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Acute Pyelonephritis management through Ayurveda - A Case Study

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ABSTRACT

The role of Diet, Drugs and Medical attention is very important specially for Elderly People, most probably they were neglected because they need assistance. Modern Science enriched with Antibiotics which are not advisable for a long duration to Elderly, Diabetic & Immune compromised Patients. Even, in Elderly people the Organs are Fragile and most of the Drugs become contraindicated, in such condition Ayurveda is inevitable. Ayurveda explained *Tryoupasthambha, Dinacharya, Rutucharya, Aaharaniyama* and "*Swasthasya Swasthya Rakshnaam Aaturasya Vikara Prsamanaam*"^[1] (prevention is better than cure) to preserve the health of healthy individual right from Childhood. Ayurveda plays a crucial role in promoting healthy Body and step forward in treating the disease based on Ayurvedic principles, where there is no role of antibiotics. Here is a case neglecting diet, physical activity and medical attention finally alighted to Diabetes, near prostate obstruction, upper urinary tract infection which agonized him severely. This condition according to Ayurveda ~ *Vrukkavikara, Mutravaha Srotovikara, Vasti Vikara*. All the protocols of *Ayurveda Deepana, Paachna, Srotosodhana, Mutrala, Kapha Vatahara, Vata Anulomama, Pittasama Chikitsa, Krimihara Chikitsa Sutra* are followed and treated with *Chitrakadi Vati, Gokshuradi Kwatha*, Diet, Physical exercise and Barley water.

Key words: *Mutravaha Srotas, Vrukkavikara, Vastivikara, Chitrakadi Vati, Gokshuradi Kwatha, Barley Water*

INTRODUCTION

Acute Pyelonephritis is inflammation of Renal Pelvis which is Upper Urinary tract infection, most often ascending type of Infection start from urinary bladder, ureter and kidneys. Presents symptoms as classical triad of loin pain, fever, tenderness over kidneys.^[2] Predisposing factors are bacterial infection (mostly E.coli) urinary tract obstruction, diabetes mellitus, unhygienic genitals. In 80% of the UTI cases E.coli is a largest colonial bacteria and direct reason for the

Inflammation of Urinary Tract. Severity of the disease is seen in Young and Elderly People, Prevalence^[3] is 15-17/10,000 females and 3 to 4/10,000 males, females are more commonly affected, 40% of the people require Hospitalization. Treatment includes Antibiotics adequate Hydration and symptomatic support "Institution of specific antibiotics, after identification of bacteria by culture followed by sensitivity test, eradicate infections in majority of patients".^[4] But not in all. In Ayurveda it is ~ *Agantuja Krimiroga, Vastiroga, Mutravahasroto Vikara*, and *Vrukkavikara* and *Madhumeha*. *Madhumeha* is three *Doshaja Vikara*, *Sapthadhatus* are vitiated because of *Agni Dusti, Ama* formation and *Srotoavarodha* seen. Treatment includes, *Agantuja Krimi Chikitsa Mutravaha Sroto Vikara Chikitsa, Vasti Chikitsa* and *Madhumeha Chikitsa*.

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CASE REPORT

Mr.xxxxxxx, 76/M came to my Clinic, and presented with burning micturition, increased frequency of scanty urination, on and off loin region pain associated with malaise since 2 months.

Apparently patient was normal 2 months back gradually developed lack of Appetite, Cold, Fever, Nausea, Vomiting, Burning micturition and increased frequency of Scanty Urination, Loin pain followed by Hiccups. 2 episodes Fever spikes associated with Rigor observed in last 4 weeks. Patient took treatment in different Hospitals for above illness. Tab. Augmentin-625mg BD for 14 days, Tab. Nitrofurantoin BD for 14 days, temporarily getting relief.

