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Case Study

EFFECT OF HERBAOMINERAL FORMULATIONS IN THE MANAGEMENT OF PYELONEPHRITIS *(MUTRAKRICCHA)*

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ABSTRACT

Acute Pyelonephritis is a potentially organ and life-threatening infection that characteristically causes scarring of the kidney. UTI infection with 90% of cases caused by a common bacterial Escherichia coli. Emphysematous pyelonephritis is a serious necrotizing renal parenchymal infection by production of intraparenchymal gas. In Ayurveda PN is an upper urinary tract infection that causes inflammation of the pelvis and kidney tissues can correlate with *Mutravaha srotas vikar* mainly *Mutrakruccha*. It involves a multi-*Dosha* compromise the urinary tract. This allows the accumulation of *Ama* (toxic metabolic waste) and *Agantuja Krumi* (external worms like E. coli infection) to manifest as severe inflammation. In this case report, a 65 years old male patient, was came in *Kayachikitsa* OPD with primary complaints of *Jwara* (Riger with -102°F), *Mutradaha* (burning micturition), *Katishool* (loin pain), *Mala pravriti* (7-8 times/day) and *Shotha* (padel oedema). Based on the clinical examination, USG, blood and urine examination, he was diagnosed with Pyelonephritis (PN). He took allopathic medicine and got symptomatic relief. But after discontinued the medicines the symptoms got increase. So, the patient came in *Kayachikitsa* OPD for treatment. The patient was treated by *Jwaraghna* drugs (*Sudarsan, Guduchi, Godanti* and *Tibhuvankirti Rasa*), *Mutral drugs (Gokshuradi guggulu, Punarnavastak Kwatha), Pachan* drugs *(Amapachan Vati*) and *Grahi* drugs *(Higvastak churna, Balchaturbhadra churna, Musta, Krumikuthar Rasa)* for 3 months. After 3 months of Ayurvedic treatment, all symptoms, KFT (Kidney Function Test), USG (Ultra Sonography and urine analysis showed highly significant result. The treatment was given by considering the *Mutrakriccha* due to vitiation of *Vata - Pitta dosha* and *Ama* formation. It can be concluded that by implementing Ayurvedic treatment principles, kidney function can be improved in case of pyelonephritis without causing any adverse effects.

INTRODUCTION

Acute Pyelonephritis is inflammation of Renal pelvis due to bacterial infection (mostly E. coli), urinary tract obstruction, diabetes mellitus, unhygienic genitals. Main symptoms are found fever, Loin pain tenderness over kidney.[1] In 80% of UTI cases E. Coli is largest colonial bacteria and direct reason for the inflammation of urinary tract.

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Maximum prevalence and severity are seen in young and elderly people due to organs are fragile and most of drugs become contraindicated in such condition Ayurvedic is inevitable.[2] In modern treatment is antibiotic for hydration and symptomatic support for eradicate infection in majority of patients.[3] In Ayurveda can be corelate with *Mutravaha srotas Vyadhi* mainly *Mutrakriccha*. In this patient causative factors were found excessive intake of *Ushna, Katu, Lavan, Tikshana Ahara* leads *Pitta Dosha Prakopa* and *Vyayam, Adhyashan* and *Ruksha sevan* leads to *Vataprakopa*. So vitiated 2 *Doshas Vata-Pitta* along with *Mutravaha srotas Dushti* causes *Mutra kricha* (UTI).[4]

Case Report

A 65 years old male patient, was came in Kayachikitsa OPD on 6th March 2025 with primary complaints of *Jwara* (Riger with fever- 101°F), *Mutradaha* (burning micturition), *Katishool* (loin pain), *Mutra Pravriti* (10-12 times/24hrs drop wise), *Mala Pravriti* (7-8 times/day) and *Shotha* (padel oedema) for 5 days.

