

**URINARY TRACT INFECTION - AYURVEDIC AND MODERN PERSPECTIVE**Mubin Sayyad<sup>1</sup>, Smita Lokhande<sup>2</sup>, Parag Deshmukhe<sup>3</sup>

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**ABSTRACT**

Urinary tract infection is the most common infection managed in general medical practice and accounts for 1-3% of consultations. Women are especially prone to UTI'S. one woman in five develops UTI at least once during her lifetime. UTI in men is not so common but it can very serious when do occur. The symptoms of urinary tract infections are similar to mutrakrichchra as described in Ayurveda. The pratyatma lakshana of mutrakrichchra is "Dukhen mutrapravrutti" which means discomfort during micturition. Mutrakrichchra is also found as lakshana in other diseases like Ashmari, Mutraghata, Mutrajavidhi, Arsha and Gulma etc. Acharya sushruta has been described mutraghata and mutrakrichchra separately in Uttar-tantra. In mutrakrichchra Prakupit pitta dosha along with vata goes into basti (urinary bladder) and affects the Mutravaha strotas due to which patients feels difficulty in urination with symptoms like Daha, Ruja, Basti guruta, Shotha, Muhurmutrata, Peeta mutrata, Sarakta mutrata. The above symptoms mentioned in symptomatology resemble more closely to the symptom of lower urinary tract infection. (i.e. Cystitis, Urethritis). The present was done to assess the literature review of mutrakrichchra according to various texts.

**Keywords:** Mutrakrichchra, Urinary tract infection (UTI), Micturition**INTRODUCTION**

Urinary tract infection is the most common infection managed in general practice and accounts for 1-3% of consultations<sup>(1)</sup>. Women are especially prone to

UTI'S. One woman in five develops UTI at least once during her lifetime. UTI in men is not so common, but it can be very serious when do occur <sup>(2)</sup>. Urinary

tract infection is defined as the multiplication of organisms in the urinary tract. It is usually associated with the presence of neutrophils in midstream samples of urine<sup>(3)</sup>. The symptoms of urinary tract infection are similar to mutrakrichchra as described in Ayurveda<sup>(4)</sup>. In mutrakrichchra patients have complaints of increased frequency, urgency, hesitancy, burning micturition, painful micturition and red, yellow-orange urine<sup>(5)</sup>. Mutrakrichchra is a disease affecting basti and Mutramarga. Diseases of Mutravaha Strotas included mutrakrichchra, mutraghata, prameha and Ashmari. when Mutravaha strotas is injured, the treatment is explained as a mutrakrichchra chikitsa. The term mutrakrichchra originates from two words Muta and Krichchra and is self-explanatory. The word muta is derived from 'Prasava' means to ooze. The word Krichchra is derived from 'Kashte' which means causing trouble or pain. Difficulty or painful micturition is called Mutrakrichchra.

The mutrakrichchra is a broad term that covers all conditions described in modern medical science as a

urinary tract infection. In urinary tract infection parts of the urinary tract are affected by the infection. When infections affect the lower urinary tract then it is called simple cystitis and when it affects the upper part then it is called pyelonephritis<sup>(6)</sup>. Mutrakrichchra can also see as an independent disease as well as poorvaroop and roopa of other diseases.

### Material and Methods

All the relevant information about Mutrakrichchra, and urinary tract infection were collected from different Ayurvedic and modern texts.

### Nidana

It can be concluded that vyayama, Adhyashan, ruksha ahar sevan, Yama gamana are causative factors for vata prakopa. Tikshna aushadha, amla ahar sevan causes pitta prakopa and anupa mamsa sevana, vyayama, Adhyashan causes kapha prakopa so these nidana causes vitiation of doshas along with Strotodushti of mutravaha strotas. Strotodushti will cause kha. vaigunya in Mutravaha strotas. These factors led to mutrakrichchra<sup>(7)</sup>

### These etiological factors can be summarized as

Aharaja Nidana	Viharaja Nidana	Partantra nidana
Adhyashana	Yana gamana	Kaphaj Arsha
Ajirna	Ativyayama	Ajirna
Ruksha annasevan	Aghata	Basti vridhi
Tikshna Aushad sevan		Gulma
Rukshya Madya sevan		Udavarta

### Samprapti

Samprapti in the pathogenesis of a disease or the process of manifestation of the disease. Acharya charaka has explained samanya samprapti of mutrakrichchra in detail. Nidana sevana as mentioned earlier lead to vatadosha prakopa. These prakopit doshas enter the basti or mutravaha strotas causing paripeedana in the mutramarga thus causing kruchrata in mutravahana.<sup>(8)</sup>

### Samanaya Lakshana

The samanya lakshana of mutrakrichchra has been mentioned in madhukosha commentary of madhava nidana as a kruchrata in mutravahana i.e., Difficulty

in micturition. According to acharya harita mutrakrichchra is a pitta dosha pradhana vyadhi, the symptoms mentioned by him are all pitta dosha pradhana lakshanas. The mentions krichchra pravrutti of mutravahana - Difficulty in micturition, ushnadhara - Burning micturition, Mutrastrotasharati dushti of mutravaha strotas and raktapravrutti - Haematuria as a samanya lakshana<sup>(10)</sup>.

