

AN AYURVEDIC INTERVENTION IN MANAGING RECURRENT URINARY TRACT INFECTION, POST RADICAL HYSTERECTOMY AND CHEMOTHERAPY: A CASE REPORT**Dr. Chaithra A. N.¹, Dr. Priya Bhat², Dr. Srinivasa S.³ and Dr. Sowjanya J.⁴**PG Scholar¹, Associate Professor², Professor and HOD³, Assistant Professor⁴
Department of Kayachikitsa, Shri Dharmasthala Manjunatheshwara Institute of Ayurveda and Hospital, Bengaluru-560074, Karnataka, India.***Corresponding Author: Dr. Chaithra A.N.**

PG Scholar, Department of Kayachikitsa, Shri Dharmasthala Manjunatheshwara Institute of Ayurveda and Hospital, Bengaluru-560074, Karnataka, India.

Article Received on 13/05/2025

Article Revised on 03/06/2025

Article Accepted on 23/06/2025

ABSTRACT

Urinary tract infection (UTI) is a common, distressing, and at times potentially life-threatening condition, characterized by the entry, persistence, and multiplication of bacteria within the urinary tract.^[1] UTIs are particularly prevalent among cancer patients, often arising as a complication of chemotherapy due to immunosuppression.^[2] Additionally, women who have undergone Radical Hysterectomy are at increased risk of developing recurrent UTIs, owing to anatomical and functional changes in the pelvic region that affect bladder dynamics and urinary tract integrity.^[3] The condition typically presents with symptoms like dysuria accompanied by burning micturition, increased urinary frequency, and urgency.^[4] In Ayurvedic terms, these symptoms correlate with *Pittaja Mutrakrichra*, wherein the vitiated *Pitta dosha*, in association with *Apana Vayu*, affects the *Basti* (bladder) and disturbs the *Mutravaha Srotas* (urinary channels), leading to manifestations such as *Peetamutrata* (yellow urine), *Sadahamutrata* (burning urination), *Krichramutrata* (difficulty in urination), *Saraktamutrata* (haematuria), and *Muhurmuhurmutra Pravritti* (frequent urination).^[5] Management of *Mutrakrichra* involves *Shamana* (palliative therapy) through *Pitta-hara* (cooling and anti-inflammatory), *Vatanulomana* (regulation of vata), and *Basti Shodhana* (cleansing of the bladder). In this case study, a 37-year-old female with a history of radical hysterectomy and post chemotherapy diagnosed with recurrent UTI was treated with *Shamana* and *Rasayana* (rejuvenative) therapies as per Ayurvedic principles. The treatment led to significant improvement in symptoms and normalization of urine examination findings without any side effects. Notably, there was no recurrence of UTI during the follow-up period. This case highlights the efficacy of Ayurvedic management in addressing *Mutrakrichra*, offering a holistic and sustainable approach to treating recurrent UTIs.

KEYWORDS: Urinary tract infection, Cystitis, *Pittaja Mutrakrichra*, Radical Hysterectomy, Chemotherapy, *Rasayana*.**INTRODUCTION**

Urinary tract infection (UTI) is defined as the presence and proliferation of bacteria within the urinary tract, leading to infection. It is diagnosed when pathogenic microorganisms are identified in the urine, urethra, bladder, kidneys, or prostate. Typically, a UTI is confirmed by the growth of more than 10⁵ colony-forming units (CFU) per millilitre from a properly collected midstream urine sample.^[6] In females, the incidence of UTI ranges from 0.5 to 0.7 episodes per person per year, with approximately 25% experiencing recurrent infections.^[7]

Recurrent urinary tract infections (UTIs) are defined as the occurrence of at least three symptomatic episodes within the past 12 months, or at least two episodes within

the previous six months. These repeated infections often lead to a diminished quality of life. The presence of predisposing factors increases the host's susceptibility to developing complicated UTIs.^[8]

A 2022 study reported that 82.6% of UTIs occurred during chemotherapy cycles. Chemotherapy-induced neutropenia, characterized by a significant reduction in neutrophils, weakens the immune system, increasing susceptibility to infections. Additionally, damage to anatomical barriers such as the skin and mucous membranes further elevates the risk. Chemotherapy may also directly affect the bladder and urinary tract, contributing to UTIs by damaging healthy cells and reducing the body's ability to fight infections.^[9]

Radical hysterectomy, which involves the removal of the uterus, cervix, surrounding tissues, and often the ovaries, can lead to hormonal changes—especially estrogen deficiency when the ovaries are removed. This hormonal shift, combined with surgical disruption of pelvic nerves and structures, can impair bladder function and vaginal flora, leading to increased susceptibility to recurrent urinary tract infections (UTIs). Estrogen plays a key role in maintaining the integrity of the urogenital mucosa and supporting the growth of protective Lactobacilli; its deficiency creates an environment conducive to bacterial colonization and infection.^[10]