H/O Present Illness

The patient was apparently normal 2 years back, then he gradually developed *Mutradaha* (burning Micturition) and sometime came fever so he was taken excessive water and some home remedy like *Dhanyaka, jeerak* and black grapes but temporary relief symptoms. After 1 year same complains were found with *Katishool* (loin pain) and *Shotha* (padel oedema) then he went to allopathic hospital and investigated blood, urine and USG report then diagnosed pyelonephritis. He was taken allopathic medicine (get lost his file and reports-unknown drugs) and got symptomatic relief.

Past History

The patient had a similar history of UTI 1 year back. He took allopathic medicine and got symptomatic relief. But after discontinued the medicines the symptoms got increase. He also had a history of HBP (4 years) and pyelonephritis.

No DM/IHD

Family history: No any family history found.

Personal history:

Diet: Veg *(Ushna, Amla, Lavan, Katu Rasa)*

Appetite: Poor (1/2 roti, dal)

Jaran Shakti: *Avara*

Kostha: *Mridu*

Sleep: 7-8 hr.

Exercise: Nil

Habit: Smoking (1 packet)

Mala Pravriti: 7-8 times/day

Mutra Pravriti: 10-12 times/day with dropwise and turbid, 1-2 times/night.

Height: 170cm

Weight: 58Kg

BMI: 20.1kg/m^2

Vital Sign

Pulse: 82/min

B.P: 150/70mmHg

Respiration: 22times/min.

Temperature: - 102°F

Marital status: Married

Occupation: Labor now retired

Socio economic status: Middle class

Ashtavidh Pariksha

Nadi: Pitta Pradhan Vata

Mutra: 10-12 times/day with dropwise and turbid, 1-2 times/night

Mala: 7-8 times/day

Jihva: Pallor *(Sama)*

Shabda: *Spastha*

Sparsha Ruksha

Druk: *Samyak*

Akruti:Madhyam

Dasha Vidha Pariksha

Prakriti: Vata-Pitta

Vikruti: *Lakshan Nimittaj*

Satva: *Madhyam*

Saar: *Avar*

Samhanana: *Avar*

Vaya: 65yrs

Praman: Height:170cm, weight: 58Kg

Aharshakti: *Avar*

Vyayamshakti: Avar

Nidana of *Mutrakriccha* (Pyelonephritis)

Ahara: Katu, Amla, Lavana, Ushna, Viruddha, Ruksha Aahar

Viharaja: Aatap sevan (exposure to sunlight due to occupation), *Ati vyayam*

Manas: Krodha

Samprapti of *Mutrakricch*[5]

Nidana Sevana

⬇

Jatharagni mandhya

⇩

Ama (*Vikrut dhatugata Rasotpatti*)

⇩

Vata- Pitta PradhanTridosha Prakopa

⇩

Rasadhatu, Raktadhatu and *Meda dhatudushti*

⇩

Vitiated *Rasa, Rakta* and *Meda dhatu* and *Tridosha* goes to *Mutravaha srotas - Basti*

⇩

Vata sang in *Basti (Mutra Marga Peedan)*

⇩

Katishool, Mutra daha and *Jwara*

⇩

Mutrakriccha (pyelonephritis)

Samprapti Ghataka

Dosha- Vata (Apan Vata), Pitta Pradhan Tridosha

Dushya- Rasa, Rakta, Meda

Agni- Jatharagni mandhya and *Dhatvagni mandhya janya Ama*

Srotas- Rasavaha, Raktavaha, Medovaha, Mutravaha srotas
Sroto dushti Prakar- Sanga
Udbhavasthana- Mutravaha srotas
Adhisthana- Basti
Swabhav- Chirakari

Differential Diagnosis: *Ashmarij Mutrakriccha, Shalyaja Mutrakriccha, Shukraj Mutrakriccha*

Final Diagnosis: *Vata-Pitta Pradhana Tridoshaj Mutrakriccha* – Pyelonephritis.

