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Nephrolithiasis (Hisat-E-Kulyah) and Its Management: An Overview

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Abstract

Nephrolithiasis is one of the most common health problems that affect approximately 15 % population worldwide and about 2.3% population of India. Most (75% to 80%) kidney stones are calcium stones, composed of calcium oxalate and/or calcium phosphate. These stones are generally associated with high concentration of calcium in the blood or urine. The classical features of renal colic are sudden severe pain. It is usually caused by the stones in the kidney, renal pelvis or ureter, causing dilatation, stretching and spasm of the ureter. Pain starts in the loin about the level of the costovertebral angle. Typical symptoms of acute renal colic are intermittent colicky flank pain that may radiate to the lower abdomen or groin, often associated with nausea and vomiting. Many stones are asymptomatic and discovered during investigations for other conditions. Small urinary calculi pass out of the body without any clinical intervention. According to Jaleenoos (Galen) renal stones are formed when rooh (gaseous matter) is trapped in the spaces of the kidney and consolidates to form hard substances. Another cause of renal calculi is ulceration of the kidney, in which pus accumulates and solidifies, thereby forming renal stones or at least establishing a nidus for the formation of stones. Avicenna contends that the persistence of "morbid matter" in the urinary tract is instrumental in the formation of ghaliz madda (viscid matter). In Unani system of medicine the main aim of management for nephrolithiasis is to make morbid and abnormal humors easily extractible from the body through the excretory system.

This paper will deal with the literature, clinical aspect and management of the Nephrolithiasis in Unani System of Medicine

Keywords: Nephrolithiasis, morbid matter, Hippocrates, dietotherapy, Xanthine.

INTRODUCTION

Urinary stone constitute one of the commonest diseases in our country and pain due to kidney stones is known as worse than that of labour pain. Among all the pain, abdominal pain always drags not only patient's attention but also the curiosity of the surgeon. Most (75% to 80%) kidney stones are calcium stones, composed of calcium oxalate and/or calcium phosphate. These stones are generally associated with high concentration of calcium in the blood or urine [1]. Different symptoms due to the calculi are depended upon their size which ranges from few millimetres to the centimetres. Generally the stones below 5 mm size flush out automatically by the urinary tract. But the stones above 5 mm requires medical management otherwise it can lead to complications like severe pain, dysuria, haematuria etc.

Nephrolithiasis is one of the most common health problems that affect approximately 15 % population worldwide and about 2.3% population of India [2,3]. In India, approximately 5-7 million patients suffer from stone disease [4,5] and at least 1/1000 of Indian population needs hospitalization due to kidney stone disease. Thus, the disease is as widespread as it is old, particularly in countries with dry, hot climate [6]. Nephrolithiasis is more common in men (12%) than in women (6 %) with a peak incidence at 20-40 years of age in both sexes [7]. Hippocrates in the 4thcentury BC noted renal stones together with a renal abscess and wrote in the Hippocratic Oath "I will not cut the stone" [8]. This paper will deal with the literature, clinical aspect and management of the Nephrolithiasis in Unani System of Medicine.

UNANI CONCEPT OF NEPHROLITHIASIS (HISAT-E-KULYAH)

According to Ali Ibn-e-Abbas Majoosi (930-994 AD), when more concentrated humors and highly viscous fluid adhere to the calyces of kidney, thus these humors and fluid dried by the high virulent temperature to form crystal and after some time gradually becomes stone. Ibn Abbas al-Majusi mentions that renal calculi and gravel are due to shadid hararat (excessive heat) and khilt ghaliz. (sticky, viscid humor) in the body. The shadid Hararat causes the moisture within the khilt ghaliz to

evaporate, and the dried constituents form stones over a period of time. The formation of renal calculi or gravel depends on the viscosity of the khilt ghaliz, following interaction with shadid hararat. A moderate increase in viscosity results in the formation of gravel, which is not as hard as renal calculi and is slowly excreted from the urinary tract along with urine and forms sediments in the urine. However, a significant increase in viscosity results in the formation of very hard and large particles, which are not as readily excreted and combine to form renal calculi. The persistence of shadid hararat in the body and thus in the kidneys leads to hardening of the stones, when stones retain in the urinary tract for a long period of time[9].

According to Jaleenoos (Galen) renal stones are formed when rooh (gaseous matter) is trapped in the spaces of the kidney and consolidates to form hard substances. Another cause of renal calculi is ulceration of the kidney, in which pus accumulates and solidifies, thereby forming renal stones or at least establishing a nidus for the formation of stones[10]. Avicenna contends that the persistence of "morbid matter" in the urinary tract is instrumental in the formation of ghaliz madda (viscid matter).