In Ayurvedic classics, urinary disorders are broadly classified into *Mutraghata* (obstruction of urine) and *Mutrakrichra* (dysuria). Among these, *Mutrakrichra* is a condition extensively described by all the *Acharyas*. The term "*Mutrakrichra*" is derived from two Sanskrit words: *Mutra* (urine) and *Kruchra* (difficulty), referring to painful or difficult urination. It can manifest as an independent disease or as a symptom associated with other underlying conditions, depending on the *doshik* imbalance and affected *srotas* (channels).

Immunity plays a pivotal role in the pathogenesis and recurrence of urinary tract infections (UTIs). Individuals with weakened immune responses are more susceptible to repeated infections, as their bodies are less capable of eliminating pathogens and maintaining urinary tract integrity. In Ayurveda, strengthening immunity is a key focus in the management of recurrent UTIs. This is achieved through *Shamana* (palliative treatments) to pacify the vitiated dosha and *Rasayana* (rejuvenative therapy) to enhance overall vitality and immune function.

Among these, *Rasayana* therapy holds particular significance in preventing recurrence. *Rasayana* drugs and formulations are known to rejuvenate the body's tissues, improve systemic resistance, and restore the balance of *dosha*. They not only aid in faster recovery but also provide long-term protection by enhancing *ojas*—the essence of immunity. Regular use of *Rasayana* in individuals prone to recurrent UTIs can strengthen the *mutravaha srotas* (urinary channels), restore natural defence mechanisms, and reduce the likelihood of future infections.

CASE REPORT

A 37-year-old female from Yelahanka, Bengaluru, Karnataka (OPD No. 331858), presented to SDM Institute of Ayurveda and Hospital, Bengaluru, on 21/02/2024 with complaints of intermittent burning micturition, increased urinary frequency with scanty flow, and urgency. These symptoms had been recurring intermittently over the past year, with marked aggravation in the last two days.

The patient's medical history revealed a diagnosis of carcinoma of the fallopian tube in March 2022. She was

treated with corticosteroids, underwent multiple surgical interventions including radical hysterectomy, and completed three cycles of chemotherapy.

Approximately three months post-treatment, the patient began experiencing a burning sensation during micturition, with urinary frequency increasing to 9–10 times during the day and 6–7 times at night. She also reported a compelling urgency to urinate every 2 minutes, often passing only 2–3 drops of urine at a time. She consulted an allopathic physician and was diagnosed with urinary tract infection (UTI). Antibiotic therapy was initiated, which provided temporary relief; however, symptoms consistently recurred upon discontinuation of the medications.

Over a period of six months, she was intermittently treated with Nitrofurantoin (Niftas) 100 mg once daily, yet the recurrence of UTI symptoms persisted.

Investigations

Routine haematological investigations were within normal limits.

Urine routine microscopy dated 24/01/2024 revealed positive nitrates, 179 WBCs/HPF, and 764 bacilli/HPF, indicating a urinary tract infection.

Urine culture performed on the same date showed significant growth of *Klebsiella pneumoniae* (>100,000 CFU/mL).

Ultrasound of the abdomen, conducted on 29/01/2024, demonstrated mild right-sided hydronephrosis, which was noted to reduce following voiding, suggestive of a non-obstructive or functional etiology.

Assessment

On clinical examination, the patient's *prakruti* (constitutional type) was identified as *Pitta-Kaphaja*. Both *agni bala* (digestive capacity) and *shareera bala* (physical strength) were assessed to be of *madhyama* (moderate) level. Systemic examination did not reveal any significant abnormalities. The underlying pathology (*vyadhi*) appears to involve the vitiation of *Pachaka Pitta* and *Apana Vata* doshas. The Core Lower Urinary Tract Symptom Score (CLSS)^[11] was 24 out of 30, indicating a significant impact on the patient's quality of life.

Chikitsa vrittanta

The patient has a history of lower segment caesarean section (LSCS) performed in 2018.

In 2023, she was diagnosed with carcinoma of the fallopian tube, for which she underwent radical hysterectomy, followed by three sessions of chemotherapy in the same year.

She has been taking Tablet Niftas (Nitrofurantoin) once daily intermittently for 6 months as part of her ongoing

urinary tract management.

no hospitalization was required during the course of therapy.

