



CASE REPORT

Role of *Uttaravasti* in *Mutrakrcchra* (UTI) in Case of Paraplegia - A Case Study

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Abstract

“Spinal cord lesion” that paralyzes the lower limbs is termed “Paraplegia”. Bladder involvement is a common condition among paraplegics. Being bedridden and under constant catheterization, paraplegic patients are usually affected by chronic recurrent cystitis. The most common presentation of cystitis is urinary tract infection (UTI). In Ayurveda classics, UTI is classically correlated with *Mutrakrcchra*. UTI is usually caused by *Escherichia* bacteria and described under the disorders of *Mutravaha srotas* and mainly manifested as *shoola* (pain) and *krcchrata* (dysuria). A case of *mutrakrcchra* in a catheterized paraplegic male patient, 52-year-old was admitted in IPD of Govt. Ayurveda Hospital, Tripunithura. During management, he developed heaviness in the abdomen and both lower limbs, flank pain along with fever and chills. It was managed with *Uttaravasti* as *Yogavasti krama* with *Drakshadi kashayam* (100ml) and *Dhanwantaram mezhupakam* (30ml). It is observed that the case got relief in symptoms and change in biochemical parameters of UTI. To stabilize the positive response of this procedure, *Samana chikitsa* with relevant drugs were done as a follow-up.

Introduction

“Impairment in motor or sensory function of the lower extremities is termed as “Paraplegia”. It is observed as the result of severe damage to the spinal cord and nervous system. It particularly affects the legs, and the pelvic region, at last resulting in loss of movement. In patients with spinal cord lesions, above the level D12/L1, bladder involvement is common and leads to catheterization. Constant catheterization with immobility will lead to chronic recurrent cystitis. Generally, Urinary tract infection (UTI) is manifested due to the presentation of cystitis. In this case study, the cause of urine infection is the regular usage of catheterization (Catheter-acquired urinary tract infection). Catheter-acquired urinary tract infection is one of the accepted health cares acquired infections. Acquisition of new bacteriuria, while a catheter remains in situ, is 3 to 7 % each day^[1]. Paraplegia and UTI are classically explained in all Ayurveda texts as “*Adhakaya sadam*” and “*Mutrakrcchra*” respectively. The condition in which the urine is expelled with difficulty and associated with great discomfort is named “*Mutrakrcchra*”^[2]. *Mutrakrcchra* is mentioned

under the disorders of *Mutravaha srotas* and is evident with *shoola* (pain) and *kricchrata* (dysuria). Acharya Charaka and Susruta have described eight types of *mutrakrcchra* while Vagbhata only mentioned four varieties.^[3,4,5]

In *Mutrakrcchra*, the vitiated *Pitta dosha* along with *Vata* (mainly *Apana Vayu*) on reaching *vasti* (bladder) afflicts the *mutravaha srotas* due to which the patient feels various symptoms related to micturition. Due to the involvement of *Pitta dosha*, urine color is yellow, voided accompanied with a burning sensation or may void only blood, and presents with fever with chills. *Kapha dosha* involvement manifests swelling and edema around the urinary bladder and region of the penis, heaviness in the abdomen, and the urine becomes slimy with the disrupted flow^[6]. The above-mentioned symptomatology has a close resemblance with UTI, as described in current medical texts, especially in lower urinary tract infections. The routine urine investigations supported the diagnosis of infection. The cause of infection during paraplegia is chronic catheterization and is associated with incomplete bladder evacuation. Infection in individuals with an indwelling catheter is usually a result of biofilm formation along the catheter that ascends into the bladder along both the internal and external catheter surfaces. Biofilm formation is universal on indwelling catheters. It is commenced immediately following catheter insertion, most catheterized patients have bladder bacteriuria by 14 days following catheter insertion^[1]. A urine culture must be recorded before the initiation of antimicrobial therapy. Treatment of asymptomatic bacteriuria in residents with indwelling catheters has been identified as a frequent cause of inappropriate antimicrobial use. Patients receiving antimicrobial therapy have a lower incidence of bacteriuria during the first four days of catheterization, but subsequently experience the same daily as patients not receiving antibiotics, while organisms isolated have increased antimicrobial resistance^[1].

Thus repeated /continuous usage of antibiotics in UTIs leads to antibiotic resistance. The case highlights the importance of *Uttaravasti* in *Mutrakrcchra* (UTI) in the case of Paraplegia and the selection of drugs as per the pathogenesis of the disease.

