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Review Article

Integrative Approaches to Hasaat Kuliya (Nephrolithiasis) In Unani and Conventional Medicine

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Abstract:

Nephrolithiasis is a significant global health issue characterized by a complex pathophysiology, multifactorial etiology, and high recurrence rates. In the Unani System of Medicine, renowned physicians have extensively described the anatomy and physiology of the renal system, the pathophysiology of urolithiasis, surgical interventions, and Unani medicines for its management. Renal stones, referred to as "Hasaate Kulya" in Unani medicine, are believed to form due to the active power (Quwate-e-Taayelah) that increases kidney temperature. According to Unani principles, stone-forming substances are viscous in nature, such as phlegm, sticky blood, or pus. When the expelling power (Quwate-e-Daafeh) weakens, these substances accumulate in the kidney's calyces, leading to stone formation. The primary goal of nephrolithiasis treatment in Unani medicine is to eliminate morbid and abnormal humors from the body through the excretory system. Management strategies include Ilaj Bil-Ghiza (Dietotherapy), Ilaj Bit-Tadbeer (Regimental Therapy), and Ilaj Bid-Dawa (Pharmacotherapy). This review explores the formation and types of stones, associated risk factors, clinical signs and symptoms, diagnostic methods, preventive measures, and the management of renal stones through both conventional and Unani systems of medicine.

Keywords: nephrolithiasis; hasaat kuliya; abnormal humours;prevention; unani management

Introduction

Nephrolithiasis, also known as kidney stones, kidney calculi, or renal stones, refers to the presence of stones in the kidney's pelvis or calyces. It is one of the oldest recorded diseases, with lithotomy being among the earliest known surgical procedures. (1) Globally, nephrolithiasis affects approximately 12% of the population, with men (12%) being more commonly affected than women (6%). (2) The condition is most prevalent in individuals aged 20–40 years, with incidence rates decreasing after 60 years. Economic development and dietary habits have contributed to an increased prevalence of kidney stones in Western societies over the last five decades.[1,2]

Although less common in children and adolescents, renal calculi in the pediatric population are usually idiopathic or associated with inborn errors of metabolism, congenital urological anomalies, or immobilization.[1,3]In adults, the etiology is often multifactorial, with dietary, environmental, and metabolic factors playing significant roles.[3]

Epidemiology

Globally, 15% of the population is affected by nephrolithiasis, with 2.3% prevalence in India. Approximately 5–7 million people in India suffer from kidney stones, with 1 in 1000 requiring hospitalization annually. (4) Northern Indian states report higher prevalence rates compared to the southern regions, likely due to environmental factors and dietary habits. Kidney stones are more common in warmer climates, particularly during summer, due to dehydration and concentrated urine.[4-6]

Risk Factors[5-7]

The development of renal calculi is influenced by multiple factors:

Dietary And Lifestyle Factors: Excessive intake of calcium, oxalates (e.g., spinach, tomatoes), and vitamin D, combined with inadequate hydration.

Metabolic Disorders: Conditions such as hyperparathyroidism, cystinuria, and gout.

Environmental Factors: Hot, dry climates increase the risk of dehydration.

Anatomical Abnormalities: Issues like ureteropelvic junction obstruction, horseshoe kidney, and medullary sponge kidney predispose individuals to stone formation.

Infections: Organisms such as Proteus, Pseudomonas, and Klebsiella produce urease, which can cause urine stasis and promote stone formation.

Obesity and Hypertension: Both conditions are associated with higher stone formation rates.

Unani Concept of Renal Calculi [8-10]

In Unani System of Medicine Renal stone is referred as "Hasaate Kulya". According to Unani scholars, calculi is formed due to morbid matter accumulating in the kidneys, influenced by various factors:

Ali Ibn-e-Majoosi: Concentrated humors and viscous fluids adhere to the kidney's calyces and dry under intense heat, forming stones.

Galen: Kidney ulcers produce pus, which, if not expelled, solidifies and forms stones.

Ibn-e-Sina: Stones are shaped by Quwat-e-Faild (dynamic power), raised kidney temperature, and Madda-al-hasah (lithic matter), including phlegm, viscous blood, or pus. He noted differences in renal and bladder stones, with renal calculi being smaller, softer, and reddish compared to bladder stones, which are larger, harder, and pale or dark.

