

**MUTRAKRICHHA (UTI): A REVIEW BASED ON AYURVEDA AND MODERN PERSPECTIVE****Dr. Bakhtyar Asharafi\*<sup>1</sup>, Dr. Ajay Goswami<sup>2</sup>, Dr. Bhima Devi<sup>3</sup> and Dr. Rakesh Sharma<sup>4</sup>**

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**ABSTRACT**

The term *Mutrakrichha* comes under the disorders of *Mutravaha Srotas*, and mainly deals with *shool* (pain) and *kricchrata* (dysuria). Description of this disease in almost all-important classical texts reflects its prevalence in ancient period. *Acharya Charaka* has described eight types of *Mutrakrichha*. *Charaka* has also mentioned eight type of *Mutraghata*. *Mutraghata* and *Mutrakrichha* separately described by *Acharya Sushruta* in *Uttar-tantra*. In *Mutrakrichha*, the vitiated *Pitta Dosha* along with *Vata* (mainly *Apana Vayu*) on reaching *Vasti* (bladder) afflicts the *Mutravaha Srotas* due to which the patient feels difficulty in micturition along with symptoms like *Peeta mutrata*, *Sarakt mutrata*, *Sadaha mutrata*, *Saruja mutrata* and *Muhur-muhur mutrata*. The above mentioned symptomatology has close resemblance with urinary tract infections, as described in modern texts specifically lower urinary tract infections (urethritis and cystitis). Therefore in present article attempt has been made to define *Mutrakrichha* on scientific grounds vis-a-vis urinary tract infection.

**KEYWORDS:** *Mutrakrichha*, *Shool*, *Mutraghata*, *Peeta Mutrata*, Urinary Tract Infection.

**1.0 INTRODUCTION**

In our classical text the urinary disorders are described in the form of 8 types of *Mutrakrichha*, 13 types of *Mutraghatas*,<sup>[1]</sup> 4 types of *Ashmaris* and 20 types of *Prameha*. *Acharya kashyapa* had also described the sign and symptoms of *Mutrakriccha* in *Vedna adhyaya*.<sup>[2]</sup> A healthy urinary tract is generally resistant to infections. However, for anatomical reasons female lower urinary tract is more susceptible. Predisposing factors for recurrent Urinary tract infection include female sex, age below 6 months, obstructive uropathy, severe vesicoureteric reflux, constipation and repeated catheterization poor hygienic conditions and environment, poverty and illiteracy also contribute to the increasing percentage of urinary tract infections. Urinary tract infections occur in 1% of boys and 1-3% of girls.<sup>[3]</sup> These infections are the common complications during pregnancy, diabetes, polycystic renal disease and in other immune compromised patients. Urinary tract infections are the leading cause of gram-negative sepsis in hospitalized patients. They are important cause of morbidity and might result in renal damage, often in association with vesicoureteric reflux (VUR). Urinary tract infections are second in frequency after upper

respiratory tract infections.<sup>[4]</sup> Incidence and degree of morbidity and mortality from infections are greater with those in the urinary tract than with those of the upper respiratory tract. Bacteria are by far the most common invading organisms but fungi, yeasts and viruses also produce urinary tract infections. Thus, urinary tract infection is potentially a serious condition and failure to realize that this may lead to development of serious chronic pyelonephritis and chronic renal failure. With the introduction of effective antibiotics problem has been solved to some extent but the use of, antibiotics have limitations like side effects, chances of reinfection and relapse even after long-term therapy. Simultaneously increasing incidence of resistance and high cost of therapy are common problems.

**2.0 Ayurvedic Perspective**

*Mutra* is an outcome product digestion of food and metabolism in the body it is passes through urethra.<sup>[5]</sup> In both *Mutraghata* and *Mutrakrichha*, *Krichhrata* (dysuria) and *Mutra-vibandhta* are simultaneously present but in *Mutrakrichha* there is predominance of *Krichhrata* (dysuria).