Table 1: Diagnostic criteria

Date	Investigation	Report
16/04/2025	Urine analysis	Colour- Pale yellow, turbid Albumin- Present ++ Pus cells- 70-80/hpf Epi. Cells- 5-6/hpf RBC- 1-2/hpf
20/04/2025	USG	Mild changes of nephropathy Mild changes of chronic liver parenchymal disease and portal hypertension.
16/04/2025	CBC (complete blood count)	Hb- 8.5 mg/dl RBC- 3.05 mill/cumm
16/04/2025	Kidney function test	S. creatinine- 1.62 mg/dl Blood Urea - 49mg/dl

Table 2: Treatment Timeline during *Shamana*

Timeline	Purpose	Therapeutic interventions	Dose, frequency and duration
16/04/2025	*Jwarghna* (antipyretic)	(1) *Sudarshan churna*- 3gm *Guduchi churna*- 2gm *Godanti Bhasma*- 500mg *Tribhuvankirti Rasa*- 125 mg	2 times/day after food with lukewarm water.
	Mutral (diuretic)	(2) *Gokshuradi Guggulu*	2 tablets/3 times/AF with water
	Shothahara (anti-inflammatory)	(3) *Punarnavastak kwatha*	10gm/2 times/BF
	Amapachak	(4) *Amapachana Vati*	2tab/2 times/AF/water
17/06/2025	*Grahi (Deepan Pachak)* *Krimighna* (anti-worm)	Repeat above 1,2,3,4 (5) *Hingvastak churna*-3gm *Balchaturbhadra churna*- 2gm *Musta*- 1gm *Krumikuthar Rasa*- 125mg	2 times/AF/lukewarm water
08/07/2025		Repeat above 1, 2, 3, 4, 5	-
05/08/2025		Repeat above 1, 2, 3, 4, 5	-

Follow up and Outcomes: KFT (Kidney Function test), USG (Ultra Sonography), urine examinations, clinical sign and symptoms were used to assess the improvement in the condition.

OBSERVATION AND RESULT

Table 3: Improvement in Sign and Symptoms

S.No	Sign & Symptoms	Before Treatment 16/04/2025	After Treatment 05/08/2025
1	*Jwara* (Riger with Fever)	3 (102°F)	0 (98.4°F)
2	*Mutra daha* (burning micturition)	4	0
3	*Katishool, Udarshool* (pain in loin)	2	0
4	Padashotha (padel oedema)	2	0
5	*Mutra pravruti* (urination)	3	0

6	*Malapravriti* (defecation)	3 7-8 times/day	0 1-2 times/day
7	*Aruchi* (anorexia)	2	Improve appetite
8	*Adhaman* (gaseous distension)	2	Absent

Table 4: Improvement in Investigation

S.No	Investigation	Before Treatment 16/04/2025	Grade Before Treatment	After Treatment 05/08/2025	Grade After Treatment
1	**Urine analysis** Colour Albumin- Pus cells Epi. Cells RBC	 Pale yellow, turbid Present ++ Pus cells- 70-80/hpf Epi cells- 5-6/hpf RBC – 1-2/hpf	 3 4 2 1	 Yellow Absent 1-2/hpf 1-2/hpf Absent	 0 1 1 9
2	S. Creatinine Blood Urea	1.62mg/dl 49mg/dl	2 2	1.4mg/dl 43mg/dl	0 0
3	Hb RBC	8.5 mg/dl 3.78 mill/cumm		11mg/dl 4.30 mill/cumm	Improvement
4	USG Report	Mild changes of nephropathy. Mild changes of chronic liver parenchymal disease and portal hypertension.		Mild changes of nephropathy	Improvement

Assessment Criteria: Includes loin pain, fever, tenderness over kidneys, CUE, RFT

Grade	Loin pain	Tenderness on kidney region
1	No pain	Tenderness not found
2	Mild pain allows palpation frequently	Mild tenderness allows palpation
3	Moderate pain- usually does not allow palpation	Moderate tenderness winces palpation
4	Severe pain never allow palpation	Severe tenderness Never allow palpation

