
 (Consultant Pathologist)

NOTIONS OF LABORATORY TESTING & REPORTING

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Fig 4 The DTPA scan before treatment

NAME : AGE : 69 Y SEX : M DATE : 17/02/2025
 REG. NO. : REN-169-25
 ATTENDING HOSPITAL: HIIMS HOSPITAL DERABASSI
 CLINICAL STATUS: To know functional status, Drainage pattern
 AND differential function with GFR

DYNAMIC RENAL SCINTIGRAPHY

ISOTOPE: 99mTc-DTPA

DOSE: 5 mCi

	LEFT KIDNEY	RIGHT KIDNEY
PERFUSION PHASE		
VISUALISATION	poor	poor
RELATIVE PERFUSION	poor	poor
UPTAKE PHASE		
SIZE	shrunk	shrunk
SHAPE	normal	normal
POSITION	normal	normal
CONCENTRATION	poor	poor
CORTICALMARGIN DELINEATION	poorly defined	poorly defined
SPLIT FUNCTION	50 %	50 %
EXCRETORY PHASE		
COLLECTING SYSTEM	normal	normal
DRAINAGE PATTERN	normal	normal
DIURETIC RESPONSE	normal	normal
URETER	normal	normal
GFR	7.8 ml/min	7.8 ml/min

CONT ON PG 2

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IMPRESSION: PROVOCATIVE IMAGING WITH DIURETIC ADMINISTERED
15 MINUTES BEFORE THE STUDY STARTED
TO PRECIPITATE OBSTRUCTION, IF ANY, REVEALS :-

LEFT KIDNEY i) **SHRUNK IN SIZE**
ii) **SEVERELY COMPROMISED CORTICAL FUNCTION**
iii) **NORMAL DRAINAGE**

RIGHT KIDNEY i) **SHRUNK IN SIZE**
ii) **SEVERELY COMPROMISED CORTICAL FUNCTION**
iii) **NORMAL DRAINAGE**

- GLOBAL GFR = **15.6 ml/min/1.68 sq m BSA**
(normal range for BSA and age - 73 ml/min + - 17ml/min)

- SPLIT FUNCTION: **LEFT KIDNEY = 50 %**
RIGHT KIDNEY = 50 %



Dr. DINESH KAUSHAL, DNB
CONSULTANT, NUCLEAR MEDICINE

END OF REPORT