



## **Mutrakrichha with reference to UTIs**

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### **ABSTRACT**

*The word Mutrakrichha is the result of the Mutravaha Srotas illnesses and deals mostly with shool (pain) and kricchra (dysuria). In practically all the main classic literature the description of this ailment reveals its prevalence in ancient times. Mutrakrichra is made up of two words: Mutra and Kruchra, and it signifies Kruchra Pravrutti of Mutravahana (micturition difficulty). Mutrakrichra can be a standalone condition or a sign of another condition. Lower urinary tract infection is a disease that has identical signs and symptoms in modern research. Mutrakrichra's Nidana produces a shift in urine concentration, which promotes the growth of bacteria in the urinary system. Similarly, Mutrakrichra's Lakshanas are similar to symptoms of a lower urinary tract infection. Acharyas cite Chikitsa and Oushadha Yogas as having antibacterial and diuretic properties. As a result, an attempt is made in this study to objectively examine the disease Mutrakrichra, as well as its Nidana, Samprapti, Lakshana, and Chikitsa, from a modern perspective.*

**Key Word:** UTI, Mutrakrichha Mutraghata, Ayurveda

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### **INTRODUCTION**

UTI is common, distressing, and seldom life threatening. It seems to be more common than in men. The prevalence of UTI in women is approximately 3percent only at age of 20, increasing by 1percent each decade [17]. It is unusual to develop urinary tract infection due to prostatic hypertrophy in males, other than in life's first year and males above 60. E. coli from the bowel flora usually causes the infection and besides that other organisms such as Klebsiella, Enterobacter and Streptococci are also involved as causative organisms but are less frequent [13]. The urinary tract infection symptoms are similar in Ayurveda to Mutrakricchra, patients with Mutrakricchra suffer from increased incidence, urgency, hesitation, burning micking, painful discharge and urine decoloration. Even though advanced medical systems have many modern medicines, patients suffer from a lack of intended result. The current antibiotic drugs and other conservative measures available are in practice used to combat symptoms. Limitation of antibiotics, microorganism drug resistance, adverse drug effects in metabolic systems and immune systems suggest alternative management methods. In this case, Ayurveda treatments were selected and Mutrakricchra treatment was successful (Urinary tract infections). In our classic text, urinary illnesses are described as 8 Mutrakrichha types, 13 Mutraghata different kinds, 4 Ashmaris and 20 Prameha forms. The sign and symptoms of Mutrakricchra in Vedna adhyaya were also described by Acharya kashyapa [1]. A healthy urinary tract is usually infection resistant. For anatomical reasons, however, the lower urinary tract of females is more sensitive. Prepositions include female sex, under 6 months of age, disruptive uropathy, serious vesicoureteric reflux, bowel problems and catheterization repeated poor environmental hygiene, poverty and analphabetism also contribute to a growing rate of UTIs. Infections of the urinary tract occur in 1percent of boys and 1-3percent of girls [9]. These infections are the common complications during pregnancy, diabetes, polycystic renal disease and in other immune compromised patients. In hospitalised patients, UTIs are the main cause of gram-negative sepsis. They are a significant cause of morbidity and can lead to renal damage, often with vesiculous reflux (VUR). UTIs are secondary following infections of the upper respiratory tract [4]. 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. Bacterial organisms are by far the most prevalent, but microbes, yeasts and viruses also cause urinary tract infections. Thus, urinary tract infections are potentially severe, and can lead to 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. The increased resistance incidence and high therapeutic costs are common problems

### UTI AND ITS ETIOLOGY

Infection of Urinary tract is termed as Urinary tract infection (UTI). Infection of the lower urinary tract is known as bladder infection (cystitis) or LUTI. Infection of upper urinary tract is known as kidney infection (pyelonephritis).

The uropathogens caused by the UTI vary by clinical syndrome but generally are negative enteric gramme rods that move into the urine tract. *E. Coli* & *Staphylos aphyticus* are usually the organisms involved in the infection. Pneumonia and *Proteus mirabilis* are rare causes. Various factors such as vaginal nature, environmental factors and microbial factors influence UTI. Colonizing the genital introitus and periurethral region with intestinal flora organisms is the first step towards UTI pathogenesis. An anatomical and functional disorder predisposes an individual to UTI, a condition that allows urinary stasis or obstruction. Foreign bodies like stone and urinary catheterization provide an inert colonising surface. Individuals' vulnerability to recurrent UTI is influenced by the host's genetic background, at least in women. In other words, women who have recurrent UTI and a maternal history of UTI are more likely to get their first UTI before the age of 15 [18].