Shaikh: Dietary habits like consuming thick milk, paneer, uncooked meat, and rich desserts lead to the formation of viscous matter (khilte ghaleez), contributing to stone development when the kidney's expulsive power weakens.

Aetiopathogenesis

According to Unani Concept, weakness of kidney, thiick & viscous humor, concentrated & sticky fluid, Sue Mizaj Kulyah (ill temperament of kidney), Warm-e-Kulyah (nephritis), Qurooh–e-Kulyah (ulceration of thebkidney), weakness of expulsive power (Quwwat-e-Dafey'ah) of kidney and high virulent temperature are considered as primary causes for nephrolithiasis. [8,9,11]While according to recent concept the major risk factors responsible for the nephrolithiasis are inadequate urinary drainage, microbial infections, diet with excess oxalates and calcium, vitamin abnormalities i.e.; deficiency of Vitamin-A, excess of vitamin D, metabolic diseases like hyperparathyroidism, cystinuria, gout, intestinal dysfunction and environmental factors related to regions with hot and dry climatic conditions.[3,4]

Formation of Renal Stones:

Renal stone formation involves physicochemical processes, particularly urine supersaturation, which leads to crystallization. Supersaturation occurs when dissolved substances in urine exceed their solubility limits. Key factors include: [12,13]

Urine pH: Influences crystal formation and dissolution.

Ionic Concentration: Determines the likelihood of stone formation.

Types of Renal Stones

Renal stones vary by composition, size, and appearance:

Calcium Oxalate Stones: Hard, irregular, radiodense; comprise 75–85% of stones.

Phosphate Calculi: Smooth, dirty white, alkaline urine; may form staghorn calculi (5–10%).

Uric Acid and Urate Stones: Hard, smooth, multiple; radiolucent (5–10%).

Cystine Stones: Hexagonal, translucent, found in acidic urine (1%).

Xanthine Stones: Rare, round, brick-red (<1%).

Clinical Features[14-15]

- Pain:Pain is the leading symptom in 75% of the people with renal stones.
- Pain in renal angle is the most common symptom. It may be sharp or dull,constant or intermittent colicky and may be shooting down to the front of thethighortesticleorvulvaonthatside.Itmaybeincreaseinc aseofconstipation.78
- Ureteric colic: There is a pattern of severe exacerbation on a background ofcontinuing pain, radiates to the groin, penis, scrotum or labium as the stone progresses down the ureter.
- Pyuria: Infection is likely in the presence of stones and is particularlydangerouswhenthekidneyis obstructed.
- Haematuria: Haematuria is sometimes is a leading symptom of stone.
- Pain in the lower back
- Heavinessinthelowerback
- Burningmicturition
- Decreasesfrequencyofmicturition
- Dysuria
- Nausea
- Vomiting
- During attack of pain lateral abdominal muscles are rigid and tenderness in renal angle. Palpable lumps are found during hydronephrosis.

Prognosis and Recurrence[1,2,16]

Nephrolithiasis has a high recurrence rate, with a 50% likelihood of developing another stone within 5–10 years. Lifetime recurrence is higher in males, although rates are increasing among females. Without proper management, recurrence rates can reach 75% over 20 years.

Management [12,13]

Initial Management[1,2,14-16]

Patients with renal stones are often dehydrated due to reduced oral fluid intake and/or vomiting. Therefore, it is essential to assess for dehydration and provide adequate fluid resuscitation if needed.

In most cases, renal stones, particularly those in the distal ureter or measuring less than 5 mm in diameter, pass spontaneously without requiring further intervention. Ensuring that patients have effective pain relief is critical to their management. If there is evidence of

significant infection or sepsis, prompt administration of intravenous antibiotics is recommended.[14]

Stent Insertion or Nephrostomy: [15,16,17]

Patients with obstructing stones may require primary intervention, such as ureteroscopy or Extracorporeal Shock Wave Lithotripsy (ESWL), to clear the stone. However, if there are signs of infection or acute kidney injury, urgent decompression is necessary, typically through stent insertion or nephrostomy.[15,16]