### 2.1 Definition of *Mutra Krichha*

The painful voiding of urine is known as *Mutrakrichha*. In this disease patient has urge to micturate, but he passes urine with pain.

### 2.2 *Nidana* (Etiology)

It can be concluded that *Vyayama*, *adhyashan*, *ruksha sevana*, *yana gamana* are causative factors for *vata prakopa*<sup>[6]</sup> *Tikshna aushadha*, *amla sevana* causes *pitta prakopa*<sup>[7]</sup> and *Anupa mamsa sevana*, *vyayama*, *adhyashan* causes *kapha prakopa*<sup>[8]</sup> So these *Nidanas* cause vitiation of *Doshas* along with *Stroto-dushti* of *Mutrvaha srotas*. *Stroto-dushti* will cause *kha-vaigunya* in *Mutravaha srotas*. These factor leads to *Mutrakriccha*. These etiological factors can be summarized as:

#### *Aharaja Nidana*

- \* *Adhyashana*,
- \* *Ajirna*
- \* *Ruksha anna sevana*
- \* *Tikshna aushadha sevana*
- \* *Ruksha madya sevana*

#### *Viharaja Nidana*

- \* *Yana gamana*
- \* *Ativyayama*
- \* *Aghata*

#### *Partantra Nidana*

- \* *Kaphaja arsha*<sup>[9]</sup>
- \* *Ajirna*<sup>[10]</sup>
- \* *Vasti vidradhi*<sup>[11]</sup>
- \* *Gulma*<sup>[12]</sup>
- \* *Udavarta*<sup>[13]</sup>

### 2.3 *Rupa* (Symptomatology)

#### *Pratyatma lakshana*

मूत्रस्य कृच्छ्रेण महता दुःखेन प्रवृत्तिः।<sup>[14]</sup>

“रोमहर्षोअंगहर्षश्चमूत्रकाले च वेदना।

मूत्रकृच्छेदशत्योष्ठीबस्तिस्पृशितपाणिना।।”<sup>[15]</sup>

### 2.4 *Chikitsa* (Management)

- ♦ ***Shamana chikitsa***: It includes *Mutra-vishodhaniya*, *mutra-virechaniya*, *mutra-virajaniya* and *ashmarihara dravyas*.
- ♦ ***Shodhana chikitsa***: It includes diuretic drugs & *uttara vasti* which dilutes and flushes various infective agents along with urine.
- ♦ ***Bahirparimarjana chikitsa***: It includes medicines that can be used externally in the form of douches, fomentation, showers, poultices and ointment etc.

#### Specific Management

##### *Vataja Mutrakrichra chikitsa*

##### *Bahirparimarjana chikitsa*

*Abhyanga*, *Svedana*, *upanaha*, *Vatashamaka dravyas* like *dashmool*, *Eranda*, *Nirgundi*, *Parisheka* on *Kati Pradesha* with *Vatashamak Taila* and *Kwatha*.<sup>[16]</sup>

#### *Antahparimarjana chikitsa*

- ♦ ***Shodhana-*** *Niruha vasti*, *Uttara vasti* with *vata shamak kwath* like *dashmoola kwath*.
- ♦ ***Shamana-*** *Amritadi kwatha*, *Sthiradi aushadha*, *Shwadanshtra taila*, *traivritta taila*(Su.), *Mishraka sneha*.

#### *Pittaja Mutrakrichra chikitsa*

***Bahirparimarjana chikitsa***– *Sheeta Parisheka*, *Avagahana* in cold water, *pralepana* with *chandan* and *karpur*.<sup>[17]</sup>

#### *Antahparimarjana chikitsa*

- ♦ ***Shodhana-*** *Virechana* with *tikta evam madhur kashaya*, *Uttara vasti*.
- ♦ ***Shamana-*** *Shatavaryadi kwatha* (Ch.), *Haritakyadi kwatha*, *Trinapanchmula kwatha*(Y.R.), *Trinapanchamula churna*(Su.), *ervaru beej*, *yashtimadhu*, *devdaru* with *tandul dhavan*.