Morbid matter is formed when a heavy diet is consumed; foods in such a diet include thick milk, paneer (cheese), fried meat, rice, flour and fruits that are not easily digested. These foods produce a thick, viscous matter in the body, especially in the state of zaufe quwwate hazima or weak digestive power, thereby forming khilt ghaleez and rooh which accumulate in the urinary tract. These accumulations remain in the kidney for a long time, as the kidney has weak expulsive power, which is further diminished in the conditions such as su-i mizaj e kulliya (abnormal temperament of the kidneys), warm-e –haar e kulliya or inflammation due to heat in the kidneys, or qarah-e -kulliya (ulceration of the kidneys). Hararat causes this morbid matter to transforms into gravel, which are either expelled through the kidneys or retained and converted into stones.

According to Ibn-e-Zohr (1091-1162 AD), when the kidney unable to excrete out the thick humors due to weakness, then these thick humors become deposited in the kidney as a result of layer by layer crystallizations to form stone[11].

TYPES OF RENAL CALCULI (HISAT–E-KULYAH)

According to the chemical constituents and their shapes renal calculi are divided into several types:

Type 1: Uric acid and Urates stone (Hisat-e-Bauliyah): This type of stone is round, oval with smooth surface. Their colour may varies from red to yellowish brown. On cross section round partitions are seen. Their size varies from poppy seeds to mustard. Sometimes it is bigger in size and mostly it is seen in acidic urine.

Type 2: Xanthine stones (Hisat - e- Layyinah): It is very rare. These stones are quite soft and small in size.

Type 3: Calcium oxalate stone (Hisate-Tootiyah): This type is very hard, blackish brown in colour. Their shape is irregular like shehtoot (Mulberry) .When it is small in size it is round, smooth and brownish. Usually found single in number.

Type 4: Cystine stone (Hisat-e-Zubaniyah): It is so called as when it is heated under specific conditions it melts like that of wax. It is found in alkaline urine and accumulates in the renal pelvis and renal tubules. It becomes bigger in size when it reaches in bladder. It forms crystals which is soft granular and whitish.

Type 5: Calcium phosphate stone (Hisat-e-Qaimooliyavi): These types of stones are white in colour, appear as a lump of mud and its surface is shiny and break down easily like mud lump. Its size may vary from pea to hen egg size.[12]

CLINICAL FEATURES

Many stones are asymptomatic and discovered during investigations for other conditions. Small urinary calculi pass out of the body without any clinical intervention[13].The spontaneous passage rates of urinary stones ranges between 70-98% for small (≤5 mm) distal ureteric calculi.[14] Stones greater than 5 mm almost always require urological intervention[15]The classical features of renal colic are sudden severe pain. It is usually caused by the stones in the kidney, renal pelvis or ureter, causing dilatation, stretching and spasm of the ureter. Pain starts in the loin about the level of the costovertebral angle. Typical symptoms of acute renal colic are intermittent colicky flank pain that may radiate to the lower abdomen or groin, often associated with nausea and vomiting [15,16]. Hematuria, pyuria and burning micturition may be present. Lower urinary tract symptoms such as dysuria, urgency, and frequency may occur as the stone enters the ureter.

MANAGEMENT OF NEPHROLITHIASIS

Intake of oral fluids should be increased, use of protein and salt in the diet should be restricted. The dosage of the alkalizing agent should be adjusted to maintain the urinary pH between 6.5 and 7.0 because of the potential deposition of calcium phosphate around the uric acid calculus. Pain killer and other medications can also be given to treat the symptoms of nausea and vomiting. Antibiotics may be used to eliminate any infection. Calcium channel blockers and adrenergic alpha antagonists and steroids are effective in enhancing the passage of urinary calculi.[17]Large calculi associated with unbearable pain can be treated with Ureteroscopy, Extracorporeal Shock Wave Lithotripsy (ESWL), Percutaneous Nephrostomy and surgery[17,18] Phytotherapy with medicinal plants is widely used worldwide as an alternative primary healthcare

MANAGEMENT OF NEPHROLITHIASIS IN UNANI SYSTEM

In Unani system of medicine the main aim of management for nephrolithiasis is to make morbid and abnormal humors easily extractible from the body through the excretory system.

It is broadly involved the three types of therapy as follows.

i) Dietotherapy (ilaj Bil-Ghiza)
ii) Regimental Therapy (Ilaj Bit-Tadbeer)
iii) Pharmacotherapy (Ilaj Bid-Dawa)

Ilaj Bil-Ghiza (Dietotherapy)

In this way of treatment, plenty of fluid and easily digestible foods like Aab-e-Naryal (coconut water), Jau (barley), Nashpati (pear), Magz-e-Badam (Almond), Gazar (carrot), Karela (bitter guard), Khushkari Nan (non-leavened chapati), Himsiyah (gram), Teehu, Choozah (chick), Qalb-e-Ghenam (goat's heart) and Asaafeer (sparrow) should be used[19,20].

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, Baigan (Brinjal) should be avoided. Hard and late digestible diets like milk, meat, mutton, Fateeri Roti, Maidah ki Roti, apple, guava, to be avoided[21,22].