An biologically normal urinary system has a stronger infection barrier than an affected urinary tract. *E. coli* strains which in otherwise normal hosts cause invasive symptomatic urinary tract infected often have and reflect genetic virulence factors, including surface adhesions, which mediate binding on the surface of epithelial cells with specific receptors [5].

### UTI and Ayurveda

The shareholder is considered by Ayurveda to be composed of three key elements, namely Dosha, Dhatu and Mala. These three elements keep the whole body healthy. It helps preserve body structural and functional integrity [3]. Mala's are specifically designed for the removal of waste products from the body. If the function or impairment of kledavahana by mutra due to vitiation by viciated doshas occurs, they vitiate in turn the marga or srotas known as mutravahasrotodusti. Pittaja The subject of Mutrakricchra is shoolayukta, dahayukta, and mutrapravratti, etc [12].

Mutra is the result of food digestion and urethra metabolism in the body (Ninama et al., 2017). The Mutraghata and the Mutrakrichha both include Krichchrata (dysuria) and Mutra-vibandhta, but the Mutrakrichha is dominated by Krichhrata (dysuria). The vacuum is known as Mutrakrichha in the painful urine. The patient has to micturize, but he passes the pee with pain.

Pittaja Mutrakricchra is currently a common feature. It can be concurrent to cystitis (UTI), with most common complaints being dysuria, micking and increased urination. Urinary infections are among the most common bacterial infections with almost 7 million OPD visits and one million emergency visits and 100,000 women, elderly and diabetic patients worldwide each year (Ozturk & Murt, 2020). Fearnese syndrome is a urinary tract infection (UTI) that affects any part of the urinary tract. Usually the urine is sterile. It is usually free of microbial substances, but contains fluids, salts and waste materials. The main cause of at least 90per cent of uncomplicated infections is *Escherichia Coli*, which lives in the intestines (colon) and around the anus. An infection happens when bacteria enter and begin to grow the bladder or renal tissue. The infection usually starts when the urethra is opened and the urine leaves the body and moves to the urinary system. Any abnormalities of the urinary tract that prevent urine from flowing are the stage for infection.

While advanced medicines are often used in UTIs, urinary tract infections can be treated easily and quickly through herbal care without any side effects. Herbs known for management of urinary tract Divided into major categories of infections and other urinary disorders:

- Urinary and anti-accessory grasses such as *Juniperus* spp.
- *Vaccinium Macrocarpon*, *Salvia officinalis*, *Tribulus terrestris* and *Punica granatum* and *Ocimum sanctum* are effective against major pathogens, i.e. *E. coli*, *Klebsiella pneumoniae*,
- *Pseudomonas aersuginosa* and *Enterococo*.
- Bladder protection that monitors blood and protects from *Equisetum arvense*, *hydrangea petiolaris* and *zea mays* for example, kidney treatment, *Boerhaavia diffusa*, *Eupatory purpureum*, *agropyron repens* and *Berberis vulgaris* herbs, particularly *Serenoa repens* and *prunus africana*, for symptoms of benign prostatic hyperplasia. They all have multiple kinds of phytoconstituents and can treat urinary disorders and are known as alternatives to antibiotic uro-resistance throughout UTI

### **Pathogenesis**

From the urethra to the kidneys, the urinary system is a continuous column of urine. Often due to periurethral colonisation, uropathogens enter the urinary tract in females and pre-circumcised males. Bacteria colonise the urethra and adhere to the mucosa when the host's defences are weakened. Initiate the infection by bacteria with uroepithelial cells is the first critical step. Fimbriae is a protein that helps bacteria connect to certain receptors in both epithelial cells of *E. coli* and *Proteus*. *E. coli* strains make hemolysin and aerobactin resistant to bactericidal human serum action. O antigen, K-capsular antigen, hemolysins, adhesion and production of urease increase the probability of infection caused by a specific strain. Replication and antibiotic resistance are two virulence characteristics that favour the release of bacterial toxins. Bacterial trapping properties such as *E. coli* also contribute to the pathogenicity of the disease [5].