#### *Kaphaja Mutrakrichha chikitsa*

##### *Bahirparimarjana chikitsa*

*Svedana*, *Abhyanga* with *taila* containing *tikta ushna dravya*.

#### *Antahparimarjana chikitsa*

- ♦ ***Shodhana-*** *Vamana*, *Niruha vasti* with *kshara*, *tikshna*, and *katu dravya*.
- ♦ ***Shamana-*** *Vyoshadi churna praval bhasma*(Ch.), *shwadanshtradi kwatha*, *trikankantakadi ghrita*, *yava bhaksh*, *takra*

#### *Sannipattaja Mutrakrichha chikitsa*

In *Sannipattaja Mutrakrichra* the treatment should be done according to *vata sthana*.

“The *dosha* which is more dominant is treated first”

#### *Antahparimarjana chikitsa*

- \* ***Shodhana-*** If *kapha* is predominant then *vamana*, if *pitta* is predominant then *virechana* and if *vata* is predominant then *vasti karma* should be performed.
- \* ***Shamana-*** *Pashanbhedadi yoga*, *Brihatyadi kwatha*, *Gudadugdha yoga*, *dhatryadi yoga*.

#### *Raktaj Mutrakrichha chikitsa*

It should be managed as *sadyovrana*.

#### *Shakritajanya Mutrakrichha chikitsa*

*Vatahara kriya* is done in *shakritajanya Mutrakrichra*.

#### *Bahirparimarjana chikitsa*

*Abhyanga*, *Svedana*, *Avagahana*.

#### *Antahparimarjana chikitsa*

- \* ***Shodhana:*** *vasti*
- \* ***Shamana :*** *Churna kriya*

#### Some other important formulations include

- \* *Varunadi kwatha*
- \* *Varunshigruadi kwatha*

- \* *Gokshuradi guggulu*
- \* *Gokshuradi kwatha*
- \* *Chandanasava*
- \* *Chandraprabha vati*
- \* *Trivikrama rasa*
- \* *Chandrakala rasa*
- \* **Pathya:** *Purana shali, yava, kshara, takra, dugdha, dadhi, jangal mamsa, mudga yusha, trapusha, nadeya jala, sharkara, kushmanda, patola patra, ardraka, gokshura, puga, narikela, laghu ela, karpura.*
- \* **Apathya:** *Tambula, matsaya, lavana, pinyaka, hingu, tila, sarshapa, masha, karira, tikshna, vidahi, ruksha, amla dravya, virudhashana, vishamashana, Yana gamana, vega dharana.*

### 3.0 Modern Perspective

Urinary tract infections have plagued mankind long before bacteria were recognized as the causative agents of disease and before urology became an established medical specialty. The Ebers papyrus from ancient Egypt recommended herbal treatment to ameliorate urinary symptoms without providing insight into pathological mechanism. Hippocrates believed that disease was caused by disharmony of the four humors and accordingly diagnosed urinary disorders.<sup>[18]</sup> Urinary tract infection refers to both microbial colonization of the urine and tissue invasion of any structure of the urinary tract. Bacteria are most commonly responsible, although yeast, fungi and viruses may produce urinary infection. Infants and young children with UTI may present with few specific symptoms Older pediatric patients are more likely to have symptoms and findings attributable to an infection of urinary tract.<sup>[19]</sup> Differentiating cystitis from pyelonephritis in the pediatric patient is not always possible, although children who appear ill or who present with fever should be presumed to have pyelonephritis if they have evidence of UTI.