Ilaj Bit-Tadbeer (Regimenal Therapy)

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, patient is instructed to vomit out and to use of mild Mushilat (Purgatives) like Sapistan (Cordia latifolia), Anjeer (Ficus carica), Aslussoos (Glycyrrhiza glabra), Khatmi (Althoea officinalis seed), Turanjabeen (Alhagi maurorum Baker Dexv / Alhagi pseudalhagi (Biedb.) Desv. /Alhagi camelorum) and Maghz-e-Amaltas (Cassia fistula)). Mudirrat (Diuretics) with such medicines not having excess hot temperament like 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 terristris), Persiya wa Shan (Adiantum capillus-vereris) also to be used.

Fasad (Venesection) should be done on Rag-e-Ba‟saleeq (Baselic Vein) when the severe pain arises, only if the patient has abundant blood.

Huqna (Enema) of Mulayyin & Muzliq (lauxative & emollient) like Tukhm-e-Khatmi (Althoea officinalis), Tukhm-e-Katan (Linum usitatissimum), Aspaghol (Plantago ovata Forsk.) as well as Murakhkhi wa Mudir (slackent & diuretic) like Khurfah (Portutaca oleracea Linn.), Bekh-e-Kibr (Capparis spinosa), Persiya wa Shan (Adiantum capillus-vereris) are advised to the patient in constipation.

If obstructive uropathy developed, Huqna (Enema) of Muzliq Lu‟aab (emollient mucilage) like Lu‟aab tukhme- Khatmi (Althoea officinalis), Lu‟aab Katan (Linum usitatissimum), Lu‟aab Hulbah (Trigonella foenumgraeceu), given to the patient, and Roghan-e-Badam (Almond Oil) with Maghz-e-Amaltas (Cassia fistula) orally also.

Aabzan (Sitz Bath) to relieve the pain, in the decoction containing Musakkin wa Murakhkhi (sedative & slackent) drugs such as Baboona (Maticaria chamomilla), Khatmi (Althoea officinalis), Shibt (Anethum sowa kutz.), Karafs (Apium graveolens), Persiya wa Shan (Adiantum capillus-vereris), Hulbah (Trigonella foenum-graeceu),, Qurtum (Carthamus tinctorius), Bekh-e-Kibr (Capparis spinosa), Aspaghol (Plantago ovata Forsk.), Khurfah (Portutaca oleracea), Banafshah (Viola odorata), Barg-e-Kunjad (Sesamum indicum Leaves) should be taken by the patient for a few period. If Mudirrat (diuretics) mixed with the above decoction, the effectiveness is much higher. After Aabzan (Sitz Bath) Roghan-e-Kheri, Roghan-e-Soya (Dill Oil), Roghan-e-Banafshah (Violet herb Oil) should be applied on groin of the patient locally.

Ilaj Bid-Dawa (Pharmacotherapy)

The recommended principles of treatment to control nephrolithiasis and to expel out the 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, are described below

1. Aalu Balu (Prunus cerasus Linn.),
2. Beekh-e-Neil(Ipomoea nil Linn.),
3. Beekh-e-Halyoon (Asparagus officinalis Linn.),
4. Beekh-e-Gh'ar (Prunus laurocerasusLinn.),
5. Charchatah (Achyranthes aspera Linn.),
6. Dooqu(Peucedanum graveolens C.B. Clarke.),
7. Habb-ul-Qilt(Dolichos biflorus Linn.),
8. Habb-e-Kaknaj (Physalisalkekengi Linn.)
9. Habb-e-Balsan (Commiphoraopobalsamum Linn.),
10. Habb-ul-Ghar (Prunuslaurocerasus Linn.),
11. Khar-e-khasak (Tribulus terrestrisLinn.),
12. Kukraundah (Blumea abalsamifera Linn. Dc.),
13. Persiya wa Shan (Adiantum capillus-veneris Linn),
14. Hajr-ul-Yahood (Lapis judaicus),
15. Jawakhar (Potassium carbonate),
16. Sang-e-Sarmahi (Fish stones),

Apart from this so many Advia-e-Murakkabah (Pharmacopeal Formulation Drugs) are also used in

treating renal calculi like Qurse Kaknaj , Kushtah Hajr-ul-Yahood , Majun Hajr-ul-Yahood, Majun Aqrab, Majun Sang-e-Sarmahi, Sharbat Alu Balu, Sharbat Buzoori Motadil, Jawarish Zaruooni Sada are also very effective .

CONCLUSION

The kidneys are very integral part of our body that perform the essential task of removing toxins and excess fluids from our body in form of urine. The undesirable effect of the modern medicine has already diverted the attention of the people towards herbal medicines. To increase the acceptability and awareness among the people, there is an urgent need to develop trust and faith towards the safer indigenous system by establishing its validity in treatment for various diseases. Unani Therapy can play a vital role in crushing the stone, excretion of crystals and prevention from reformation of stone in urinary system through decreasing the promoter level and increasing the inhibitor level. The Unani medicine has benefits of no side effects, economic nature, and no risk of long term use. Health care systems are going to become more and more expensive, therefore we have to introduce unani medicine systems in our health care. Let us hope that in future natural products will be competing modern medicines with added advantages of more safety and lower costs.

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