CUE (Clinical and Urine Examination) Grading

Grade	Frequency	Burning sensation	Pus cells	Urine sugar	Urine Albumin
1	4times/24hrs	No burning sensation	1-2 hpf	Nil	nil
2	5 to 10times/24hrs	Mild and only during urination	3-9 hpf	+	+
3	11to16times/24hrs	Moderate and after urination	10-20 hpf	+++	++
4	More than 16 times	Continuous burning sensation	plenty	>+++	>+++

RFT (Renal Function Test) grading

RFT grade	Serum Creatinine	Blood Uria
1	<1.6mg/dl	10-40mg/dl
2	1.7-2.5mg/dl	41-59mg/dl
3	2.6/5mg/dl	60-79mg/dl
4	5.1-10mg/dl	80-99mg/dl
5	>10mg/dl	>100mg/dl

Fever - Grading

Grade	1	2	3	4
Fever	98.6°F	98.7°-100°F	101°-103°F	Above 104°F

DISCUSSION

Pyelonephritis can be life-threatening condition. When repeated or persistent attacks occur, the condition is called chronic pyelonephritis. Patient neglected every time his sign and symptoms and didn't take any medicines and increased severity of disease. Main causative factor was found of pyelonephritis is bacterial infection due to accumulation of urine in Bladder. This patient was treated by Jwarghna drugs (antipyretic), *Mutrala* drugs (diuretics), *Sothahar* drugs (anti-inflammatory) and *Krimighna* drugs (anti-worm). *Sudarshana churna*[6] known for its antipyretic properties and bitterness aiding in Ama digestion, addresses these symptoms. *Tribhuvankirti Rasa*[7] containing *Hingula* as anti-infective, *Pippali* as *Deepan*, *Pachan* and increase absorption, *Pippalimoola*, *Vatsa Nabha* as Sweda Janan properties, Suddha Tankan and *Maricha* all having antipyretic effect then subside fever. *Gokshradi Guggulu*,[8] a renowned formulation for urinary disorders, acts as a *Mutrala*, reduces inflammation, and balance *Vata* and *Pitta*. Its *Sheet virya* soothes the urinary epithelium. *Punarnavastak Kwath*[9] containing *Punarnava, Nimba, Patola patra*, *sunthi, Amrita, Daruharidra, Haritaki* and *Katuki* serves to relieve dysuria and burning micturition. Punarnava's diuretic and anti-inflammatory effects decrease bladder wall thickness, while ingredients like *Patol, Nimba*, and *Guduchi* with their *Tikta Rasa*, aid Ama digestion and pacify Pitta Dosha, thereby clearing urinary obstructions. *Haritaki's Rasayana* properties improve tissue function, while *Katuki* supports liver function and provides laxative effect. Ingredients of *Krumikuthar Rasa*[10] are *Parad*, *Gandhaka*, *Vidanga*, Ajawain and *Karanja* having *Deepan*, *Pachan* and *Krimighna* Properties so it's helpful to destroy the *Krumi. Hingvastak churna*[11] and *Balchaturbhadra churna*[12] having *Grahi* properties so it relieves diarrhea and improve appetite and digestion.

CONCLUSION

In this case study the patient was geriatric age and unhygienic. So again, and again created infection by E. coli bacteria and patient was suffered by fever, burning micturition and loin pain. After given the Ayurvedic formulations and he had improved sign and symptoms and also improvement was found in investigation mainly in the kidney function. It can be concluded that by implementing Ayurvedic treatment principles, kidney function can be improved in case of pyelonephritis without causing any adverse effects.

Limitations

Since it is a single case study and due to lack of generalizability further more controlled studied are required to draw a particular conclusion.

Patient perspective

I am feeling gradual improvement in the symptoms starting from the initial condition and lastly till the last treatment.

Author contributions

The manuscript has been read and approved by all the authors, the requirements for authorship as stated earlier in this document have been met, and each author believes that the manuscript represents honest work.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient has given his consent for his clinical information to be report 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, but anonymity cannot be guaranteed.

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