Case report

A 52-year-old male patient known case of paraplegia for one and half months was admitted to IPD of Kayachikitsa Dept., Govt. Ayurveda Hospital, Tripunithura, on 4/10/2017. He was catheterized and had a history of recurrent lower urinary tract infections. During management, he developed heaviness in the abdomen and both lower limbs, flank pain

along with fever and chills. In this case, the patient didn't achieve effective results with internal medications. Thus, *Uttaravasti* with *Drakshadi kashayam* (100ml) and *Dhanwantaram mezhupakam* (30ml) was planned.

Clinical findings

The patient had a history of transverse myelitis, had no history of systemic illness as well as no relevant family history. MRI report (28/9/2017) of Dorso-Lumbar spine reveals Lumbo-sacral transitional vertebra, partial lumbarization S1, straightening of the dorso-lumbar spine, disc desiccation at multiple levels. The next day of admission, baseline hematological investigations done were within normal limits. Routine urine examination revealed pus cells numerous/HPF, epithelial cells 1-2/HPF, and numerous numbers of bacteria (++).

Ayurveda parameters

On physical examination the patient was anxious, moderately nourished, with disturbed sleep, normal appetite, and tongue was uncoated. The bowel was constipated, and micturition- was under catheterization. The patient demonstrated *Vatakapha Prakriti* with *madhyam samhanana* (medium body built), *madhyam sara* (medium purest body tissue), *sama pramana* (symmetrical body proportion), *madhyam satmya* (medium homologation), *madhyam satva* (medium mental strength), *madhyam vyayamshakti* (medium capability of physical activities), *madhyam aharashakti* and *jaranshakti* (medium food intake and digestive power).

Rationale of the treatment

In *Mutrakrcchra* all *doshas* are involved but the main aggravation is *Vata dosha* with *Mutravaha sroto dusti*. The site of the disease is the lower abdomen which is the seat of *Apana Vayu*. *Uttaravasti* directly acts on the site of disease and it is considered a specific procedure for all bladder disorders. "*Uttaravastisamgya Uttara bhagam diyamantaya*"^[7] - for females there are two routes, the first one is urethral, and the second is vaginal. In contrast, in males only one route i.e., the Urethral route. *Uttaravasti* is the administration of medicines through the urethral route.

The urinary tract is inhabited by a unique urinary microbiota, alteration in the urinary microbiota has been linked to urologic diseases such as neurogenic bladder dysfunction, interstitial cystitis, and urgent urinary incontinence. The microbiome, particularly that of the gut, has a key role in the development and progression of disease within the urinary tract^[8]. In this case management of "*Krimi chikitsa siddantha*"^[9] can be considered: - 1) *Nidana*

parivarjana (periodical change of catheter and maintaining hygiene), the duration of catheterization is the most important determinant of bacteriuria. Chronic indwelling catheters always have bacteriuria, usually with multiple organisms. 2) *Sodhana* (bladder wash) and 3) *Prakriti vighattana* (alteration of favorable atmosphere in the bladder). By *uttaravasti*, the favorable media can be changed, thus helping to control the survival of the organism. It is noted that the acidic nature of body fluids is a major cause of external organisms' growth. Here removal of a catheter can change the presence of *krimi*.

Materials used for *uttaravasti*

Surgical gloves, Kidney tray, 20ml syringe, *Drakshadi kashayam*^[10], *Dhanwantaram mezhupakam*^[11], red rubber catheter (14cm).

Method of *uttaravasti*

The catheter was removed three days before the *Uttaravasti* procedure and observed there was no urinary urgency, frequency, or retention of urine. The patient was comfortable and used a plastic urinal pot for micturition. On the day of *vasti*, the patient was asked to take bath and light food and checked for voided urine and stool. The patient is prepared in a supine position, supported by a soft pillow over the lumbar region. Then the passage of the urethra was determined with the help of a ghee smeared probe (Probe test). The probe passes through the urethra without any difficulty, then the only catheter was inserted through the urethral route. The disposable rubber catheter of 14 cm in length was used after sterilization.

Table 1: Drugs for *Uttaravasti*

DRAKSHADI KASHAYAM	DHANWANTARAM MEZHUPAKAM
Mentioned in <i>Jwara chikitsa</i> , having properties <i>Pittaharam kincit vata-haram</i> , <i>Madhura tikta kashaya rasa</i> , <i>sheeta virya</i> , and acts as <i>anulomana</i> .	Mentioned in <i>Garbhavyapad sarira</i> . -Properties: <i>Madhura rasa</i> , <i>Madhura vipaka</i> , and <i>Sheeta virya</i> , indicated for <i>Sarvavata vikara</i> , <i>Mutraghata</i> , <i>Vastidwara- yonikshaya</i> , and <i>Abhighataja</i> conditions.