### Vataja Mutrakrichchra Lakshana

The nidana like Ruksha ahara sevana, vegadharana, atistreesevan leads to vataprakopa leading to vata dosha pradhana mutrakrichchra. Because of vata prakopa laghu, ruksha, sheeta guna aggravates lead-

ing to shoola as pradhan lakshana along with krichchra mutravahan in vataja mutrakrichchra. The vishista lakshana of vataj mutrakrichchra are vankshana shoola - pain in the inguinal region, Basti shoola - pain in the lower abdomen, Medhrashoola - pain in the penis or urethral region, Muhurmuhur mutrapravrutti - Increase frequency of urination, Alpa mutrata- scanty urination, Krichchramutrata - Difficulty in urination. Phenamutrata - frothy urine, Aruna mutrata - aruna vrana of urine <sup>(11)</sup>.

#### **Pittaja Mutrakrichchra Lakshana**

The Nidanas like Madhya, Aanupamatsya Sevana, Amla Lavana Aahara Sevana and Teekshna Aaushadha Sevana leads to an increase in Ushna and Teekshna Guna of Pitta Dosha leading to Pittaja Mutrakrichchra. The Pradhana Lakshana of Pittaja Mutrakrichchra is Sadhamutrata.

Other Lakshanas of Pittaja Mutrakrichchra are Daha in Mushka and Mehanapradesha, Sarujamutrata-pain during urination, Kruchramutrata - difficulty in micturition, Muhurmutrata - increased frequency of urination, Peeta or Haridramutrata - yellow discoloration of urine, Krushnamutrata, Saraktamutrata - the presence of blood in the urine, Ushnabashpasamhitham - feeling of Ushnata along with perspiration <sup>(11)</sup>.

#### **Kaphaja Mutrakrichchra Lakshana**

The Nidanas like Ajeerna and Aanupamatsya Sevana leads to an increase in Guru Guna of Kaphadosha causing Kaphaja Mutrakrichchra. Shotha and Gurutwa of Basti, Linga and Mushka and Picchilamutra are the predominant symptoms of Kaphaja Mutrakrichchra.

Apart from the above said Shukla Mutrata, Anushnamutra, Samhrushtaroma - horripilations, Vibandha, and Alpamutrata are mentioned <sup>(11)</sup>.

#### **Sannipataja Mutrakrichchra Lakshana**

When an individual indulges in multiple Nidanas like Katu, Amla, Lavana Aahara Sevana, Ativyayama, Vegadharana and Ajeerna all the three Dosha gets aggravated & leading to Sannipataja Mutrakrichchra.

The Lakshanas of Sannipataja Mutrakrichchra are Sarvanirupa - Lakshanas of all the Tridoshas will be

manifested. Daha - burning micturition, Ruja - pain while micturition, Nanavarnamutra - multi-coloured urine, Muhurmutrata - increased frequency of urination, Murcha, Bhrama and Vilepa are also seen <sup>(11)</sup>.

#### **Abhigataja Mutrakrichchra Lakshana**

Abhigataja Mutrakrichchra manifests when there is Kshatha or Abhigata by a Shalya causing Mutrakrichchra. Acharyas mention Abhigataja Mutrakrichchra Lakshana similar to that of Vataja Mutrakrichchra. As Abhigata leads to Vatadosha Prakopa, the Pradhana Lakshana of Abhigataja Mutrakrichchra is Basti Kukshi Peeda along with Kruchramutra <sup>(11)</sup>.

#### **Shakrutaja Mutrakrichchra**

When Pureesha gets to Pratighataavastha leading to Vayuvigunata it leads to Shakrutaja Mutrakrichchra. Vegadharana might be considered as Nidana of Shakrutaja Mutrakrichchra leading to Vatadosha Prakopa leading to symptoms such as Aadhmana, Shula and Mutrasanga <sup>(12)</sup>.

#### **Ashmarija Mutrakrichchra Lakshana**

Its Mutrakrichchra due to the presence of Ashmari. According to Acharya Charaka, Ashmari will be Kadamba Pushpaakruti and Triputa. Ashmari when reaches the Mutra Marga causes Avarodha and leads to Lakshanas such as Vedana in Basti, Sevani, Mehana, isheernadharamutra and Dourbalya <sup>(13)</sup>. Acharya Susrutha has said the Lakshanas of Ashmarija Mutrakrichchra are similar to that of the Ashmari <sup>(14)</sup>.

#### **Shukraja Mutrakrichchra Lakshana**

Vitiated Sukra when passes through the urinary tract, the individual urinates with difficulty with semen and experiences pain in the bladder and penis. Other symptoms include Vrushanaativrutte - testicles become enlarged, painful with stiffness. Vibandha of Mutra and Shukra - obstruction to the voiding of urine and semen, and Vedanashcha Tudyathe - pricking kind of pain <sup>(15)</sup>.