### **Samprapti**

Samprapti is the pathogenesis or manifestation of the disease. Mutrakrichra Samanya Samprapti was explained in detail by Acharya Charaka. As mentioned earlier, Vatadidosha Prakopa is born of Nidana Sevana. This Prakupita Dosh enters Basti (or Mutravaha Srotas), which causes Mutramarga to cause Paripeedana, which makes Kruchrata Mutravahana [18]. Acharya Harita mentions Pitta as the main dosha in the pathogenesis of Mutrakrichra [16]. Kashyapa also holds the same opinion and state as Vyadhi Mutrakrichra, Pitta Pradhanatridoshaja [18].

### **Nidana of Mutrakrichra**

Nidanas or Mutrakrichra aetiology may primarily be separated into two kinds, because nidanas directly cause Mutrakrichra and Mutravaha Srotodushti. Mutravaha Srotodushti Karanas is expected to lead to the susceptibility of Khavaigunyata to disease in Mutravaha Srotas.

For Mutrakruhra, Aharaja Nidanas, Atisesivana of Rukhaaahara, Madhyaasevana, Aanupamatsya sevana, Adhyashana, Ajeerna and Viharaja Nedanas were named Ativyayamas, Nityadrutha Prushtaya and were described as Acharya Charaka as the Atisevana of Rukhaaahara. He also mentioned Teekshanaoushadha Sevana between the Nidanas [15].

Nidanas of Acharya Charaka are Aahara Sevanas for Mutravaha Srotodushti while there are Mutravega, Streesevana, Mutranigrahana, Ksheena and Kshata [1].

### **Classifications of Mutrakrichra**

There are 12 main varieties of Mutrakrichra. Eight categories were mentioned by Acharya Charaka and Acharya Susrutha, where Abhigataja Mutra Krichra has been added in Acharya Susrutha instead of Raktaja Mutrakrichra. Mutrakrichra is classified in 4 types based on the involvement of Dosha in Ashatanga Sangraha and Ashtanga Hrudaya. Seven types of Mutrakrichra are described in Madhava Nidana, Mutrakrichra comes in 12 different types. Acharya Charaka and Acharya Susrutha mentioned eight types [9].

### **Symptoms**

The classics mention many symptoms of different Mutrakrichchra kinds. As per the classics, almost every kind of Mutrakrichchra symptom is krichchrata, muhurmuhur mutra pravritti and shula. These signs can thus be considered important clinical features of Mutrakrichchra. Shula and muhurmuhur mutrata are quite common due to the deterioration of vata dosha, peeta mutrata and daha from aggravated pitta dosha and picchila murata, and shweta murata (urine leukocyte) due to aggravated kaphasa dosha. The pitta dusti in the diagnosis is one of the more agonising and predominant symptoms of these symptoms.

### **Samanya Lakshana**

Madhukosha's Madhava Nidana commentary referred to Samanya Lakshana of Mutravahana as Kruchrata in Mutravahana, i.e. micturition problem. Mutrakrichra is all the symptoms of Pitta Dosh Pradhana lakshanas mentioned by him according to Acharya Harita, Pitta Doshapradhana Vyadhi. It is mentioned in the Mutravahana Kruchrapravritti – micturing difficulty, Ushnadhara – micturation burning, Mutrasrotasharati – Dushti Mutravaha Srotas and Raktapravritti – haematuria like Lakshana Samanya (Paul & Jain 2019).

### **Vataja Mutrakrichra Lakshana**

The nidanas lead to the Pradhana Mutrakrichra, as Ruksha Aahara sevana, the Vegadharana and Atistreesevana. Ruksha and Sheetaguna made Shula worse by Vataprakopalaghu together with Kruchra Mutravahana in Vataja Mutrakrichra.

Visistha Lakshanas of Vataja Mutrakrichra: inguinal pain, lower abdomen bastishula pain, penile medhrashula or urethra pain; lower abdomen pain; Muhurmuhur Mutra Pravartana - increased urination rate; Alpamutrata - low urination; Kruchramutrata - urination difficulties; Phenamutrata - sparkling urine. Arunamutrata - Arunavarna urine, Avarchastvam - Arunamutrata - Arunavarna urine - Arunamutratas - Avarchastvamdefiction problems [1].