Management of the condition

Considering the history, clinical examination and investigation following treatments were prescribed in this case. [Table 1] The treatment was well tolerated, and

Table 2: Treatment given along with remarks.

Date	Treatment given	Remarks
13/02/2024	<ul style="list-style-type: none"> ➤ Gokshuradi guggulu 1-1-1 A/F ➤ Tab Neeri 1-0-1 A/F ➤ Brihatyadi Kashaya 15ml-15ml-15ml B/F 	c/o increased frequency of urine (every one hour) with burning sensation and occasional chills since-2 days
28/02/2024	<ul style="list-style-type: none"> ➤ Same medicines were continued 	Burning micturition reduced Frequency of urination – 5-6times per day, 1-2times/night
11/03/2024	<ul style="list-style-type: none"> ➤ Stopped Tab Neeri ➤ Added Shatavari guda 0-0-1tsp A/F along with above oral medications ➤ V-Gel for E/A 	C/O itching and dryness in the vaginal region Burning micturition reduced Frequency of urination – 5-6times per day, 1-2times/night
08/04/2024	<ul style="list-style-type: none"> ➤ Vastyamayantaka grita 10ml-0-0 BF was started along with above medications 	Burning micturition occasionally Frequency – normal
26/04/2024 OPD – visits on 27/05, 03/07	<ul style="list-style-type: none"> ➤ Orally same medications were continued 	Occasional burning sensation on urination + Mild itching over vaginal area+
09/08/2024 – 06/11/2024	<ul style="list-style-type: none"> ➤ Orally same medications were continued 	C/O burning micturition reduced completely and there was no recurrence of symptoms
08/01/2025, 07/03/2025, 21/04/2025	<ul style="list-style-type: none"> ➤ Orally same medications were continued 	No recurrence of UTI

Note: Upon initiating Ayurvedic treatment, the patient discontinued oral antibiotic therapy (Tablet Niftas) on her own.

OBSERVATION AND RESULTS

The patient was initially followed up every 15 days for the first month, and subsequently on a monthly basis. Over this period, the patient showed gradual and sustained improvement in clinical symptoms. The patient initially reported symptoms of burning micturition, dysuria, intermittent chills, scanty urine output, and increased urinary frequency—up to once every hour. At present, the patient reports no burning sensation during urination. Urinary frequency and flow have normalized, with no recurrence of chills or dysuria. Importantly, there has been no recurrence of urinary tract infection (UTI) despite not using antibiotics, following the initiation of Ayurvedic treatment. Urine routine microscopy on 12/02/2024 showed yellow-coloured urine with blood (+), 764 bacilli/HPF, 179 WBCs/HPF, 2 RBCs/HPF and 3 epithelial cells/HPF. On 23/02/2024, a follow-up urine test showed improvement: bacilli reduced to 380/HPF, WBCs to 100/HPF, no RBCs, no epithelial cells. These findings corresponded with the patient’s clinical improvement. Subsequently, as the patient became asymptomatic with complete resolution of burning, dysuria, urgency, and normalization of urinary flow no further laboratory investigations were deemed necessary. The Core Lower Urinary Tract Symptom Score (CLSS),

which was 24/30 prior to treatment, dropped significantly to 02/30, indicating near-complete resolution of symptoms and a significant improvement in quality of life.

DISCUSSION

In the present case, the primary signs and symptoms included increased frequency, burning micturition, urgency, and scanty urine flow. Chemotherapy can be considered a form of Teekshna Aushadhi (intense or penetrating medication), which is identified in Ayurveda as a potential Nidana (causative factor) for Mutrakrichra.^[12] Its action tends to aggravate Pitta and Vata doshas and promotes the formation of Ama (metabolic toxins). Additionally, the radical hysterectomy leading to reduced estrogen levels can be understood as sthanika vata prakopa, and subsequent anatomical and physiological changes in the vaginal region.

Dietary factors (Aharaja Nidana), such as intake of Ruksha (dry) and Vidahi ahara (irritating or inflammatory food and beverages), along with improper lifestyle habits (Viharaja Nidana) like Vega Dharana (suppression of natural urges), would have further

impaired *Agni* (digestive/metabolic fire). This resulted in the vitiation of *Pitta* (*pachaka pitta*) and *Vata* (*Apana vata*), which then localized in the *Basti* (urinary system), leading to *Mutravaha Srotodushti* (impairment of the urinary channels) and the manifestation of *Pittaja Mutrakrichra*.

Moreover, the combined impact of surgery and chemotherapy likely diminished *Ojas* (vital immunity), thereby increasing vulnerability to recurrent urinary tract infections. However, following the initiation of Ayurvedic treatment, there has been no recurrence of UTI, and antibiotic use was not required.

