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An Ayurvedic Approach to The Management of Chronic Kidney Disease Secondary to Genito Urinary Tuberculosis – A Single Case Study

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ABSTRACT

Introduction: Chronic Kidney Disease (CKD) presents a major global health burden, with increasing incidence and limited therapeutic options in conventional medicine. ayurveda, the ancient Indian system of medicine, offers holistic and individualized approaches that may provide supportive and potentially restorative outcomes in CKD management. this case study aims to explore the clinical efficacy of ayurvedic interventions in the management of a patient diagnosed with ckd secondary to genito urinary tuberculosis, highlighting symptomatic relief, improvement in biochemical parameters, and overall quality of life.

Methodology: a 35-year-old male patient diagnosed with stage 3 ckd associated with bladder neck dysfunction with history of genito urinary tb, presented with symptoms dribbling of urine, increased frequency of micturition,pain and burning sensation during micturition, and elevated serum creatinine, urea. a comprehensive treatment protocol was administered, comprising *Yogabasthi, Avagaha Sweda, Adhonabhi Pichu* alongside dietary and lifestyle modifications aligned with *Pathya-apathya*.

Result: over a treatment span of 3 months the patient exhibited notable improvements in renal biochemical parameters and subjective symptoms. no adverse events were observed during or post-treatment.

Discussion: this single case study underscores the potential of ayurvedic interventions in improving clinical outcomes in ckd and calls for further clinical research through well-designed, large-scale studies to validate efficacy, safety, and long-term outcomes.

Keywords: *Chronic Kidney Disease, Yogabasthi, Avagaha sweda, Avapeedaka Snehapana, Genito Urinary TB*

1. INTRODUCTION

CKD is a major public health problem with increasing incidence and limited therapeutic option in conventional medicine. Chronic Kidney Disease is defined as either kidney damage or glomerular filtration rate (eGFR) <_60 ml/min/1.73m^2 for a period of 3 months or more.[1] Genito Urinary TB, a form of extra pulmonary TB known but underrecognized cause of CKD. The most common form of extrapulmonary TB is genitourinary, accounting for 27% (range, 14 to 41%) worldwide. In India the incidence of genital tuberculosis is nearly about 18%. GUTB can cause **recurrent urinary tract infections (UTIs)**. Recurrent UTIs lead to further renal parenchymal damage and scarring, accelerating CKD progression.[2] The present case highlights the Ayurvedic management of Chronic kidney disease (CKD) secondary to Genitourinary Tuberculosis (GUTB), a condition that represents a chronic and degenerative pathology involving Mutravaha Srotodushti (derangement of urinary system channels), manifesting features of Tridoshadushti with Dhatu Kshaya.[3]

2. CASE REPORT

A 35-year-old male patient, diagnosed with Stage 3 Chronic Kidney Disease (CKD) associated with bladder neck dysfunction and history of genitourinary tuberculosis (GUTB), presented with symptoms including dribbling of urine, increased frequency of micturition, pain and burning sensation during urination, lower abdominal pain, recurrent urinary tract infections (UTIs), and elevated serum creatinine and urea levels. The patient's medical history revealed that five years ago, he experienced weight loss, hematuria, and burning micturition, initially diagnosed as a urinary tract infection. However, due to lack of improvement, further investigations were conducted, which confirmed genitourinary tuberculosis through isolation of *Mycobacterium tuberculosis* in the urine and intravenous urography. He underwent anti-tubercular therapy (ATT) for nine months. In 2021, he again developed recurrent UTIs for which treated with repeated antibiotics, hematuria, and increased urinary frequency, and was subsequently diagnosed with bladder neck dysfunction, for which surgical intervention was performed. He had history of consumption of alcohol and cigarette smoking since 8years. Despite treatment, in 2023, after further evaluation he was diagnosed with Stage 3 CKD, and his quality of life was notably hampered due to increased urinary frequency. A comprehensive Ayurvedic treatment protocol was administered over a period of three months, comprising *Yogabasti*, *Avagaha Sweda*, and *Adhonabhi Pichu*, along with dietary and lifestyle modifications based on Pathya-Apathya principles. During the course of treatment, the patient showed marked improvement in renal biochemical parameters and significant relief from subjective symptoms. No adverse events were observed during or after the treatment period.

