



Case Report

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Reduction of Bacterial growth in Urine after an Ayurvedic treatment protocol: A case report

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ABSTRACT

Urinary tract infection (UTI) is the most common bacterial infection treated in general medical practice. It is more common in females than males except in first year of life and in men over 60. Main aetiology is the bacteria from patients own bowel flora and its transfer to the urinary tract most often via the ascending (transurethral route) blood stream ie, the lymphatics. This is a case of UTI presenting with symptoms of urinary urgency and frequency, burning micturition along with presence of bacterial growth, nitrites, puscells, leucocyte esterase in urine. Patient was considered suffering from mutrakuchra and managed with Brihatyadi ksheerakashayam, chandraprabhavati and shwetaparpati for 15 days. Two assessment were made before and after treatment using symptoms of UTI, urine analysis and culture, showed significant changes in signs and symptoms, bacterial growth, nitrites, leucocyte esterase.

Keywords: UTI, Brihatyadiksheerakashayam, Chandraprabhavati, Shwetaparpati, Mutrakuchra.

INTRODUCTION

A urinary tract infection is associated with multiplication of organisms in urinary tract and is defined as the presence of $>10^5$ organism/ml in the midstream sample of urine. Prevalence in women is 3% at age 20, rising by 1% per decade thereafter. The term UTI covers a range of conditions of varying severity from simple urethritis and cystitis to acute pyelonephritis with septicemia [1]. 50 to 80 % of women have at least one UTI during their life time. The majority of UTI occurs through ascending of bacteria from the urethra to the bladder continuing ascent up to the kidney via ureter is pathway for most renal parenchymal infections because, bacteria causing UTIs will colonize the colon or perianal region, and periurethral region in females forming a biofilm that usually resists the body's immune response. Infections of the urethra and bladder ie, lower urinary tract infection are often considered superficial or (mucosal) infections and upper urinary tract infection include pyelonephritis and renal suppuration signify tissue invasion. Escherichia coli has approximately 68% of frequency for causing UTI and other common bacteria are proteus, klebsiella, enterobacter, pseudomonas etc, although yeast, fungi and viruses may produce UTI [2]. All the symptoms of UTI are seen in the term of *Mutrakuchra* in Ayurveda. Ayurveda has given prime importance to *Mutravaha srotas* and its Vikaras. Being a system responsible for homeostasis of fluids in the body it also detoxifies the body by eliminating certain waste products through urine which is an outcome of digestion of food and metabolism. In *Mutraghata* and *Mutrakuchra*, *Kruchrata* (dysuria) and *Mutra-vibandha* are simultaneously present but, in *mutrakuchra* there is predominance of *Kruchrata* [3]. It is a *bastimarmagata vikara* which is elaborately mentioned in ayurvedic classics and *basti* being one among the trimarmas, management of disorders related to it has a greater therapeutic importance [4]. In all urinary disorders different formulations like decoctions, paste, alkali etc are mentioned according to the dosha predominance and the stages of disease [5]. There are many herbs with varied actions specifically aimed at *mutravahasrotovikara* such as *Mutrasangrahaneeya*, *Mutravirechaneeya* output, *Mutravirajaneeya* [6]. *Brihatyadiksheerakashyam* [7] is a polyherbal formulation consisting of five herbs in which Gokshura is added in double the quantity which is a diuretic and antidiuric [8]. *Chandraprabhavati* has been mentioned specifically for all types of *Mutrakuchra* and is *sarvarogapranasini* [9]. *Shweta parpati* has three main ingredients in which *Suryakshara* and *Sphatika* exhibit *tridoshagna*, *shodhana*, *ropana* properties. *Suryakshara* and *Navasagara* is *sokaphavatahara* [10]. They maintain an atmosphere (*prakritivighata*) which helps in preventing the multiplication of growth of bacteria. So the combined effect of these medicines reverse the pathological process in UTI. Based on the above facts she was given the medicines.