Given that the condition was diagnosed as *Pittaja Mutrakrichra*, the treatment primarily focused on the *Pitta-hara* approach, along with *Basti Shodhana* and *Mutrala* (urinary cleansing therapies). As immunity played a crucial role in this case, *Rasayana* therapy was strategically employed to boost the immune function and prevent recurrence.

Gokshuradi Guggulu^[12] is a classical Ayurvedic formulation comprising *Gokshura* (*Tribulus terrestris*), which is *madhura* (sweet) in taste and endowed with *sheetala* (cooling), *basti shodhana* (bladder-cleansing), *vatanulomana* (Vata-regulating), and *pittahara* (Pitta-pacifying) properties—making it particularly beneficial in conditions like *Pittaja Mutrakrichra*. The formulation also includes *Triphala* and *Trikatu*, which serve as bio-enhancers, improving the absorption and efficacy of the formulation. *Musta* (*Cyperus rotundus*), known for its *tikta rasa* (bitter taste) and *sheeta veerya* (cool potency), exhibits *jwarahara* (antipyretic) and *jantuhara* (antimicrobial) actions, contributing to its therapeutic benefit in urinary disorders. Additionally, *Guggulu* (*Commiphora mukul*), a key component, provides potent anti-inflammatory effects, further supporting the management of inflammation and infection in the urinary tract.

Neeri Tablet is a polyherbal Ayurvedic formulation widely used in the management of urinary tract infections (UTIs). It possesses antimicrobial, anti-inflammatory, and diuretic properties, making it effective in relieving symptoms such as burning micturition, dysuria, and urinary urgency. The formulation acts as a natural urinary alkalizer, helping to soothe the inflamed urinary tract and maintain a healthy urinary pH.

Brihatyadi Kashaya^[14] is a classical Ayurvedic formulation indicated in urinary disorders, particularly effective in conditions like *Pittaja Mutrakrichra*. Its principal ingredient, *Brihati* (*Solanum indicum*), exhibits *amahara* (detoxifying), *dipana-pacana* (digestive and metabolic enhancing), and anti-inflammatory properties, making it beneficial in managing infection and inflammation of the urinary tract. *Prishniparni* (*Uroaria picta*), another key component, has *madhura* and *tikta rasa*, *sheeta virya*, and *dahahara* (burning sensation-

relieving) properties, contributing to its cooling and soothing action. Additionally, *Nidigdihika/Kantakari* (*Solanum xanthocarpum*) offers *pittahara*, *amahara*, *mutrala* (diuretic), and *krimihara* (antimicrobial) effects, making the formulation effective in alleviating burning micturition, promoting urinary flow, and reducing infection. Collectively, these ingredients synergistically support the management of UTIs by reducing inflammation, clearing toxins, and restoring urinary tract function.

Vastyamayantaka Ghrita^[15] is a classical Ayurvedic formulation, typically administered after *amapachana* (digestion of toxins) has been achieved. It is composed of *sheetala* (cooling), *mutrala* (diuretic), and *basti shodhana* (bladder-cleansing) *dravyas*, including *Sariva*, *Yashtimadhu*, *Shalaparni*, *Ikshu*, *Gokshura*, *Shatavari Swarasa*, *Narikela Jala*, *Kushmanda Rasa*, and *Ervaru Jala*. Additionally, it contains potent *Rasayana* agents that specifically target the rejuvenation of the urinary system, such as *Gokshura*, *Guggulu*, *Ghrita*, *Ksheera*, *Amalaki*, *shilajatu*, *apamarga*, *punaranava*, *ashwagandha* and *Brihati*. This carefully selected combination of ingredients enables the formulation to effectively act as a *basti shodhana*, *mutrala*, *vatanulomana*, and *Rasayana*, promoting urinary tract health, reducing inflammation, enhancing immunity, and preventing the recurrence of urinary disorders like *Pittaja Mutrakrichra*.

Shatavari Guda^[16] was included in the treatment regimen due to the patient's history of radical hysterectomy. *Shatavari* acts as a natural supplement of estrogen and possesses various beneficial properties, including *sheetala* (cooling), *pittahara* (Pitta-pacifying), and diuretic actions. It also serves as a *Rasayana*, promoting overall rejuvenation. Furthermore, *Shatavari* helps alleviate symptoms such as vaginal dryness, which may contribute to recurrent urinary tract infections (UTIs), by supporting hormonal balance and improving mucosal health.