Clinical findings:

General condition was fair and afebrile, pulse rate 88bpm, blood pressure 130/90 mm/Hg, respiratory rate was 20/min. There were no signs of lymphadenopathy. On gastrointestinal system examination, there were no abdominal scars, no visible pulsations, and the breathing pattern was thoracoabdominal. On palpation, there was grade 2 tenderness over hypogastric region. There were no signs of organomegaly. There were no significant clinical findings on the examination of the respiratory and cardiovascular systems. He was conscious and oriented to time, place and person.

Ashtavidha pareeksha:

Nadi - Vata pittaja, Shabda – Prakruta, Mala - Once in a day, Sparsha- Anushnasheeta, Mootra -once in 15min in day & once in every 2 hours in night, Drik-prakruta, Jihwa- Alipta, Akruti- Madhyama

Diagnostic assessment:

Based on the concept of *Nidanarthakara roga* (diseases which are responsible for the manifestation of other disease), it can be considered that the GUTB if untreated leads to further causation of other diseases based on *Khavaigunya* in the body. As in this patient the *Marma* involved is *Basti(Trimarma)*[4] and leads to many of the *Mutravaha srotovikaras*. Based on clinical presentations, we can consider it as *Mutrakruchra. As Acharyas explained in Vataja mutrakruchra there will be "Swalpam Muhurmutrayatiha"*[5]*, in Pittaja "Saruja, Sadaha Krichranmuhurmutrayatiha"*[6] *so as of Kaphaja Mutrakruchra.*

Therapeutic intervention:

Acharya Charaka explained that *"Yadi Upadravah Balavan Syat, Tat Prathamam Apakaraniyam"* so we have to concentrate on the *Upadrava, if it is more Balavan than Vyadhi. As in this patient the complications are more severe so we are concentrated on treating Upadrava.*On first visit, the patient was advised *Viashwanara churna* as *Deepana-Pachana* initially. *Brihatyadi Kashaya, Chandraprabha Vati* and *Gokshuradi Guggulu* for a week before admission and after admission started with *Yoga basti* and *Avagaha sweda* with *Dashamoola Kashaya* and *Adhonabhi Pichu* with *Dhanwantaram taila*. Advice on discharge given with *Gokshuradi guggulu DS, Brihatyadi Kashaya, Chandraprabha Vati, Chyavanprasha, Avapidaka Sneha* with *Vastyamayantaka ghrita* and Syrup Neeri KFT for 1 month. [Table 1]

Table no. 1- Timeline of intervention

Sr.No.	Date	Medicines	Dosage	Duration
OPD	02/01/2024	*Vaishwanara churna*	1 tsp with warm water BF	8days
		Brihatyadi Kashaya	15ml with 30ml water BD BF	
			1 TID with water AF	

			1 BD with water AF	
		Chandraprabha vati		
		Gokshuradi guggulu		
Visit 1	09/01/2024-15/01/2024	1.*Yogabasti* *Vasthyamayanthaka ghrita -120 ml as Anuvasana and Niruha with Honey – 80 ml, Saindhava- 5gm, Vasthyamayantaka ghrita – 80 ml, Kalka – Vaishwanara churna – 20gm, Kashaya – Dashamoola Kashaya – 320ml* *2.Avagaha sweda with Dashamoola Kashaya* *3.Adhonabhi Pichu with Dhanwantaram taila*		4days
	15/01/2024-19/01/2024	*Basti continued with Niruha* *Ksheera Kashaya* is given about *300ml* prepared of *Dashamoola+Gokshura+Punarnava+Shatavari*		4days
Visit 2	12/02/2024	*Brihatyadi Kashaya*	15ml with 30ml water BD BF	30 days
			1 TID with water AF	
		Chandraprabha vati	1 BD with water AF	
			10ml BF & 20ML AF	
		Gokshuradi guggulu	2 tsp at Night with milk AF	
			1 tsp TID AF	
			Once daily	
		Avapeedaka Sneha with *Vstyamayantaka ghrita*		
		Chyavanprasha		