**Sannipataja Mutrakrichra Lakshana**

The three Doshas are made worse by a single nidana, The Sannipataja Mutrakrichra is led by Katu, Amla, Lavana Aahara Sevana, Ativyayama, Vegadharana andAjeerna.

The Sannipataja Mutrakrichra Lakshanas are Sarvanirupa - all Tridoshas are apparent. Murcha, Bhrama and Vilepa are also seen - burning micturition, ruja - micturition pain, nanavarnamutra - multiple colour, mohurmutrata - increasing urination frequency. Acharya Kashyapa said that Dwandwaja Mutrakrichra is based on the combined effect of the respective Doshas and the Lakshanas. Mutrakrichra Abhighataja Abhighataja Mutrakrichra shows when the cause of a Shalya is that Kshata or Abhigataja is Mutrakrichra. Abhighataja Mutrakrichra Lakshana, as in Vataja Mutrakrichra, is mentioned by Acharyas. The Abhighataja Mutrakrichra Pradhana Lakshana takes you to Vatadosha Prakopa, Basti Kukshi Peeda and Kruchramutrata [1].

**Shakrutaja Mutrakrichra**

When Pureesha arrives in Pratighataavastha, it leads to Shakrutaja Mutrakrichra. Vegadharana could be regarded as Shakrutaja Nidana Mutrakrichra, leading to Vatadosha Prakopa and symptoms such as Adhmana, Shula and Mutrasanga [1].

**Ashmarija Mutrakrichra Lakshana**

Its Mutrakrichra because of the existence of Ashmari. Ashmari, according to Acharya Charaka, will be Kadamba Pushpaakruti and Triputa. If Ashmari arrives at Mutra Marga it will lead to Basti Vedana, Sevani, Mehana, Dourbalja and so forth [10]. Acharya Susrutha believed the lakshanas of Ashmarija Mutrakrichra were identical to those of Ashmari [10].

**Shukraja Mutrakrichra Lakshana**

The Vitiated Sukra has difficulty urinating with semen and experiences bladder and penis pain when passing through the urinary system. Vrushanaativrutte is other symptoms – testicles are long and aching with rigidity. Vibandha Mutra and Shukra — Vacuum and semen obstruction and Vedanashcha Tudyath — Pricking pain [7].

**Raktaja Mutrakrichra Lakshana**

Kshata causes urinary fluid blockage and lower abdomen pain when there is blood in the urinary tract. Lakshanas are Teevroarti, atrophying pain, which, when associated with Ashmari, leads to symptoms such as adhmana and gourava in Basti. When the Ashmari is out, the patient in Basti Pradesha feels Laghutwa. Acharya Kashyapa underlines Pitta Dosh's involvement in Raktaja Mutrakrichra (Jumle & Jumle, n.d).

**Pittaja Mutrakrichra Lakshana**

In Pitta Doshah Pittaja Mutrakrichra, Ushna and Teekshna Guna, nidanas are rising, such as Madhya, Aanupamatsya Sevana, Amla Lavana Aahara Sevana, and Teekshna Aaushadha Sevana. The Pradhana Lakshana of Pittaja Mutrakrichra is Sadahamutrata.

Other Pittaja Mutrakrichra lakshanas, Daha in Mushka and Mehanapradesha, are Sarujamutrata discomfort in urination. Kruchramutrata - micturition problem, Muhurmutrata — increasing urination frequency, Peeta or Haridramutrata - yellow in the urine, Saraktamutrata Krushnamutrata - presence of blood in Ushnabashpasamhitham - Ushnata feeling and suddenness [6].