CONCLUSION

In the current case, the patient was diagnosed with *Pittaja Mutrakrichra* - Recurrent Urinary Tract Infections (*UTI*), which primarily resulted from the combined effects of a radical hysterectomy and chemotherapy, along with contributing factors related to *Aharaja* (dietary habits) and *Viharaja* (lifestyle) *Nidanans* (causative factors). The treatment approach focused on *Shamana* (palliative) therapies aimed at *Pittahara* (Pitta pacifying), *Vatanulomana* (Vata regulating), and *Basti Shodana* (cleansing of the urinary system).

Once the *Amavastha* (toxic stage) was treated, a *Rasayana* (rejuvenating) line of management was introduced to support the body's immune function and prevent the recurrence of UTI. The patient showed significant improvement and did not require oral antibiotics during the course of treatment. Notably, there

was no recurrence of UTI, demonstrating the effectiveness of Ayurvedic therapies in managing complex post-surgical and post-chemotherapy conditions.

REFERENCES

1. Flores-Mireles AL, Walker JN, Caparon M, Hultgren SJ. Urinary tract infections: epidemiology, mechanisms of infection and treatment options. *Nat Rev Microbiol*, May 2015; 13(5): 269–84. doi:10.1038/nrmicro3432.
2. Gea-Banacloche JC. Infection in cancer patients. In: *Bennett JE, Dolin R, Blaser MJ, editors. Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases*. 9th ed. Philadelphia: Elsevier, 2020; 3393–3407.
3. Chen GD, Lin LY, Hu SW, Lin YH. Lower urinary tract symptoms and urodynamic findings after radical hysterectomy. *Am J Obstet Gynecol*, Jan 2002; 186(1): 60–5. doi:10.1067/mob.2002.118091.
4. Kasper DL, Braunwald E, Fauci AS, Hauser SL, Longo DL, Jameson JL, editors. *Harrison's Principles of Internal Medicine*. 15th ed. New York: McGraw-Hill, 2001; 3234.
5. Acharya YT, (Reprint edition 2013) *Charaka Samhita, Chikitsa Sthana chapter 26 verse 34, Varanasi Chaukhambha Sanskrit Series, 2013; 599.*
6. Kasper DL, Braunwald E, Fauci AS, Hauser SL, Longo DL, Jameson JL, editors. *Harrison's Principles of Internal Medicine*. 15th ed. New York: McGraw-Hill, 2001; 3235.
7. Kasper DL, Braunwald E, Fauci AS, Hauser SL, Longo DL, Jameson JL, editors. *Harrison's Principles of Internal Medicine*. 15th ed. New York: McGraw-Hill, 2001; 3236.
8. Aydin A, Ahmed K, Zaman I, Khan MS, Dasgupta P. Recurrent urinary tract infections in women. *Int Urogynecol J.*, Jan. 2015; 26(1): 11–7. doi:10.1007/s00192-014-2531-3.
9. Khemiri S, Masmoudi S, Mezghanni S, Ben Kridis W, Hammami A, Khanfir A. Urinary tract infections in patients with solid tumors: retrospective study. *J Clin Nephrol Ren Care*, 2022; 8: 075. doi:10.23937/2572-3286.1510075.
10. Ravel J, Gajer P, Abdo Z, Schneider GM, Koenig SSK, McCulle SL, et al. Vaginal microbiome of reproductive-age women. *Proc Natl Acad Sci U S A.*, Aug. 2, 2011; 108(1): 4680–7. doi: 10.1073/pnas.1002611107.
11. Homma Y, Yoshida M, Seki N, Yokoyama O, Kakizaki H, Gotoh M, et al. Core lower urinary tract symptom score (CLSS) questionnaire: a reliable tool in the assessment of lower urinary tract symptoms. *Int J Urol.*, 2009; 16(9): 816–20.
12. Acharya YT, (Reprint edition 2013) *Charaka Samhita, Chikitsa Sthana chapter 26 verse 32, Varanasi Chaukhambha Sanskrit Series, 2013; 599.*
13. Shastri DM, (edition 2020), *Sharangadhara Samhitha, Madhyama Khanda, chapter 7 verse 84-87, Varanasi Chaukhambha Sanskrit Series, 2020; 312.*
14. Shastri HS, (edition 2022), *Ashtanga Hridaya, Chikitsa Sthana, chapter 11 verse 35, Varanasi, Chaukhambha sanskrit series, 2022; 675.*
15. Nitheshwar, Vidyanath, (edition reprint, 2017), *Sahasra Yogam, Gritha prakarana, Varanasi Chaukhambha Sanskrit Series, 2017; 75.*
16. Nitheshwar, Vidyanath, (edition reprint, 2017), *Sahasra Yogam, Leha prakarana, Varanasi Chaukhambha Sanskrit Series, 2017; 258.*