Syrup Neeri KFT

Adhonabhi pichu with *Dhanwantaram taila*

TSP-Table spoon, BD-Two times a day, TID-Three times a day, AF- After food, BF-Before food

3. RESULTS

The patient got satisfactory relief in symptoms with improved quality of life and marked improvement in biochemical Parameters. [Table 2]

Table no. 2

Symptoms	Before Treatment	After Treatment	After Follow-up
Frequency of Urination	Once in 15 min (day)	Once in 30-40 min (day)	Once in 1 hour (day)
	Once in 2 hr. (night)	Once in 3 hr. (night)	2-3 times (night)
Pain and Burning sensation during micturition	Continuous	Reduced 40%	Reduced completely
Lower abdomen Pain	Continuous	Reduced 50%	No pain
Investigation			
Serum creatinine	2.5mg/dl	2.3mg/dl	2.1mg/dl
Serum urea	44 mg/dl	34 mg/dl	-
Urine albumin	2+	2+	+
Pus cells	30-40	5-6	2-3
RBC'S	15-20	8-10	Nil
Others	Plenty of motile bacteria	Plenty of motile bacteria	Nil

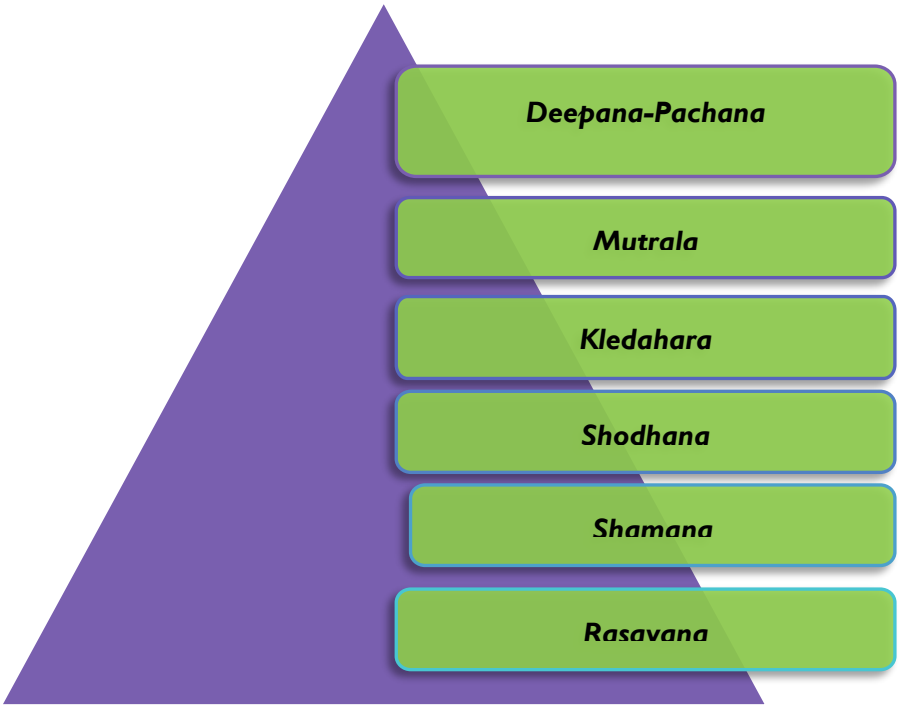
4. DISCUSSION

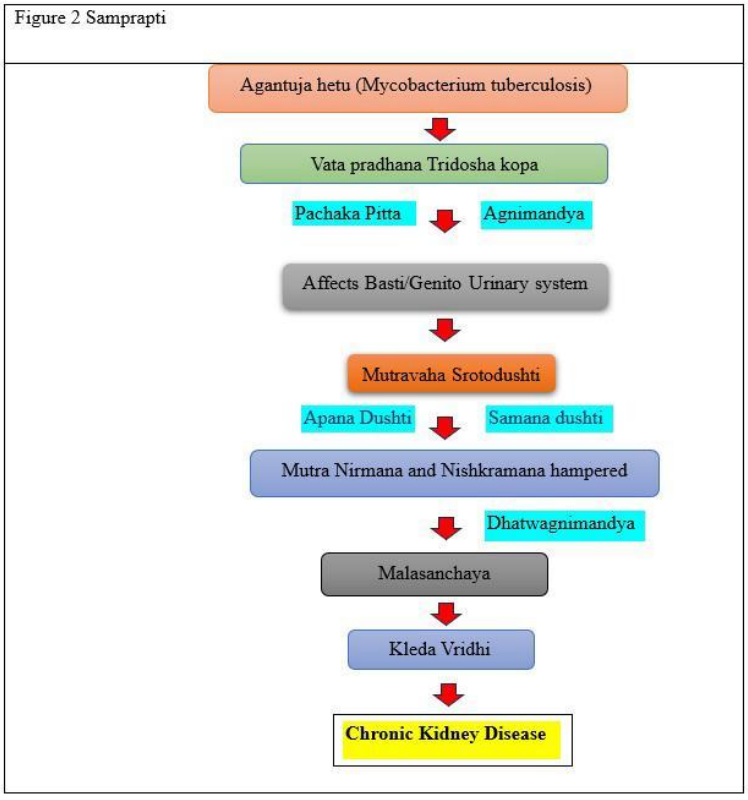
GUTB usually starts as hematogenous spread from a primary pulmonary TB. The renal cortex is often the initial site due to its rich blood supply. *Mycobacterium tuberculosis* causes granulomatous inflammation in the kidneys. Infected areas undergo **caseating necrosis**, leading to cavitation and scarring. Over time, this leads to **Fibrosis and calcification, Tubular atrophy, Glomerular sclerosis, Loss of functional nephrons.** These changes are **irreversible** and contribute to reduced renal function and affects ureters, bladder, and urethra, causing Strictures (especially at the ureteropelvic junction or ureterovesical junction) Hydronephrosis**,** Bladder neck obstruction. Chronic obstruction