*Escherichia coli* are the most common causative organism of this disease causes approximately 80% of acute infections in patients without catheters. Other gram-negative bacilli, especially *Proteus* and *Klebsiella* and occasionally *Enterobacter*, account for a smaller proportion of uncomplicated infections. Gram-positive cocci play a lesser role in urinary tract infections, nonetheless *Staphylococcus saprophyticus*, *Enterococci*, *Staphylococcus aureus* are associated with acute urinary tract infection in young females and in-patient with renal stone or previous instrumentation.<sup>[20]</sup>

### 3.1 Definition

Urinary tract infection is an infection that affects part of the urinary tract. When it affects the lower urinary tract it is known as bladder infection (cystitis) and when it affects the urinary tract it is known as kidney infection (pyelonephritis). Symptoms from a lower urinary tract include pain with urination, frequent urination, and feeling the need to urinate despite having an empty bladder.<sup>[21]</sup> Infections of the urethra and bladder are often

considered superficial or (mucosal) infections, pyelonephritis and renal suppuration signify tissue invasion. The 3 basic form of UTI are pyelonephritis, cystitis and asymptomatic bacteriuria. Focal pyelonephritis and renal abscess are less common.<sup>[22]</sup> From a microbiological perspective, urinary tract infection exists when pathogenic microorganisms are detected in the urine, urethra, and kidney. Symptoms of dysuria, urgency, and frequency unaccompanied by significant bacteriuria have been termed as acute urethral syndrome. Although widely used, this term lacks anatomic precision because many cases so designated are actually bladder infections. Moreover, since the causative agent can usually be identified in these patients, the term syndrome- implying unknown causation is inappropriate.

### 3.2 Etiology

Bacterial infection are the most common cause of UTI, with *E. coli* being the most frequent pathogen, causing 75-90% of UTIs.<sup>[23]</sup> Other bacterial sources of UTI include *Klebsiella*, *Proteus*, *Enterococcus* species, *Staphylococcus saprophyticus* especially among female adolescent and sexually active females and *Streptococcus* group B especially among neonates. Fungi (*Candida* species) may also cause UTIs, especially after instrumentation of Urinary tract. Adenovirus is a rare cause of UTI and may cause hemorrhagic cystitis.

### 3.3 Treatment<sup>[24]</sup>

Acute cystitis should be treated promptly to prevent possible progression to pyelonephritis. If the symptoms are severe, a specimen of bladder urine is obtained for culture, and treatment is started immediately. If the symptoms are mild or the diagnosis is doubtful, treatment can be delayed until the results of culture are known, and the culture can be repeated if the results are uncertain. For example, if a midstream culture grows between  $10^4$  and  $10^5$  colonies of a gram-negative organism, a second culture may be obtained by catheterization before treatment is initiated. If treatment is initiated before the results of a culture and sensitivities are available, a 3- to 5-day course of therapy with trimethoprim-sulfamethoxazole is effective against most strains of *E. coli*. Nitrofurantoin (5–7 mg/kg/24 hr in 3 to 4 divided doses) also is effective and has the advantage of being active against *Klebsiella-Enterobacter* organisms. Amoxicillin (50 mg/kg/24 hr) also is effective as initial treatment but has no clear advantages over sulfonamides or nitrofurantoin.

In acute febrile infections suggestive of pyelonephritis, a 10- to 14-day course of broad-spectrum antibiotics capable of reaching significant tissue levels is preferable. Children who are dehydrated, are vomiting, or are unable to drink fluids, are  $\leq 1$  mo of age, or in whom urosepsis is a possibility should be admitted to the hospital for intravenous rehydration and intravenous antibiotic therapy. Parenteral treatment with ceftriaxone (50–75 mg/kg/24 hr, not to exceed 2 g) or ampicillin (100