History of past illness

Patient was known a case of Diabetes mellitus, Hypertension, he is on Oral Hypoglycemic Agent Tab. Glimpiride 1gr BD (Metformin is contraindicated as Ser.Creatinine is 2.0) and on Anti Hyper tension medication, Tab. Telsartantrio 1 OD, (Telmisartan 40mg, Amlodipine Besilate 5mg and hydrochlorothiazide 12.5mg) Tab. Clinidipin - 5mg at night. Even though HbA1C is 9.8 pt is not willing to take Insulin. History of Bilateral Prostate Hypertrophy was there but Pt neglected for several years, 2 years back, in almost obstructed condition operated successfully and recovered.

CBP - Increased Neutrophils, and Increased TLC count, Chest X-ray with in normal limits, Upper Gastro Intestinal Endoscopy – Grade 2 Gastritis, ECG - with in normal limits, 2D Echo - Aortic Valve Sclerosis otherwise normal, CUE - Loaded Pus cells, Urine Culture Sensitivity - E.coli bacteria growth is seen, Bloodurea - 58mg/dl, Serum Creatinine - 2.0mg/dl, Electrolytes - 3.4m.moles/L, RBS - 410mg/dl, HBA1C is 9.8%, Ultra Sound Abdomen - Bil. Renal Parenchymal Disease, 20*15 cyst noted in Left Kidney.

On Examination

Patient attending to his daily activities, BP - 160/100mm.Hg, RBS - 248mg/dl. No history of Addictions noted. Pt Medical History reveals that - He is suffering with Acute pyelonephritis; *Mutravahasroto Vikara* and *Madhumeha*

Rogi Pariksha

Patient *Prakruthi* is - KPV. *Mamsasaara Purusa*, *Madhyamakaya Saareera*, *Madhyama Sattva*, *Jatharagni* and *Dhatvagni* are in *Agnimandhya* state,

Avara Vyayama Sakthi. 3 *Doshas* are involved, *Medha*, *Rakth*, *Sukra*, *Ambu*, *Vasa*, *Lasika*, *Majja*, *Rasa*, *Ojas*, *Mamsa* are *Dushyas*. *Nadi* - *Dvidoshaja*, *Mala* - *Aamayuktha*, *Mutra* - *Panduvarena*, *Phena Yuktha Snigtha*, *Jihwa* - *Malayuktha*, *Sparsha* - *Parikasha Sitala Sparsha*. *Sthanasramsraya* at *Vasti Sthana* and all *Srotas* of *Dushyas* as mentioned above are involved in addition to *Swedovahasrotas* and *Mutravahasrotas*.

Roga Pariksha

As evident of *Mamsa*, *Raktha Dhatu Dusti* and *Mutravahasroto Vikara*, there is a slight raise in the Serum Creatinine which is considered as one among *Vrukka Vikara* in Western, Medicine. From *Roga Purva Vrutanta* it is clear that Patient suffered with *Vatastila* (BPH), this lead to *Mutravahasroto Avarodha*, this aid *Sanchaya* of *Agantuja Krimi* (E.coli) at *Vastisthana*, [similar to *Asyapakarsana*, *Dosha* landed at favourable place. Gut to UTI and waiting for suitable *Prakruthi*. Whenever there is High sugar levels (*Prakruthi*) in the Body there is chance of *Prakopa* (colonisation) of E.coli Bacteria in the Urinary bladder. Depending intensity of *Prakopa*, the *Prasaraavastha* of *Agantujakrimi* took *Adhogamana* and *Aama* to (~inflammatory cytokines)^[5] *Urdhwa Gamana* to conclude *Sthanasramsrayam* at *Vrukka* causing *Vrukka Roga*, and *Mutravahasroto Vikara* (pyelonephritis). The *Vurdhwa Gamana* of *Aama* was assisted by *Apanavata* which is in *Avarodha* & *Pratimargagamana avastha*. *Mmadhumeha* was a preexisting Disease. The treatment planned for the patient is *Deepana Pachana* and *Kapha Vatahara*, *Vata Anulomana*, and *Pitta-Sama Chikitsa*. *Mutra Pravahana* and *Krimi Roga Chikitsa Sutra* are used