increases intratubular pressure and leads to post-renal CKD. GUTB can cause **recurrent urinary tract infections (UTIs)**. Recurrent UTIs lead to further renal parenchymal damage and scarring, accelerating CKD progression. As more nephrons are destroyed, Compensatory hyperfiltration occurs in remaining nephrons. This leads to glomerular hypertension, proteinuria, and eventual glomerulosclerosis. Over time, this cycle results in progressive decline in GFR and onset of CKD stages. GUTB often presents with nonspecific symptoms like dysuria, haematuria, low-grade fever. It is frequently misdiagnosed as a regular UTI or bladder issue. Delayed diagnosis results in irreversible kidney damage before treatment begins.[7]

In the present case, CKD secondary to Genito Urinary TB is very rare and challenging and it is difficult to correlate with a single disease in Ayurveda as there is no direct mention of CKD exists, but based on clinical features such as dysuria, oliguria, proteinuria, fatigue, and elevated urea, creatinine levels the condition can be correlated with *Mutraghata* and *Mutrakruchra*. The chronicity and systemic depletion of tissues also indicate *Ojokshaya* and involvement of *Rasadi Dhatus*. The patient had a background of GUTB, which in Ayurvedic terms can be considered a manifestation of *Ama Sanchaya* leading to *Srotorodha*

(blockage of microchannels), eventually affecting kidney function. The tubercular insult likely led to *Mutravaha srotodushti*, chronic inflammation, fibrosis, and functional decline of the kidneys. Ayurvedic Approach in Management of CKD was planned based on *Nidana, Rupa,* Samprapti and *Vyadhi Swabhava* [Figure 1&2].