Table 1. Ayurvedic treatment

Method	Description
Bahirparimarjana chikitsa	Cold water Sheeta Parisheka, Avagahana, Chandan and Carpur pralepana.
Antahparimarjana chikitsa	Treatment is given as per dominance of vitiation of doshas.
Shodhan	Tikta evam madhur kashaya, Uttara vasti Virechana Virechana. If kapha is prevalent, vamaana should be done if pitta is prominent, and vata, vasti karma is predominate.
Shaman	Shaman Shatavaryadi Kwatha, Haritakhyadi Kwatha, Trinapanchmula kwatha, Trinapanchamula churna, Yashtimadhu, Devdaru, with Tandula dhava. Chaman Shatavaryadi kwatha (Ch.), Brihatyadi kwatha, Gudadugdha yoga, dhatryadi yoga.
Pathya	Purana shali. Yava, kchara, takra, dugdhi, dadhi, mamsa. Mudga Yusha, trapusha., nadeya jeala, sharkara.
Apathy	Tammu apathy, lavana, pinyaka, hingu, tila, sarshapa, masha, tikshna, videahi, ruchha and amla dravya, vishamashana and Dharana vega. Apathy tammu, matsaya, lavana, pinyaka.

**Modern Perspective**

Bladder inflammation causes symptoms of frequency, suprapubic emergency, discomfort and dysuria. These condition are frequently referred to as cystitis. In females, lower UTI is more frequent than in males. Lower UTI is always present with Fever, loin pain, rigor and malaise. Incomplete emptying of the bladder, A calculus foreign body or neoplasms DM, Immunosuppression, Bacterial infection such as

Escheria coli. Bacteria are most commonly responsible. Yeast, Fungi and Viruses are other microorganisms which produce urinary infection. Specific typical symptoms are present in UTI of infants and young children. Differential diagnosis of cystitis and pyelonephritis in the paediatric patients is critical task. In ill children, having fever or children who appear ill, proper diagnosis should be carried out to rule out pyelonephritis, if they have UTI.

Most common causative organism is E. coli found in approx.80 percent of acute catheter-free infections in patients. Proteus, Klebsiella and occasionally Enterobacter are common causes of UTI. Gram-positive cocci have comparatively much lesser role in causation of UTI. Staphylococcus saprophyticus, Enterococci, Staphylococcus aureus may cause acute UTI in patients having past surgical history, patients having renal calculus and in young females [9].

### Treatment

Acute cystitis should be treated carefully. It is aimed to prevent possibility of further spread of infection and possible occurrence of pyelonephritis. In case of severe symptoms Culture sensitivity test (Bladder sample) should be carried out along with immediate start of treatment. In case mild or doubtful cases, we can wait to start the treatment until final diagnosis based on Culture results. For example, if a midstream culture grows between 10<sup>4</sup> and 10<sup>5</sup> colonies of a gram-negative organism, Catheterization may result in a second culture before treatment is initiated. Treatment with trimethoprim sulfamethoxazole (5 days) can be started before we get reports of the culture and sensitivity. It works against most E. coli strains. Nitrofurantoin is active against *Klebsiella* *Enterobacter* organisms. Amoxicillin (50 mg/ kg/24 hr) can be started initially but less effective as compared to Sulphonamides or Nitrofurantoin.

Broad-spectrum antibiotics (10 to 14 days course) are preferred in acute febrile infections where possibility of pyelonephritis is more. Dehydrated children less than 1 month of age, with vomiting should be hospitalized and undergone through rehydration and IV medications. Alcalinization of sodium bicarbonate urine promotes urinary tract efficiency. Cefixime (3rd-generation cephalosporin) orally is almost as effective as IV Ceftriaxone. It is effective against gram-negative organisms. Nitrofurantoin should not be considered in children with febrile UTI. Ciprofloxacin orally can be used as alternative. Fluoroquinolones may cause potential cartilage damage (observed in research with animals) hence their use in children should be restricted

### CONCLUSION

When seen under conventional medicine, Pittaj Mutrakrucha is somehow linked with cystitis (UTI). Both diseases having equal signs and symptoms. The ayurvedic drugs act as Mutral, vatanulomak, Lekhana, Mutrajnan, Rasayana, Krishna, Ashmarinashak, Mut. Increasing UTI prevalence is a global problem because of the associated long-term quality of life compromise. This disease is a major cause of renal dysfunction, school absenteeism and frequent visits to paediatricians, hospitals and clinics. The disease that causes Mutravaha Srotas with Mutra and Ambu dushti is the most common in Vata. In both Ayurveda and modern management, primary prevention (Nidan privarjanam) strategy has been given priority. A girl with vacuum dysfunction is more likely to experience recurrent UTI because the urine reflux sets from a distal urethra into a bladder with bacteria. UTI is affected by micro-organisms so that patients are kept hygienic.

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