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CASE REPORT

The present case is a 25 year old female patient of MRD NO 79241 visited the kayachikitsa OPD of Amrita school of Ayurveda. Patient complains of lower abdominal pain, painful micturition, burning sensation, increased urgency and frequency of micturition since 3 days. She had an abrupt onset of pain over lower abdominal region that she ignored first and gradually pain occurred during micturition, which is of scalding type associated with increased urinary urgency and frequency of micturition. Physical examination was done, no significant finding noted. On the basis of signs and symptoms and results of urine examination she was diagnosed as UTI and the treatment were started.

Diagnosis

Based on ICD10N39 [11] diagnostic criteria she was diagnosed as a case of UTI.

Therapeutic intervention

Table 1: Intervention schedule

SI No	Days	MEDICINES	DOSE	TIME
1	15 days	<i>Brihatyadi ksheerakashayam</i>	50ml bd	6 am, 6pm before food
2	15 days	<i>Chandraprabhavati</i>	2bd, 100mg	6am, 6pm with kashayam
3	15 days	<i>Shwetaparpati</i>	500mg with 1 litre of water in ten divided dose	Frequently during day time

RESULTS

After 15 days of treatment there was considerable relief in symptoms of UTI like Presence of bacteria in urine, urinary urgency, frequency and burning sensation during urination. Change in urine analysis and bacterial count is tabulated below.

Table 2: Assessment of Urine analysis

URINE ANALYSIS	BEFORE TREATMENT	AFTER TREATMENT
Colour	Yellow	Yellow
Odour	No foul smell	No foul smell
Appearance	Turbid	Clear
pH	Acidic	Acidic
Specific gravity	1.025	1.015
Glucose	Nil	Nil
Albumin	Faint trace	Faint trace
Nitrites	Positive	Negative
Leucocyte esterase	Trace	Negative
RBC	Not seen	Not seen
WBC	Many	4-6/hpf
Epithelial cells	6-8/hpf	3-5/hpf
Bacteria	Present(E.coli)	Absent
Cast	Not seen	Not seen

Table 3: Assessment of urine culture

Urine culture and sensitivity	>100,000cfu/ml urine	75000cfu/ml urine
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DISCUSSION

Doshas individually or unitedly get vitiated due to nidana like adhyasana, ajeerna got localized in the basti leading to paripeeda of mutra marga [12]. Mutrakrucho manifest as a purvarupa, rupa and vyadhi. As ajirna is one of nidana results in reduced state of agni leads to ama that mixed with dosha ie, sama dosha produces symptoms such as peeta, dahamutra. Katu, amla, lavana rasa act as an irritant to bladder mucosa. Tikshna guna is responsible for increase in urine concentration thereby altering the pH and decreases volume of urine creates an environment for growth of bacteria. So the therapeutic aim is to prevent growth of bacteria, enhance urine output and reduce the symptoms like burning micturition, urgency etc Brihatyadi ksheerakashayam explained by Acharya Vagbhata is a combination of five herbs in which Gokshura is added in double the quantity that contain flavonoids, flavonol, glycosides etc which is a diuretic, antidiuretic [13] and also act as an alkalinizer due to the presence of potassium nitrate. Moreover the drugs are processed in ksheera which itself is mutrakruchohara [14]. Chandraprabha vati has been mentioned for all types of Mutrakrucho [15] The drug Chandraprabha in this combination is rasayana, tridoshaghna, mutrala with deepana-pachana and sheeta veerya properties [16]. This will help in correcting the agni, there by overcoming the pathogenesis of Mutrakrucho. Other main ingredients like silajathu, guggulu, lohabhasma and swarnamakshika are sheeta veerya [17], agnideepana [18], vatahara [19], and rasayana [20]. These helps to overcome the pittaja lakshanas which are seen in all types of mutrakrucho. Shweta parpati mentioned in Sidhaprayogasangraha has three main ingredients in which Suryakshara [21] and Sphatika exhibit tridoshaghna, shodhana, ropana properties. They helps in maintaining equilibrium of doshas. Sphatika [22] with its madhura rasa and vipaka along with the presence of potassium salts and alkaline pH [23] prevents the stasis of bacteria in bladder.

CONCLUSION

After the pre and post assessment of intervention it has become clear that there is a combined effect of brihatyadiksheerakashayam, chandraprabhavati and shweta parpati in reducing signs and symptoms along with reduction in bacterial growth, nitrites, leucocyte esterase, cast in urine.

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