Retrograde stent insertion involves placing a stent within the ureter via cystoscopy, approaching from distal to proximal. This procedure maintains ureteral patency and provides temporary relief from obstruction.[17]

A nephrostomy, on the other hand, involves placing a tube directly into the renal pelvis and collecting system to relieve the obstruction proximally. If needed, an anterograde stent can later be inserted through the same tract

Definitive Management[15,16,17]

Definitive treatment of retained renal or ureteric stones can be achieved by several methods for stones that do not pass spontaneously.[14]

Extracorporeal Shock Wave Lithotripsy (ESWL) uses targeted sonic waves to fragment stones, allowing them to be passed spontaneously. It is typically reserved for small stones (<2 cm) and is performed under radiological guidance, such as X-ray or ultrasound imaging. Contraindications include pregnancy, anticoagulant use, and coagulopathies.

Percutaneous Nephrolithotomy (PCNL) is the preferred method for managing large renal stones. This procedure involves percutaneous access to the kidney, followed by the insertion of a nephroscope into the renal pelvis. Stones are then fragmented using various forms of lithotripsy.[17]

Flexible Ureterorenoscopy (URS) involves the retrograde passage of a scope into the ureter, enabling stone fragmentation via laser lithotripsy. The resulting fragments are subsequently removed. (16,18)

Complications:[19,20]

The main complications that can occur from ureteric stones is infection and post-renal acute kidney injury, however both can be treated if managed early.

Recurrent renal stones can lead to renal scarring and loss of kidney function

Usūl-i 'Ilāj (Principles of Treatment)[21]

Unani physicians adopted a well-organized line of treatment in the management of Hasate Kulya. The line of treatment is as follows:

- Removal of Asbabe Maddi (causative material).
- Use of Mufattite Hasat (lithotriptic drugs).
- Use of Mudire Baul (diuretics drugs).

Unani Treatment[21,22]

In the Unani system of medicine, the principal aim of the treatment for nephrolithiasis is to make morbid and abnormal humors easily extractible from the body through the excretory system. It broadly involves three types of therapy as follows:

- Ilaj Bil-Ghiza (Dietotherapy)
- Ilaj Bit-Tadbeer (Regimental Therapy)
- Ilaj Bid-Dawa (Pharmacotherapy)

Ilaj Bil-Ghiza (Dietotherapy)[23]

In this therapy, plenty of fluids and easily digestible foods like Aab-e-Naryal (coconut water), Jau, barley, Nashpati (pear), Magz-e-Badam (almond), Gazar (carrot), and Karela (bitter gourd) should be used.[22]

High-quantity oxalate-containing diets such as Asfanakh (spinach), Cholayi (amaranth leaves), Tamatar (tomato), Amlah (Emblica Myrobalan), Cheekoo (sapodilla), Kaju (cashew nut), Kheyar (cucumber), and uric-acid-containing diets such as Phool Gobhi (cauliflower), Kaddu (pumpkin), Mushroom, and Baigan (brinjal) should be avoided.[23,24]

Hard and late-digestible diets like milk, meat, mutton, Fateeri Roti, Maidah ki Roti, apple, and guava should also be avoided.

Ilaj Bit-Tadbeer (RegimentalTherapy)[24,25]

The basic aim of this type of therapy is Talteef-e-Maddah (softening the disease matter) and Taqtee-e-Maddah (resolving the disease matter). For this purpose, the patient is instructed to vomit out and use mild Mushilat (purgatives) like Sapistan (Cordialatifolia), Anjeer (Ficus carica), Aslussoos (Glycyrrhiza glabra), and Khatmi (Althaea officinalis seed).[23,24]

Mudirrat (diuretics) with medicines that do not have excess hot temperament, such as Tukhm-e-Khyarain (Cucumis sativus & Cucumis melo seeds), Tukhm-e-Kaddu (Cucurbita moschata [Duchesne] Poir.), Halyoon (Asparagus officinalis), Kaknaj (Physalis alkekengi), Khar-e-Khasak (Tribulus terrestris), and Persiya wa Shan (Adiantum capillus-vereris) are also to be used.[24]