#### **Raktaja Mutrakrichchra Lakshana**

Due to *Kshata* when there is blood in the urinary tract it obstructs urinary flow and pain in the lower abdomen. The *Lakshanas* are *Teevraarti* - excruciating pain, if this condition is associated with *Ashmari* it will lead to symptoms like *Aadhmana* and

*Gourava* in *Basti*. When the *Ashmari* passes out, the patient feels *Laghutwa* in *Basti Pradesha* <sup>(16)</sup>. Acharya Kashyapa highlights the involvement of Pitta Dosh in causing *Raktaja Mutrakrichchra*.

#### Vatakundalika Mutrakrichchra Lakshana

In *Basavarajeeyam*, this type of *Mutrakrichchra* is mentioned and *Lakshanas* are *Mutraalpatwam*, *Vedana*, *Aadhamana*, *Guruta* and *Kandu* <sup>(17)</sup>.

#### Pathogenesis of UTI

The urinary tract can be viewed as an anatomic unit united by a continuous column of urine extending from the urethra to the kidneys. The entry of uropathogenic into the urinary tract is often from periurethral colonisation in females and from preputial colonisation in uncircumcised males. When host defences are weakened, urethral colonisation and mucosal adhesion of bacteria occur. Adherence of bacteria to uroepithelial cells is the critical first step in the initiation of infection. Fimbriae mediate the attachment of bacteria to specific receptors on epithelial cells for both *E. coli* and *Proteus*. Hemolysin and aerobactin produced by uropathogenic strains of *E. coli* make them resistant to the bactericidal action of human serum. The presence of O antigen, capsular K antigens, and production of siderophores, hemolysins, adhesions and urease enhance the chances of a particular strain to cause infection. The virulence factors favour the release of bacterial toxins, replication and antibiotic resistance. Iron trapping characteristics of bacteria like *E. coli* also contribute to pathogenicity.

#### Clinical features of Urinary Tract Infection

Urinary tract infection involves the infection of the urinary bladder. Patients with cystitis or urethritis may be asymptomatic or present with symptoms such as the abrupt onset of frequency of urination and urgency; dysuria - burning pain in urethra during micturition, nocturia, urge incontinence, suprapubic pain, the sensation of incomplete bladder emptying due to spasm of the inflamed bladder wall, urine may have an offensive smell, blood and cloudy appearance <sup>(18)</sup>.

## DISCUSSION

#### Comparison of Mutrakrichchra and UTI Comparison based on Nidana

The basic factors which contribute to the mechanism of pathogenesis of UTI are the pH or concentration of urine along with the health status of the genitourinary tract and immunity. Similarly, *Nidanans* of *Mutrakrichchra* is either the factors that change the pH or concentration of urine or the one which is causing lowered immunity.

#### Comparison based on Lakshana

*Kruchrata* in *Mutravahana* is the *Pradhana Lakshana* of all types of *Mutrakrichchra*. Associated symptoms of *Mutrakrichchra* depends upon the *Dosha* involved, like *Ruja* in *Vataja*, *Daha* in *Pittaja* and *Gouravata* in *Kaphaja*. In lower urinary tract infection, the symptoms like burning micturition, pain abdomen and discomfort during micturition differs from person to person based on the predominance of *Dosha* involved in *Mutrakrichchra*.

Lakshanas of Mutrakrichchra	Clinical features of UTI
<i>Muhurmutrata Alpmutrata</i>	Increased frequency of urination
<i>Shohta</i> of <i>Basti</i>	The sensation of incomplete bladder emptying due to spasm of the inflamed bladder wall.
<i>Sadahamutrata</i>	Dysuria
<i>Bastishula Sarujamutrata</i>	Suprapubic pain

#### Comparing based on Mutrakrichchra Chikitsa and UTI treatment

Treatment of UTI	Treatment of Mutrakrichchra
Antibiotic	<i>Shamana Oushadhi</i> contains drugs like <i>Gokshura</i> , <i>Pashanabheda</i> , <i>Darbha</i> , <i>Kusha</i> , <i>Kasha</i> who has got antibacterial activity.
Alkalizers	The drugs like <i>Pashanabheda</i> , <i>Punarnava</i> , <i>Yava</i> has got <i>Mutrala</i> property which alkalises the urine.

The treatments mentioned for Mutrakrichchra are mainly Shodhana depending upon the Dosha involved, Sthanika Chikitsa like Parisheka, Abhyanga, Avagaha and Shamana Oushadhi containing drugs alleviating the Doshas. Whereas UTI is treated with appropriate antibiotics and alkalizes.

## CONCLUSION

The Nidana, Lakshana and Chikitsa of Mutrakrichchra can be well correlated with that of lower urinary tract infection. Among types of Mutrakrichchra specifically Vataja, Pittaja, Kaphaja and Sannipataja Mutrakrichchra can be considered under the preview of lower urinary tract infection. In other types of Mutrakrichchra, the symptoms of UTI are because of other factors other than the involvement of Doshas like Ashmari, Shalya, Shukra & Shakrut. With supportive investigation like urine routine and microscopy and based on the symptoms of the patient, Mutrakrichchra can be well managed by the different treatment modalities and Shamana Oushadis mentioned by our Acharyas.

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