mg/kg/24 hr) with an aminoglycoside such as gentamicin (3–5 mg/kg/24 hr in 1 to 3 divided doses) is preferable. The potential ototoxicity and nephrotoxicity of aminoglycosides should be considered, and serum creatinine and trough gentamicin levels must be obtained before initiating treatment, as well as daily thereafter as long as treatment continues. Treatment with aminoglycosides is particularly effective against *Pseudomonas* spp., and alkalization of urine with sodium bicarbonate increases their effectiveness in the urinary tract. Oral 3rd-generation cephalosporins such as cefixime are as effective as parenteral ceftriaxone against a variety of gram-negative organisms other than *Pseudomonas*, and these medications are considered by some authorities to be the treatment of choice for oral therapy. Nitrofurantoin should not be used routinely in children with a febrile UTI because it does not achieve significant renal tissue levels. The oral fluoroquinolone ciprofloxacin is an alternative agent for resistant microorganisms, particularly *Pseudomonas*, in patients older than 17 yr. It also has been used in younger children with cystic fibrosis and pulmonary infection secondary to *Pseudomonas* and is used on occasion for short-course therapy in children with *Pseudomonas* UTI. However, the clinical use of fluoroquinolones in children should be restricted because of potential cartilage damage that has been seen in research with immature animals. The safety and efficacy of oral ciprofloxacin in children is under study. In some children with a febrile UTI, intramuscular injection of a loading dose of ceftriaxone followed by oral therapy with a 3rd-generation cephalosporin is effective. A urine culture 1 wk after the termination of treatment of a UTI ensures that the urine is sterile; in most children, this is unnecessary, because the cultures often are negative.

Children with a renal or perirenal abscess or with infection in obstructed urinary tracts often require surgical or percutaneous drainage in addition to antibiotic therapy and other supportive measures.

In a child with recurrent UTIs, identification of predisposing factors is beneficial. Many school-aged girls have voiding dysfunction; treatment of this condition often reduces the likelihood of recurrent UTI. Some children with urinary tract infections void infrequently, and many also have severe constipation. Counseling of parents and patients to try to establish more normal patterns of voiding and defecation may be helpful in controlling recurrences. Prophylaxis against reinfection, using sulfamethoxazole-trimethoprim, trimethoprim, or nitrofurantoin at 1/3 of the normal therapeutic dose once a day, often is effective. Prophylaxis with amoxicillin or cephalexin also may be effective, but the risk of breakthrough UTI may be higher because bacterial resistance may be induced. Other indications for long-term prophylaxis (e.g., neurogenic bladder, urinary tract stasis and obstruction, reflux, calculi) are discussed in other chapters. There is interest in probiotic therapy, which replaces normal

vaginal flora, and cranberry juice, which prevents bacterial adhesion and biofilm formation, but these agents have not proved beneficial in preventing UTI.

The main consequences of chronic renal damage caused by pyelonephritis are arterial hypertension and renal insufficiency; when they are found they should be treated appropriately.

#### 4.0 CONCLUSION

- ❖ Increasing prevalence of UTI is a global issue of concern due to associated long term compromise in the quality of life.
- ❖ Urinary Tract Infections mentioned in Modern Medicine resembles with *Mutakrichha*.
- ❖ This disease is an important cause of renal damage, school absentees and frequent visit of the paediatricians, clinics or hospital.
- ❖ It is a *Vata Predominant Tridoshaj* disease involving *Mutravaha Srotas* with *dushti of Mutra* and *Ambu*.
- ❖ In both *Ayurveda* and modern management, primary prevention (*Nidanprivarjanam*) strategy has been given priority.
- ❖ Uncircumcised male infants appear to be at increased risk of UTI in the first three months of life.
- ❖ A girl with voiding dysfunction is at increased risk for recurrent UTI, because the reflux of urine laden with bacteria from the distal urethra in to the bladder.
- ❖ Boys with true phimosis without abnormal voiding showed high incidence of Urinary Tract Infection, particularly in the form of pyelonephritis, was noted to be high.
- ❖ UTI causes by micro-organism, so patient should maintain their proper hygiene. Caregivers can help in preventing the disease in children by teaching good hygiene, maintaining healthy hydration and by being aware your child's daily bathroom habits.

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