Administration of *Uttaravasti*

8 days *Uttaravasti* was planned as "*Yogavasti krama*". Bladder functions were restored within 4 days of the procedure. Symptoms of UTI were also reduced. Thus, *Uttaravasti* was stopped after 4 days and the catheter was removed. Before *Uttaravasti* "*Niruhavasti*" is mentioned in *Samhitas*, here in this case due to the urgency of symptoms, *Uttaravasti* was done before *Niruhavasti*. In *Yogavasti krama*, the first-day administration of *vasti* should be of *Snehana Kalpana* but in

this case first administered *Kashaya Kalpana* with *Drakshadi kashayam* due to infection, the second day with *Sneha Kalpana- Dhanwantaram mezhupakam*. Likewise, remaining days in an alternative way *Vasti* was administered.

Result and Discussion

Uttaravasti showed more significant relief on subjective complaints- heaviness in the abdomen and both lower limbs, flank pain along with fever and chills. Through urine routine examination improvement was analyzed. The microscopic examination of urine reports before and after treatment is summarized in table 2.

Table 2. Microscopic examination of urine

MICROSCOPY	BEFORE TREATMENT			AFTER TREATMENT
	3/11/2017	10/11/2017	16/11/2017	21/11/2017
Pus cells	Numerous	Numerous	8-10	2-4
Epithelial cells	0-1	1-2	2-4	2-4
Bacteria	++	Few	+	-

Table 2 described that before treatment, the number of pus cells were numerous, epithelial cells were high in number, and the presence of bacteria in urine was high. After treatment, pus cells were reduced, and also the absence of bacterial counts. No adverse effects occurred during treatment and this procedure was easily tolerated by the patient.

Drakshadi kashayam with its properties: *madhura-tikta rasa*, *sheeta virya*, *madhura vipaka*, and *pitta-vataharam* acted specifically at the site of *apana vayu* by virtue of this procedure. Hence it could pacify *Vata* and prevent the recurrence of symptoms in the patient. *Dhanwantaram mezhupakam* ingredients are *Balamoola*, *Dasamoola*, *Yava*, *Kola*, *Kulatha*, *Sariva*, etc. most of the ingredients are *guru snigdha in guna*, *sheeta virya*, *vatanubandha pitta samanam*. Thus, it depletes the *guna of vata-pitta* and also corrects the *dhatu kshaya avastha*. The *phalashruti* (indications) of this formulation includes "*Marma asthihata ksheeneshu* (individuals suffering from an injury to vulnerable spots and bones and emaciated individuals), *jwara* (fever), *mutraghata* (retention of urine), *yonirogakshayapaham* (disorders of the genital tract), *vastidwara vipannaaya kukshi praspandate* (when throbbing are seen over the abdomen near the urinary bladder during delivery in the women). These, when given as *uttaravasti*, have an added advantage that the medicines can directly reach their site of action. Here these medicines given as *uttaravasti*, change

Table 3. Subjective remarks through *uttaravasti*

S.No	Vasti	Drugs	Dose	Route	Retention time	Remarks
1.	<i>Kashaya Vasti</i>	<i>Drakshadi kashayam</i>	90 ml	Urethra	15 minutes	Got relief in the heaviness of abdomen.
2.	<i>Sneha Vasti</i>	<i>Dhanwantaram mezhupakam</i>	30 ml	Urethra	30 minutes	30% pain reduced.
3.	<i>Kashaya Vasti</i>	<i>Drakshadi kashayam</i>	90 ml	Urethra	20 minutes	60% pain reduced. Relief in fever and chills.
4.	<i>Sneha Vasti</i>	<i>Dhanwantaram mezhupakam</i>	30 ml	Urethra	30 minutes	Relief in heaviness and pain of lower limbs.

the favorable medium in the bladder to an unfavorable one. It can thus be considered as *Prakriti vighattana chikitsa* mentioned in the context of the treatment of *krimi*

Conclusion

UTI is one of the most common bacterial infections in catheterized paraplegic patients. Regular monitoring is needed. *Uttaravasti* being an effective treatment modality may be applied to catheterized bedridden patients presenting with UTI. *Drakshadi kashayam* and *Dhanwantaram mezhupakam* are cost-effective too. To stabilize the positive response of this procedure, *Samana chikitsa* may be followed with relevant drugs. Further studies are needed to validate the efficacy of the procedure.

Patient perspective

The patient was satisfied with his health improvement. He was pleased with the significant relief of symptoms.

Patient consent

Written permission for publication of this case study had been obtained from the patient.

Compliance with ethical standards

Conflict of interest : None

Ethical issues : None.

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