Figure 1. Treatment Plan





As we started with *Vaishwanara churna* containing *Haritaki* as a key ingredient does *Vatanulomana* and *Deepana- Pachana* mainly helpful to improve and maintain *Agni* and does *Amapachana.*[8] *Shamanoushadhi's* like *Chandraprabha vati* contains *Shilajatu* which is *Agrya* for *Bastija rogas*.[9] *Brihatyadi Kashaya*[10] and *Gokshuradi guggulu* acts on *mutravaha srotas*. *Gokshuradi guggulu*[11] helps as *Mutrala(micturation)* and *Kledahara(removal of kleda)*. Anti-inflammatory and diuretic action of these promote microcirculation and reduce renal fibrosis.[12]

Bastichikitsa was planned in this patient as Urine formation starts in *Pakvashaya, it* can be considered as the *Adhishtana* of CKD. *Shodhana* treatment, that has better action at this site is *Basti.* '*MarmaParipalanartham Basti'*,[13] *"Vataharanam Basti", 'Snehadinam Karmanam Basti Karma Pradhana Tamam Aahuhu' as Achaarya Sushruta says Basti is Shreshta.*[14] Increased Serum Urea, creatinine can be considered as *Malasanchaya* and eliminated through *Basti(bladder)*. Natural diuretics which is present in *Bastidravya* acts as *Shothahara* reduces edema. The Large Ingestion absorbs water electrolytes and active compounds from the *Kwathdravya* used in *Basti(enema)* may deliver anti-inflammatory, anti-oxidant and nephroprotective phytochemicals directly into the systemic circulation. Improves gut-kidney axis health, reduces systemic inflammation and uremic toxin generationFurther accumulation prevented by correcting *Samana Apana Dushti. Rasayana* helps in reducing oxidative stress on renal tissues which is a key factor in CKD Progression. *Chyavanaprasha*[15] as a *Rasayana* boost the immune system and reduce the pro inflammatory cytokines addressing the chronic inflammation associated with CKD. Increased frequency of urination may be due to *Apana vayu dushti* can be alleviated by *Pragbhakta*[16] *Snehapana* as it is *Pittanilamayagna*.[17]Thus, *Ghruta* having property of *Srushtavinmutra* (increased urine output) and as also mentioned by *Archarya Charaka* and *Sushruta in Chikitsa of Mutravahasrotovikara*,[18] it can be appropriate *Sneha* for performing *Avapeedaka snehapana*.[19] The *Tridosha Shamana* Properties of *Vastyamayantaka ghruta*[20] is found to be effective in *Sampratpti Vighatana of Mutrakruchra*. *Vastyamayantaka ghruta* mentioned in *Sahasrayogam Grutha Prakarana* has direct indication in *Sarva Mutrakruchra Vikara* and *Sarva Bastigata Vikara*. Normalizes lower GI and urinary nerve signaling, may relieve bladder dysfunction.

Adhonabhi pichu is given in this patient as *Acharyas* mentioned that the *Snigdha Upanaha* in *Vataja Mutrakruchra* we applied Pichu below the umbilicus at the site of *Basti*.[21]

Vasthyamayantaka ghrita is *Tridoshahara* and indicated for *Vatapittasamutpanna sarva Vastigata Rogas. Vastyamayantaka Ghrita* is a classical *Ayurveda* medicated ghee formulation primarily indicated for *Vata* disorders, infertility, degenerative diseases, and urinary disorders. In the context of Chronic Kidney Disease (CKD), particularly those with Vata-Pitta predominance and *Dhatu Kshaya* (tissue depletion), it serves as a supportive *Rasayana* and *Brimhana* (nourishing) therapy.

Vastyamayantaka Ghrita plays a supportive and restorative role in CKD management, especially in early to moderate stages. It helps pacify aggravated Vata, nourish dhatus, and improve urinary function, thereby contributing to slowing CKD progression, improving quality of life, and delaying the need for dialysis when used as part of a comprehensive *Ayurvedic* protocol.

5. CONCLUSION

Detection and management of kidney diseases, whether acute or chronic, in the early, reversible, and potentially treatable stages, is of paramount importance *Ayurveda* may offer complimentary approach in the management of CKD secondary to Genito Urinary TB. Calls for further clinical trials and integration with conventional management. As there is no direct reference about this disease and this treatment method, it was an attempt to find a way to explain and to manage CKD, an emerging threat to world's health, with the principles of Ayurveda.

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Declaration of patient consent:

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity.

Conflicts of interest: There are no conflicts of interest

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