1. *Chitrakadivati*^[6] 1 BD for 1 Month.
2. *Gokshuradi* (*Sariva*, *Dhanyaka*, *Punarnava*) *Kwatha* 40ml.
3. Diet for Blood sugar management (Cereals) as mentioned in *Ch.Chi.Pramehadhyaya*
4. *Yava* specially used as mentioned in *Prameha Adhyaya*.^[7]

Advised to continue anti HTN Drugs and OHA Drugs, but asked to stop antibiotics, (Tab.Nitrofurantoin 1 OD for next 1 month). The classical preparation of

Chitrkadi Vati from Cha.Sam.Chi. Grahani Adhyaya given orally with a sip of Luke warm water 1 tab in the morning on empty Stomach & 1 tab before Dinner to stimulate Jatharagni, and for Aamapachana which in turn stimulate Dhatwagni, Bhutagni, thereby Srotas are cleared from obstruction attain crystal clear Srotas.

Assessment criteria includes Loin pain, Fever, Tenderness over kidneys, CBP, 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 on palpation
4	Sever pain never allow palpation	Severe tenderness Never allow palpation

CUE grading

Grade	Frequency	Burning sensation	Pus cells	U. Sugar	U. Albumin
I	4 times/24 hrs	No burning sensation	1-2HPF	nil	nil
II	5to 10 times/ 24 hrs	Mild, and only during urinating	3-9HPF	+	+
III	11 to 16 times/24 hrs	During and after urination	10-20HPF	+++	++
IV	More than 16 times	Continuous burning sensation	plenty	>4+	>+++

Fever grade

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

Aki grading

Aki grade	Ser.creat	Blood urea	GFR/2lit of water	potassium
I	<1.6mg/dl	10-40mg/dl	0.5ml/kg/hr/6hrs	3.5-5.5mmol/L
II	1.7-2.5mg/dl	41-59mg/dl	0.5ml/kg/hr/12hrs	5.5-5.9mmol/L
III	2.6-5.0mg/dl	60-79mg/dl	0.3ml/kg/hr/24hrs	6.0-6.4mmol/L
IV	5.1-10mg/dl	80-99mg/dl	Anuria for 12 hrs	6.5-6.9mmol/L
V (ESRD)	>10mg/dl	>100	Anuria for 24 hrs	>6.9

Gokshuradi Kwatha drugs properties in Ayurveda and in research view

Drug	Ayurveda	Research
Gokshura ^[8]	Mutrakrcchra, Mutrala, Sothahara, Pramehahara	Nephroprotective, Diuretic activity
Punarnava ^[9]	Kapha Vataharam Sothahara, Diuretic, Mutrala	Reduces blood urea, Haematic effect, anti-inflammatory activity, useful in Nephroticsyndrome, anti-oxidant
Sariva ^[10]	Tridosahara, Jwarahara	Increases UOP, anti-inflammatory, anti-bacterial, against E.coli
Dhanyaka ^[11]	Tridosahara, Amavata Jwarahara	Anti inflammatory

The useful parts of the above mentioned plants for Kwatha are taken in Dry Coarse Power of each 1 Part and 16 parts of water. On a low flame boiled till 1/4th of water remains in the container, Filtered and 40 ml of

the filtered *Kwatha* given internally BD. After 3 days as the evening dose, it is disturbing patient sleep during night, evening dose was De-escalated to 20ml OD till further orders. *Yava* (Barley) ~ 100gms taken cleaned with normal water and boiled with 200 ml of Water until 100ml of water remain in the container, filtered and 100ml given daily to attain *Mutravahasroto Sodhana & Vasti Sodhana*. Diet for blood sugar management with Cereals and Barley advised according to *Prameha Chikitsa* in Charaka Samhita Chikitsa Sthana. Patient made a Habit taking Barley as regular Diet. As days are passing High Sugar level came into control because of Diet control. Serum creatinine and Burning sensation of urine has significantly reduced because of *Kwatha*.^[12] After 12 days the dose of *Chitrakadi Vati* reduced to 1 OD. The *Kwatha* changed to 40ml OD. Advised to take Luke warm water till further orders. The treatment continued for next 8 days. Though there is an immediate effect like decrease in Ser. Creatinine but the treatment continued to stop colonization E.coli bacteria in Bladder.