Fasad (venesection) should be done on Rag-e-Basaleeq (Baselic Vein) when severe pain arises, but only if the patient has abundant blood.[23]

Huqna (enema) of Mulayyin and Muzliq (laxative & emollient) such as:[24]

Tukhm-e-Khatmi (Althaea officinalis), Tukhm-e-Katan (Linum usitatissimum), and Aspaghol (Plantago ovata Forsk.) as well as Murakhkhi wa Mudir (slackening & diuretic) agents like Khurfah (Portulaca oleracea Linn.), Bekh-e-Kibr (Capparis spinosa), and Persiya wa Shan (Adiantum capillus-vereris) are advised to the patient in case of constipation. [24,26]

Aabzan (sitz bath) is recommended to relieve pain. It should be prepared using a decoction containing Musakkin wa Murakhkhi (sedative & slackening) drugs such as Baboona (Matricaria chamomilla), Khatmi (Althaea officinalis), Shibt (Anethum sowa Kutz.), and Karafs (Apium graveolens). This bath should be taken by the patient as advised.[25,26]

Ilaj Bid-Dawa Pharmacotherapy)

The recommended principles of treatment to control nephrolithiasis and to expel outthe destroyed stones are illustrated as Tafteet-e-Hisat (Litholytic/Lithotriptic), Idrar-e-Baul(Diuresis), Tahleel-e-Waram (Resolution), along with Taqwiyat-e-Kulyah (Nephroprotective). Keeping in view of these above pharmacological properties, the unani drugs to be prescribed in nephrolithiasis. (25,26)

Single Drugs:

Aalu Balu (Prunuscerasus linn), Habb-ul-Qilt (Dolichosbiflorus), Khar-e-Khasak (Tribulusterrestris), Habb-e-Kaaknaj (Physalis alkekengi), Tukhm-e-Kharpaza (Cucumis melo linn), Sang–e-

sarmahi (Fishstone), Jawakhar (Potassiumcarbonate), Hajr-ul-Yahoo (Lapisjudaicus (Jewesstone), Tukhm-e-Khayaar (Cucumis sativuslinn), Shorah qalami (Potassium nitrate) Charchatah (Achyranthesaspera) Aqrab Sokhata (Burnt scarpion) Tukhm-e-Gazar (Daucuscarota Linn).[27,28]

Compound formulations-:

Qurs Kaknaj, Qurs KushtahbHajr-ul-Yahood, Kushtah Hajr-ul-Yahood, Majun Hajr-ul-Yahood, Majun Aqrab, Majun Sang-e-Sarmahi, Sharbat AluBalu, Sharbat Buzoori Motadil, Iksir-e-Gurda, Jawarish Zaruooni Sada, Jawarish Zaruoon Ambari, Jawarish Jaleenoos, Jawarish Jaleenoos, Jawarish Zaruooni Ambari.[24]

Prevention:[3,5,8]

Modern understading of nephrolithiasis pathophysiology has improved treatment approaches. Phytotherapy, involving plant-based remedies, offers a promising alternative due to its safety and cultural acceptance. The Unani system of medicine provides detailed insights into managing renal calculi through herbal and dietary remedies.[3,4,6]

Hydration: Maintaining adequate fluid intake to dilute urine.

Diet: Reducing intake of oxalate-rich foods and animal proteins.

Lifestyle Modifications: Weight management and regular physical activity.

The integration of natural products and traditional medicine into modern practices highlights the efficacy of holistic approaches in treating and preventing kidney stones.

Conclusion:

In conclusion, nephrolithiasis, known as "Hasaate Kulya" in the Unani System of Medicine, is recognized as a significant health challenge with a multifaceted etiology and recurrent nature. The Unani perspective emphasizes the role of imbalanced humors, weakened excretory power (Quwate-e-Daafeh), and viscous matter in the pathogenesis of renal stones. The comprehensive treatment approach aims to restore balance and facilitate the elimination of abnormal humors using dietotherapy (Ilaj Bil-Ghiza), regimental therapy (Ilaj Bit-Tadbeer), and pharmacotherapy (Ilaj Bid-Dawa). These holistic strategies underscore the integrative and preventive potential of the Unani system in managing and mitigating nephrolithiasis effectively.

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