OBSERVATIONS AND RESULTS

Finally, by the completion of treatment Pt was on anti HTN Drugs, Tab Glimpiride 1 gr BD, Barley Water (Diet). Once again investigations done, On examination Pt Mentally Physically active. No fresh complaints noted, Appetite is Good BP:140/80. RBS - 170, complete kidney screening found as Ser.Creatinine - 1.2, Blood Urea - 38, Electrolytes with in normal limits, UOP: was Normal - in Colour, Quantity, Frequency, Stream line flow, Pus cells 2-4, Urine Sugar - Nil and Urine Albumin - Nil, pain, burning sensation was not found while urinating.

DISCUSSION

Patient neglected Prostate Enlargement for several Years, High Sugar levels are two major predisposing factors for colonization of E.coli Bacteria in Urinary Bladder. E.coli is the most common Bacteria causing Acute Pyelonephritis due to its unique ability to adhere to Urinary tract and Kidneys. E coli has adhesive molecule called P-fimbriae^[13] which interact with Receptors on the surface of the Uroepithelial cells,

which leads to Infection, Hypoxia, Ischemia, Inflammatory Cytokines, Bacterial toxins, and other reactive processes further lead to completion of Acute pyelonephritis.^{[14],[15]}

Chitrakadi Vati is mainly indicated for *Agnideepaka, Amapachaka* and *Vatanulomaka*. Here the drug is used to stimulate *Jatharagni, Dhatwagni, Bhutagni* so that *Kapha Kledhana Vichedana Vilayana Kapha Vata Anulomana, Vanulomana* is attained. The obstructed *Srotas* are cleared which allows the action of Drugs and Diet their by facilitate the possibility recovery. The *Kwatha* is drug combination having multi-dimensional properties. *Gokshura* is moderate Diuretic.^[16] *Punarnava* in Ayurveda is defined as the Drug which regenerates i.e., it Rejuvenates affected part or aids regeneration of new cells so the Infected or Injured sites are repaired. *Punarnava* is an effective *Kaphavata Hara Dravya*.^[17] *Sariva* is the drug that encounters E.coli bacteria at P-Fimbriae and wont allow to adhere to the Uroepithelial cell.^[18] Collectively *Gokshura, Punarnava* and *Sariva* are ~Diuretics facilitate free flow of Urine to flush out E.coli. *Punarnava, Sariva, Dhanyaka* are anti Inflammatory which are meant to reduce Inflammatory condition at Upper Urinary tract level so the Glomerular filtration run promptly there by Creatinine level came down. *Apakarsana* means removal of *Krimi* it is attained by flow of Urine in Urinary Tract. *Nidana Parivarjana* is attained TURP Surgery and by closely monitoring Sugar levels, *Prakruthi Vighatana* is done by lowering the body sugar levels, once low sugar levels are maintained in the body, the E.coli colony starved for food and there by arrested its spread, follows decline in infection and Inflammatory response.

Observation		Grade BT	Grade AT
Flank pain		2	1
Tenderness		2	1
Fever		3	1
CUE	Pus cells	4	1
	Frequency	3	1

	Albumine	3	1
	Sugar	4	1
	Blood	+ve	-ve
KFT	Blood urea	2	1
	Ser.creatinine	2	1
CBP	Wbc	17,200cells/cumm	8,500 cells/cumm
	Neutrophills	83%	68%
RBS		410mg/dl	126mg/dl
HbA1C		9.8	9.0

CONCLUSION

Gokshuradi Kwatha is a proved drug combination of kidney function, Urinary tract infection in Ayurvedic Classics, but it needs precise study at the cellular level, and specific classification of drug action. The present study is a single case study so we can't come to final conclusion, it need study on large sample size.

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